

INCREASING INTELLIGENCE, SURVEILLANCE, AND RECONNAISSANCE (ISR)
OPERATIONAL AGILITY THROUGH MISSION COMMAND

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fulfillment of the requirements for the
degree

MASTER OF MILITARY ART AND SCIENCE
Joint Planning Studies

by

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ABSTRACT

INCREASING INTELLIGENCE, SURVEILLANCE, AND RECONNAISSANCE (ISR) OPERATIONAL AGILITY THROUGH MISSION COMMAND, by Major Ryan D. Skaggs, 147 pages.

This thesis examines if applying the six principles of the United States Army's mission command philosophy would improve the agility of Joint intelligence, surveillance, and reconnaissance (ISR) at the operational level. The six principles are building cohesive teams through mutual trust, shared understanding, clear commander's intent, mission orders, disciplined initiative, and accepting prudent risk. The study employs a qualitative research design utilizing an inductive logic approach with a meta-analysis research methodology to create a series of increasingly strong and logically cogent inductive arguments. The full body of literature paired with the meta-analysis provides sufficient evidence to support a direct relationship between mission command and ISR agility. Therefore, changes in the amount of mission command within a given environment will likely result in comparable changes within the level of ISR agility. The resulting analysis is applied to a representative operational example within the South Caucasus region in order to discuss mission command's potential in increasing ISR agility in a real-world context. The research concludes with a series of recommendations at the unclassified level regarding the application of mission command philosophy to Joint ISR doctrine in order to improve Joint ISR's agility at the operational level.

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ACRONYMS

ADRP	Army Doctrine Reference Publication
BCT	Brigade Combat Team
C2	Command and Control
CFACC	Combined Force Air Component Commander
CGSC	Command and General Staff College
CJCS	Chairmen of the Joint Chiefs of Staff
CMA	Collection Management Authority
COIN	Counterinsurgency
COM	Collections Operations Management
CONOP	Concept of Operations
CRM	Collections Requirements Management
DOD	Department of Defense
FDO	Flexible Deterrent Options
GAAT	Georgia, Azerbaijan, Armenia, and Turkey
GFM	Global Force Management
GIO	Globally Integrated Operations
HQ DA	Headquarters, Department of the Army
HQ DMC	Headquarters, Department of the Marine Corps
I&W	Indications and Warning
ISR	Intelligence, Surveillance, and Reconnaissance
JCS	Joint Chiefs of Staff
JCS DTD	Joint Chiefs of Staff Deployable Training Division
JFACC	Joint Force Air Component Commander

JFC	Joint Force Commander
JP	Joint Publication
LNO	Liaison Officer
MTO	Mission Type Order
NMS	National Military Strategy
PED	Processing, Exploitation, and Dissemination
RAND	Research and Development
TRADOC	Training and Doctrine Command
TTPs	Tactics, Techniques, and Procedures
US	United States
USAF	United States Air Force
US DOD	United States Department of Defense
US JFC	United States Joint Forces Command

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CHAPTER 1

INTRODUCTION

Overview

There is nothing more necessary than good intelligence to frustrate a designing enemy, and nothing that requires greater pains to obtain.

— George Washington

The current Joint Force of ISR personnel, sensors, platforms, and networks is so vast, diverse, and distributed that managing their effective employment represents a large and growing challenge for the Department of Defense. . . . The development of ISR Joint Force 2020 should create effective Joint ISR management processes and structures to improve operational effectiveness, unity of effort, and return on investment.

— General Martin E. Dempsey, *Joint Force 2020 ISR White Paper*

United States (U.S.) national level strategy documents collectively emphasize the current and future complex and unpredictable global security environment. The National Intelligence Council published a study citing megatrends and tectonic shifts such as individual empowerment, international diffusion of power, shifting demographic patterns, and increased competition for food, water, and energy that will create security challenges that will shape the world of 2030 (National Intel Council 2012, iii-v). Technology enables the diffusion of power and influence traditionally monopolized by the state to super-powered individuals and non-state actors who can influence and project power worldwide (National Intel Council 2012, iii). The sum of these trends creates a situation where international disorder is increasing while the U.S. government's power and comparative military advantage is eroding (CJCS 2015, 1).

The response to a complex and unpredictable security environment is a Joint Force that globally integrates operations through the employment of mission command;

develops creative, adaptive, and innovative leaders; and is globally agile. In the 2010 *Capstone Concept for Joint Operations*, globally integrated operations (GIO) is the overarching concept on how the Joint Force will prepare for the challenging security environment (CJCS 2012a, 4). The strength of the U.S. military is its ability to quickly combine capabilities and project power worldwide across all domains. The GIO concept seeks to advance and amplify how the Joint Force increases its capabilities against future threats (CJCS 2012a, 4).

A key element to enable the GIO is the mission command philosophy. Commanders employing the mission command philosophy provide clear guidance and their forces are entrusted to apply disciplined initiative in a decentralized manner as a situation unfolds. Mission command is “the most appropriate command philosophy for the increasingly uncertain future environment because it empowers individuals to exercise judgment in how they carry out their assigned tasks” (CJCS 2012a, 4). Using mission command across the Joint Force requires the investment and development of creative, adaptive, and innovative leaders to employ mission command. The 2015 *National Military Strategy* (NMS) calls for “greater agility, innovation, and integration” (CJCS 2015, i) in order to “rapidly adapt to new threats while maintaining comparative advantage over traditional ones” (CJCS 2015, i). Considering the current fiscal reality, the majority of joint advancement will focus on investing in the development of military professionals and creative, adaptive, and innovative leaders (CJCS 2015, 13-15).

GIO with leaders employing mission command will enable a Joint Force that is more agile and adaptable. Joint forces can project combat power quickly from a combination of forward deployed locations, cyber effects, and strike capabilities on a

global scale (CJCS 2012a, 5). Additionally, resources shift across combatant commanders as priorities dictate resulting in a “more agile Joint Force able to aggregate, reconfigure, and disaggregate as required” (CJCS 2012a, 5). In addition to the joint focus, every service has produced visions, concepts, and doctrine that focus on adaptive leaders who can thrive in complexity and lead more agile Joint Force through the exercise of mission command.

The key enabler for GIO across the Joint Force is ISR. Joint Publication (JP) 1-0, identifies intelligence as one of the critical functions necessary to synchronize and integrate joint operations and achieve unity of effort (US DOD 2013a, I-18). While ISR continues to serve as the foundation for joint operations, the importance of ISR in a complex and unpredictable international security environment cannot be overstated. ISR enables creative, adaptive, and innovative leaders to understand and visualize the operational environment and make accurate and timely decisions.

Globally agile forces require an ISR force that is even more globally agile, present, and responsive in order to identify opportunities in time to exploit them. However, the Joint Force 2020 ISR White Paper signed by Chairmen of the Joint Chiefs of Staff (CJCS), General Dempsey, identifies continued challenges posed by the disjointed management of the ISR force from the strategic to the operational level of war.

Currently, ISR sensor and processing, exploitation, and dissemination (PED) requirements and associated resources (systems, software, and people) are managed separately, resulting in mismatches in collection, processing, and analysis capacities. In order to streamline these capabilities, we should review and modify the management of ISR sensor and PED requirements within the [global force management (GFM)] process to ensure they are appropriately synchronized and prioritized. Furthermore, policy and doctrine should be updated to reflect that finite ISR capabilities can be rapidly re-missioned across [combatant command] boundaries, thereby maximizing the employment of scarce resources. This will

demand increased rigor in deliberate planning to optimize ISR assignment, apportionment, and allocation decisions. (CJCS 2014, 6)

Since 2001, ISR capacity and capability has exponentially increased through the introduction of a vast array of sensors, platforms, and systems to assist operational level commanders in building and maintaining situational awareness (CJCS 2014, 1-2). In spite of the exponential growth, user demand has continued to outpace the Joint Force's capacity. Considering the continuing fiscal realities, the Joint Force will need to use their limited ISR assets more agilely and precisely to ensure that the right information is collected at the right time while not burying users in data (CJCS 2014, 1). Despite the recognized need for operational agility, Joint ISR processes for "intelligence planning, GFM, and collection management processes" (CJCS 2014, 8) continue to require increased agility to anticipate operations in this complex world.

The primary purpose of this research paper is to explore the potential relationship between the mission command philosophy and ISR agility. Mission command enables operationally agility through subordinates employing disciplined initiative to exploit opportunities as they arise. If mission command is the preferred and most appropriate command philosophy for Joint Force operations (CJCS 2012a, 4) then its potential for increasing agility within Joint ISR planning and management processes at the operational level should be explored. The study will employ a qualitative research design that utilizes an inductive logic approach with a meta-analysis research methodology. In addition, the Cynefin framework is used as a model to understand how contextual complexity should influence leadership styles (Kurtz 2003, 468). The resulting analysis is applied to a representative operational example of the Georgia, Azerbaijan, Armenia, and Turkey (GAAT) scenario in order to discuss mission command's potential in increasing

operational agility in a real-world context. The objective of this research is to make recommendations at the unclassified level regarding the application of mission command philosophy to Joint ISR doctrine in order to improve Joint ISR's agility at the operational level.

Primary Research Question

How would applying the six principles of the U.S. Army mission command philosophy change Joint ISR doctrine and collection operations to be more operationally agile? The six principles of mission command are building cohesive teams through mutual trust, creating shared understanding, providing clear commander's intent, using mission orders, exercising disciplined initiative, and accepting prudent risk (HQ DA, 2012b, 1-3).

Secondary Research Questions

1. What are the limitations of current Joint ISR Doctrine?
2. Should ISR be managed or led?
3. What is ISR agility and why do we need it?
4. What would Joint ISR collection look like with a mission command philosophy lens?

Thesis

Joint ISR's agility at the operational level could be improved by applying the six principles of the U.S. Army's mission command philosophy to Joint ISR Doctrine. The six principles of mission command are building cohesive teams through mutual trust,

creating shared understanding, providing clear commander's intent, using mission orders, exercising disciplined initiative, and accepting prudent risk.

Assumptions

First, while mission command is identified as the preferred philosophy, it may not always be the most appropriate when the priority is about the synchronization of resources (CJCS 2012a, 5). An argument could be made that Joint ISR processes focusing on maximizing efficiency over effectiveness may fall into this category. Since ISR is a term that integrates both intelligence and operations and since Joint ISR processes seek to maximize the efficiency and effectiveness of the limited assets, the assumption is that mission command philosophy is appropriate to apply to Joint ISR at some level.

Second, the exercise of mission command encompasses the mission command philosophy and mission command as a warfighting function (HQ DA 2012b, 1-1). The author assumes that the mission command philosophy, as guided by the six principles of mission command, is sufficient to address this study. As such, when mission command is used within this study it is only referring to the mission command philosophy guided by the six principles of mission command.

Definition of Terms

The key terms that require definition are ISR, U.S. Army mission command, joint intelligence process, collection management, GFM, and agility. With the exception of mission command, the standardized joint doctrinal definitions are utilized in order to reduce doctrinal differences between the military services. While the literature review

will discuss the services' perspectives on mission command, the U.S. Army's definition of mission command is the most complete and forms the independent variable of the study. Many of the terms are processes within processes, or mean different things depending on the context. Defining these terms will establish a common frame of reference throughout the study.

JP 1-02 defines ISR as, "an activity that synchronizes and integrates the planning and operation of sensors, assets, and processing, exploitation, and dissemination systems in direct support of current and future operations. This is an integrated intelligence and operations function" (US DOD 2015, 118). This definition is preferable as it considers both the intelligence related and operational processes. Throughout this study, ISR is used in the context of an integrated intelligence and operations process.

Army Doctrine Reference Publication (ADRP) 6-0 defines mission command as the "exercise of authority and direction by the commander using mission orders to enable disciplined initiative within the commander's intent to empower agile and adaptive leaders in the conduct of unified land operations" (HQ DA 2012b, 1-1). The U.S. Army approaches mission command as both a warfighting function and a philosophy guided by the six principles of command. The six principles of mission command are building cohesive teams through mutual trust, creating shared understanding, providing clear commander's intent, using mission orders, exercising disciplined initiative, and accepting prudent risk (HQ DA 2012b, 1-3). Core to the mission command philosophy is the exercise of disciplined initiative by subordinates who, provided a clear commander's intent, are trusted to execute in a decentralized manner and exploit opportunities as a situation unfolds (HQ DA 2012b, 1-2).

JP 2-0 defines the joint intelligence process as:

Six interrelated categories of intelligence operations characterized by broad activities conducted by intelligence staffs and organizations for the purpose of providing commanders and national-level decision makers with relevant and timely intelligence. The six categories of intelligence operations are: planning and direction; collection; processing and exploitation; analysis and production; dissemination and integration; and evaluation and feedback. In many situations, various intelligence operations occur almost simultaneously or may be bypassed. . . . Additionally, the activities within each type of intelligence operation are conducted continuously and in conjunction with activities in each intelligence operation category. (US DOD 2013b, I-5)

When discussing the various intelligence processes, joint intelligence processes are typically categorized into overarching types of activities (see figure 1) to provide a common language to communicate mission requirements (US DOD 2013b, I-5). In order to scope the study, delimitations are applied below to focus on the planning and direction and evaluation and feedback categories.

JP 2-0 defines collection management as:

The process of converting intelligence-related information requirements into collection requirements, establishing priorities, tasking or coordinating with appropriate collection sources or agencies, monitoring results, and re-tasking, as required. Anchored on the appropriate collection management authority (CMA), collection management is composed of two components, collection requirements management (CRM) and collection operations management (COM).

CRM is the authoritative development and control of collection, processing, exploitation, and information reporting requirements. This process normally results with the collection manager either tasking requirements to units over which the commander has authority, or generating requests to CMAs at a higher, lower, or lateral echelons to accomplish the collection mission.

COM is the authoritative direction, scheduling, and control of specific collection operations and associated processing, exploitation, and information reporting resources. This includes the selection and tasking of specific assets and sensors. The collection operations manager synchronizes the timing of collection with the operational scheme of maneuver and with other intelligence operations such as processing and exploitation, analysis and production, and dissemination. (US DOD 2013b, I-13-14)

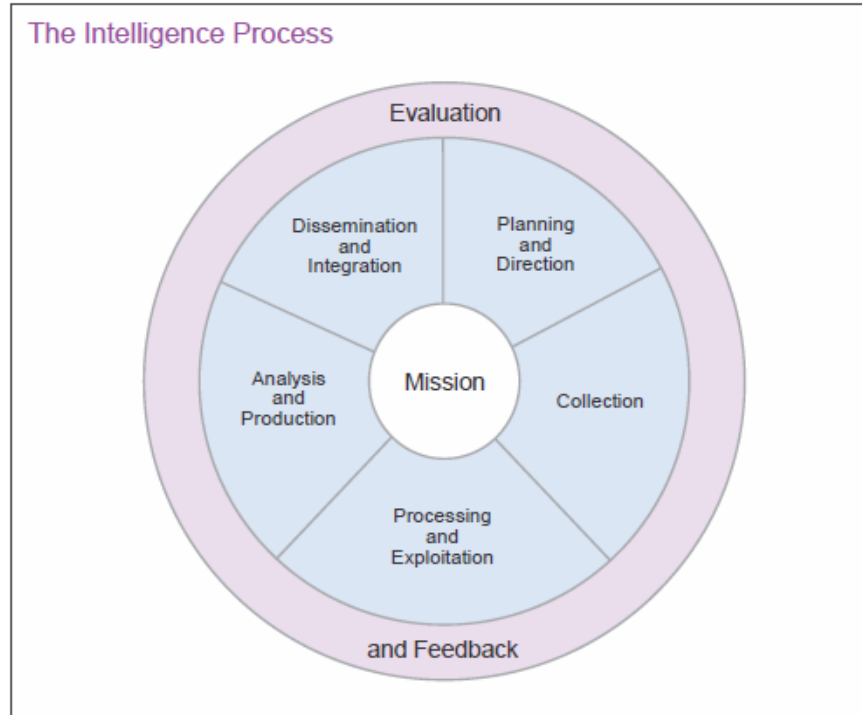


Figure 1. The Joint Intelligence Process

Source: United States Department of Defense (US DOD), Joint Publication 2-0, *Joint Intelligence* (Washington, DC: CJCS, 2013), 1-6, accessed September 20, 2015, http://www.dtic.mil/doctrine/new_pubs/jointpub_intelligence.htm.

JP 1-02 defines GFM as a “process to align assignment, allocation, and apportionment of forces to combatant commanders in support of the national defense strategy and Joint Force availability requirements” (US DOD 2015, 99). When referencing ISR, the GFM process is a critical process between the strategic and operational levels of war where the Secretary of Defense allocates ISR resources to the combatant commanders based upon the “National Intelligence Priorities Framework established by the Director of National Intelligence (DNI) and should be consistent with [defense] priorities and combatant commander priority intelligence requirements” (US DOD 2013b, II-6).

Agility is primarily used as a descriptor in joint doctrine. However, in JP 2-0 agility is recognized as a principle of joint intelligence and is defined as the “ability to quickly shift focus and bring to bear the skill sets necessary to address the new problem at hand while simultaneously continuing critical preexisting work” (US DOD 2013b, II-10). Agility includes aspects of preparation, anticipation, and readiness. Preparation includes planning for contingencies and adversary actions; intelligence professionals must anticipate future requirements operational requirements; and intelligence must be ready to support commanders regardless of the conditions in the operating environment (US DOD 2013b, II-10-11).

Limitations

The primary limitation for this study will be the classification of sources. In order to keep the study as accessible as possible, this study will restrict resources and analysis to the unclassified level. This will restrict the material available for review and will limit the resulting recommendations. These limitations are offset by the benefit of access and availability.

Delimitations

The author is utilizing the following delimitations in order to the study to limit the scope of the study:

First, the U.S. Army’s approach to mission command includes mission command as a philosophy and mission command as a warfighting function. This study will only concentrate on the mission command philosophy as outlined in ADRP 6-0, *Mission Command*.

Second, multiple studies have focused on the impact that proprietary systems, networks, protocols, and data formats have had on Joint Force interoperability, and have added duplicative processes and complexity. This study will not address the challenges or need for Joint ISR acquisition, data standards, platforms, sensors, or systems.

Third, there are multiple joint intelligence processes across the strategic, operational, and tactical levels. It would not be possible to cover all joint processes across all levels of war in this study; therefore this study will restrict analysis to the joint intelligence processes of planning and direction, and evaluation and feedback; GFM; and collection management identified by the CJCS ISR White Paper. These processes primarily operate between the strategic and operational levels of war.

Significance and Conclusion

A more agile force requires a more agile ISR enterprise that can gain and maintain situational awareness and help the commander understand the battlespace gaining information superiority. With fewer resources and increased demands from complex and unpredictable global environment, the CJCS is challenging joint and service leaders to adopt and develop more creative, agile, and innovative leadership through employing mission command. However, Joint ISR is saturated with process management through the assignment, apportionment, and allocation decisions of finite resources tightly controlled by senior Department of Defense (DOD) leadership (CJCS 2014, 1).

Integrating mission command into Joint ISR could break the processes management paradigm by using the commander's intent as the unifying vehicle to gain, maintain, and exploit the initiative in a complex environment. Instead of ISR operators receiving a collection deck of 500 targets that may or may not be relevant or

synchronized with the maneuver component; Joint ISR operators share a common understanding of the situation, and are trusted to execute disciplined initiative to enable the supported commander to understand and visualize the environment and employ decisive effects across the battlefield. Tasking would change from discrete targets to task and purpose in line with the overall commander's intent. The recent conflicts in Iraq and Afghanistan have witnessed innovation in practice as Joint ISR has struggled against the existing system to deliver the agility required by the maneuver component. Mission command offers the potential to realize a tangible increase in the overall system agility for Joint ISR and therefore the Joint Force as a whole.

In the *Joint Force 2020 White Paper* on ISR, the CJCS identified the need for updated policy and doctrine to maximize the rapid and agile employment of finite ISR assets (CJCS 2014, 6). This research aims to fill that void. This qualitative research seeks to enhance, understand, and offer recommendations on how mission command would improve the operational agility of Joint ISR. A visualization roadmap of the research is provided in figure 2. The resulting analysis would better enable the Joint Force's concept for GIO by increasing agility to face security challenges posed by a complex and unpredictable global environment.

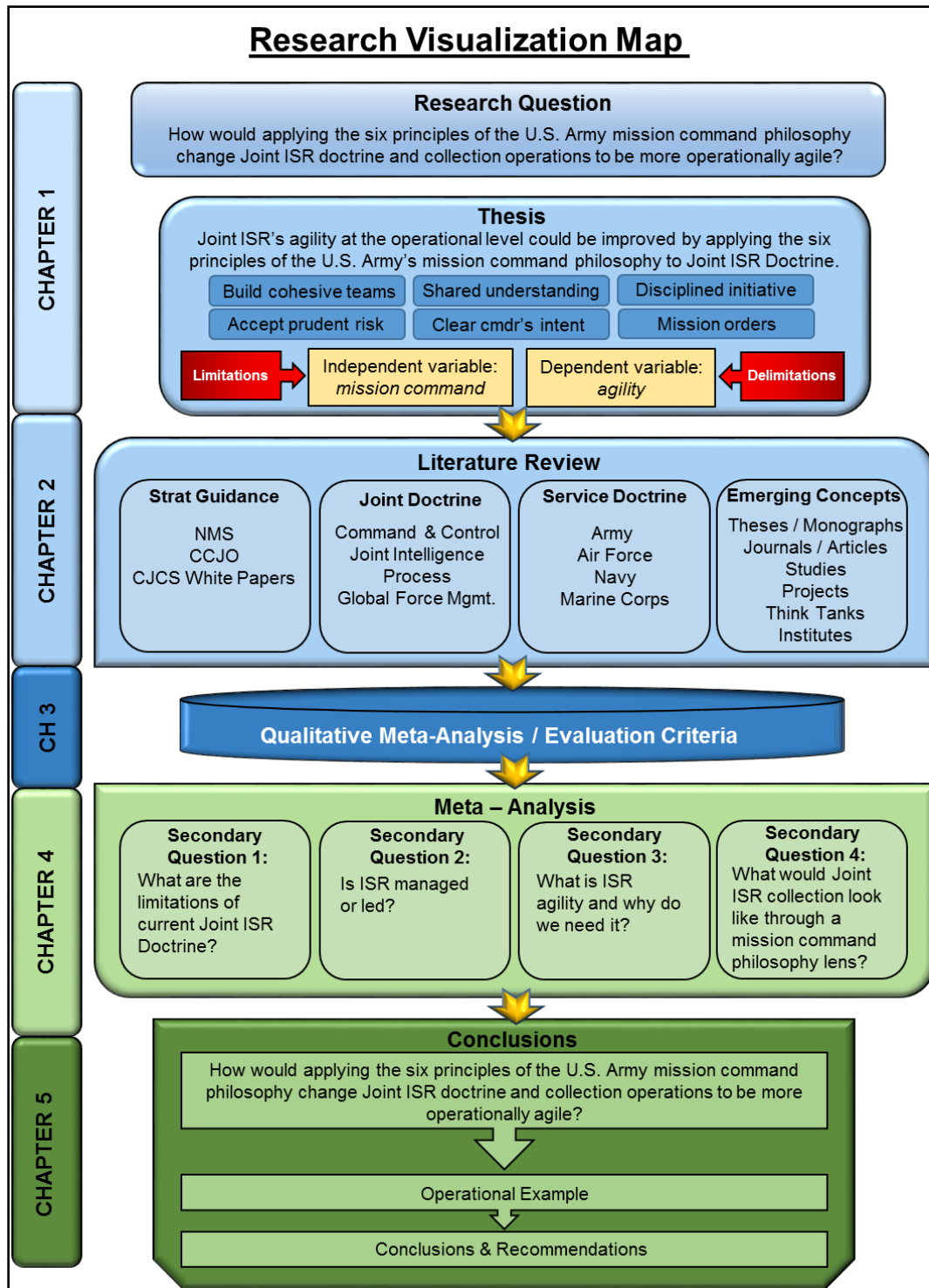


Figure 2. Research Visualization Roadmap

Source: Created by author.

CHAPTER 2

LITERATURE REVIEW

Introduction

The printing press is the greatest weapon in the armory of the modern commander.

— T.E. Lawrence

The purpose of this research is to explore if Joint ISR's agility at the operational level could be improved by applying the six principles of the U.S. Army's mission command philosophy to Joint ISR Doctrine. The six principles of mission command are building cohesive teams through mutual trust, creating shared understanding, providing a clear commander's intent, using mission orders, exercising disciplined initiative, and accepting prudent risk (HQ DA 2012b, 1-3). Specifically, the research's objective is to make a series of recommendations to improve Joint ISR's agility at the operational level. The resulting analysis will better enable the Joint Force's concept for GIO by increasing ISR agility to face security challenges posed by a complex and unpredictable global environment.

Chapter Organization

This literature review is organized into four sections. The first section addresses the strategic guidance behind the Joint Force's concept for GIO and the adoption and development of more creative, agile, and innovative leadership by employing mission command. The reader requires this literature in order to understand the need for increased agility to face the security challenges posed by a complex and unpredictable global environment. The second section outlines the current joint doctrine associated with

mission command, the joint intelligence processes, GFM, and collection management. The third section frames the respective services doctrinal perspectives on mission command and the joint intelligence processes addressed in the previous section. The reader requires this literature to understand the joint intelligence processes issues identified by the CJCS ISR White Paper and the areas of convergence and divergence from the services. Finally, the fourth section discusses the relevant emerging concepts contained within peer reviewed articles, research papers, and studies. The study will employ a qualitative research design that utilizes an inductive logic approach with a meta-analysis research methodology. The resulting analysis is applied to a representative operational example in the South Caucasus region in order to discuss mission command's potential in increasing operational agility in a real-world context. Readers require this context in order to understand the current body of knowledge and ISR theory available at the unclassified level.

Strategic Guidance

In the 2015 *NMS of the United States of America*, Gen. Martin Dempsey calls today's global security environment, "the most unpredictable I have seen in 40 years of service. . . global disorder has significantly increased while some of our military comparative advantage has begun to erode" (CJCS 2015, i). However, complexity and unpredictability has characterized the global security environment since General Colin Powell signed the 1992 NMS (CJCS 1992, 1-2). The increasing rate of technological change continues to erode U.S. advantages as sources of power and capabilities once monopolized by the state diffuse across multiple non-state or sub-state groups. As the global security environment becomes even more complex and more unpredictable, the

NMS emphasizes the need for “greater agility, innovation, and integration” (CJCS 2015, i) across the Joint Force to advance and protect national security needs. A globally complex and unpredictable security environment requires a globally integrated Joint Force that is able to project agile and decisive combat power (CJCS 2015, 10). Achieving a globally integrated force requires the Joint Force to invest in initiatives to develop innovative leaders who can operate in complexity, capture innovation and efficiencies that improve agility, and pursue effective programs to sustain our quality edge (CJCS 2015, 13-17).

The 2012 *Capstone Concept for Joint Operations: Joint Force 2020* by the CJCS further articulates the GIO vision to guide the development of the future force required to meet the nation’s security challenges (CJCS 2012a, iii-1). GIO calls for a “globally postured Joint Force [that can] quickly combine capabilities with itself and mission partners across domains, echelons, geographic boundaries, and organizational affiliations” (CJCS 2012a, 4). GIO contains eight overall elements to focus Joint Force development (see table 1 for the elements of GIO). Fundamentally, global integration seeks to achieve higher levels of effectiveness by integrating emerging capabilities such as special operations, cyber, and ISR with new fighting methods for increasing the agility and flexibility of the Joint Force (CJCS 2012a, 4).

Table 1. Elements of Globally Integrated Operations (GIO)	
Element	Description
Mission Command	Mission command is the most appropriate command philosophy for the increasingly uncertain future environment because it empowers individuals to exercise judgment in how they carry out their assigned tasks.
Seize, retain and exploit the initiative	Building on the command philosophy of mission command, developing leaders with the ability to understand the environment, visualize operational solutions, and provide decisive direction will be essential to mission success.
Global agility	More nimble command and control (C2) will also allow resources to be allocated, shifted, and de-conflicted more fluidly among combatant commanders as strategic priorities evolve. The result is a more agile Joint Force able to aggregate, reconfigure, and disaggregate as required.
Partnering	The complex security challenges of the future almost invariably will require more than the military instrument of national power. Joint Forces must be able to integrate effectively with U.S. governmental agencies, partner militaries, and indigenous and regional stakeholders.
Flexibility in establishing Joint Forces	In the years to come, security challenges are less likely to correspond with, or even approximate, existing geographic or functional divisions . . . the intent is to explore hybrid command arrangements that provide greater flexibility in how Joint Forces accomplish their mission.
Cross-domain synergy	While the U.S. military maintains unique advantages in every domain, it is our ability to project force across domains that so often generates our decisive advantage. . . it should become a core operating concept in all joint operations.
Use of flexible, low-signature capabilities	Flexible, low-signature or small-footprint capabilities such as cyberspace, space, special operations, global strike, and ISR will play more pronounced roles in future joint operations. . . these flexible, low-signature capabilities across the force has the potential to dramatically increase the effectiveness of other standing capabilities.
Increasingly discriminate to minimize unintended consequences	In the saturated information environment of tomorrow, even minor lapses in conduct or the application of fires could seriously damage the international reputation of the United States. Military force can be applied overwhelmingly and broadly, but its effects must be limited as much as possible to the intended targets.

Source: Chairmen of the Joint Chiefs of Staff (CJCS), *Capstone Concept for Joint Operations: Joint Force 2020* (Washington, DC: Headquarters, Joint Chiefs of Staff, 2012), 4-7.

In 2012, General Martin Dempsey published the *Mission Command White Paper* to detail the Joint Force's need to "pursue, instill, and foster mission command is critical to our future success in defending the nation an increasingly complex and uncertain environment" (CJCS 2012b, 3). The basic principles of commander's intent, the use of mission orders, and decentralized execution will become increasingly important as the Joint Force moves to "smaller, lighter forces . . . that require the freedom of action to develop the situation and rapidly exploit opportunities" (CJCS 2012b, 3). Commanders must understand and visualize the environment, develop and communicate their intent, and trust and empower their subordinates to apply initiative to complex and changing circumstances (CJCS 2012b, 5-6). As the environment becomes more dynamic, mission command is the critical capability that will enable the future force to act rapidly and exploit opportunities. General Dempsey called on the Joint Force to institutionalize and operationalize mission command into all aspects of doctrine, education, training, leader development, and force management processes (CJCS 2012b, 6).

In 2014, the CJCS produced the *ISR Joint Force 2020 White Paper* to highlight the increasing importance of ISR to the Joint Force. ISR was previously identified as one of the eight key elements of the chairman's global integrated operations concept in the Capstone Concept for Joint Operations guidance document. Over the last decade, the exponential growth in ISR has fundamentally changed the way the Joint Force maintains situational awareness, preserves decision superiority, and conducts operations in a complex and unpredictable environment (CJCS 2014, 1). However, the continuing challenge is to provide decision-quality fused intelligence to the commander while avoiding burying users in data (CJCS 2014, 1). To this end, the disjointed management of

the ISR force is identified as one of the four major and continuing challenges for the Joint Force to address:

The current Joint Force of ISR personnel, sensors, platforms, and networks is so vast, diverse, and distributed that managing their effective employment represents a large and growing challenge for the Department of Defense. This challenge is further complicated by the rapid growth of the geographically dispersed DOD reachback PED enterprise, government-owned/contractor-operated systems, contractor-owned and -operated systems, Service- organic assets, non-program of record systems, and a new generation of combat sensors that feed the common operational and intelligence pictures. The development of ISR Joint Force 2020 should create effective Joint ISR management processes and structures to improve operational effectiveness, unity of effort, and return on investment. (CJCS 2014, 3)

Effectively managing the Joint ISR force requires reviewing and revising policy and doctrine for the GFM, intelligence planning, and collections management processes (CJCS 2014, 6). Addressing the gaps within these processes will maximize the employment and agility of scarce resources by optimizing ISR assignment, apportionment, and allocation decisions to enable future successful GIO.

Joint Doctrine

This section of the literature review outlines the current joint doctrine associated with mission command, the joint intelligence processes, GFM, and collection management in the context of joint operations.

Command and Control (C2)

JP 1-0, *Doctrine for the Armed forces of the U.S.*, details the importance of C2 to enhance the “commander’s ability to make sound and timely decisions and successfully execute them . . . through decentralized execution of centralized, overarching plans or via

mission command” (US DOD 2013a, V-14). Mission command is described as the decentralized execution of military operations by:

Empower[ing] individuals to exercise judgment in how they carry out their assigned tasks and it exploits the human element in joint operations, emphasizing trust, force of will, initiative, judgment, and creativity. Successful mission command demands that subordinate leaders at all echelons exercise disciplined initiative and act aggressively and independently to accomplish the mission. They focus their orders on the purpose of the operation rather than on the details of how to perform assigned tasks. They delegate decisions to subordinates wherever possible, which minimizes detailed control and empowers subordinates’ initiative to make decisions based on understanding what the commander wants rather than on constant communications. (US DOD 2013a, V-15)

Central to mission command is the understanding of the commander’s intent, the use of mission-type orders, and mutual trust. The commander’s intent is a clear and concise description of an operation’s purpose and military end state and “represents a unifying idea that allows decentralized execution within centralized, overarching guidance” (US DOD 2013a, V-15). Mission-type orders provide subordinates with a narrative of the task(s) and purpose of the mission while leaving the details of execution to the subordinate (US DOD 2013a, V-15). Trusted subordinates are provided the “the freedom and the obligation to take whatever steps are necessary to deal with the changing situation while encouraging initiative at lower levels” (US DOD 2013a, V-15). When supported with an overarching command climate of mutual trust, mission command enhances a commander’s options, truncates decision cycles, and increases operational agility as subordinates seek to exploit emerging opportunities while operating within the commander’s intent (US DOD 2013a, V-17).

JP 3-0, *Joint Operations*, is a cornerstone document that provides guidance to force regarding fundamental principles and constructs to plan, prepare, execute, and assess joint military operations (US DOD 2011a, I-1). Underlying successful joint

operations are overarching precepts that guide the employment of forces in a complex environment, and include the need for unified effort, integration of joint capabilities, maintaining flexibility, planning and managing operational transitions, and driving synergy to the lowest echelon (US DOD 2011a, I-2-3). Commanders and staffs employ operational art and design to “design strategies, campaigns, and major operations and organize and employ military forces” (US DOD 2011a, II-3). Design integrates and synchronizes the joint functions by facilitating a common understanding the mission, commander’s intent, and the operational approach to reach the desired end state (US DOD 2011a, II-6-9). This common understanding, coordination, and cooperation among forces in pursuit of a common purpose creates unity of effort within the Joint Force (US DOD 2011a, A2).

Through the art of command, commanders maximize operational performance through the use of situational leadership, and “exercise command authority through visualization, decision making, and leadership” (US DOD 2011a, II-1). Command is enabled through the effective use of ISR to understand the environment and analyze the adversary in order to achieve information superiority and make decisions more rapidly than the enemy (US DOD 2011a, III-20). Commanders are responsible for establishing requirements, prioritizing, and ensuring that “intelligence is fully integrated into their plans and operations” (US DOD 2011a, III-21). Commanders use their resources to accomplish the assigned missions. Depending on the underlying context, military operations and tasks can vary wildly and require the commander to balance offensive, defensive, and stability operations (US DOD 2011a, V-35-36). Balancing and transitioning between offensive, defensive, and stability tasks (see figure 3) requires

commanders and staffs to consider all phases of the operation required to achieve the desired end state.

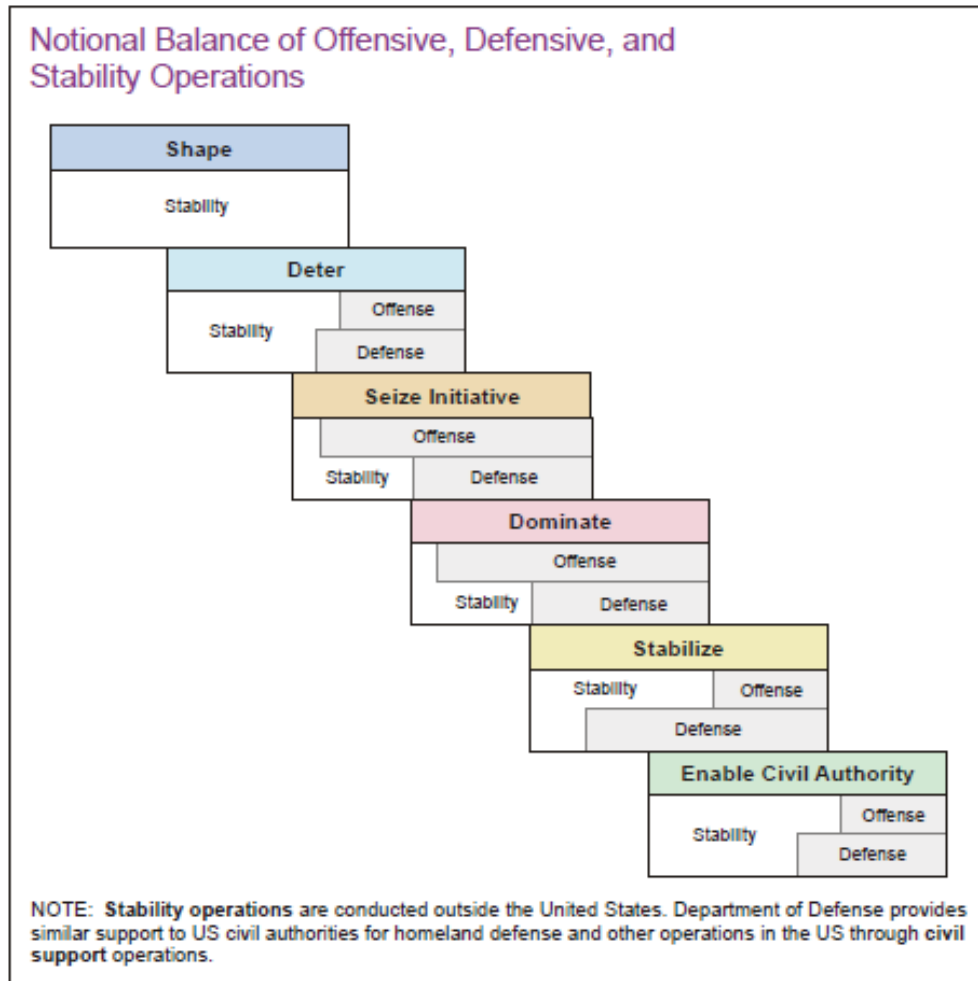


Figure 3. Notional Balance between Offensive, Defensive, and Stability Operations

Source: United States Department of Defense (US DOD), Joint Publication 3-0, *Joint Operations* (Washington, DC: CJCS, 2011), V-36, accessed September 20, 2015, http://www.dtic.mil/doctrine/new_pubs/jointpub_operations.htm.

Joint Intelligence Processes

JP 2-0, *Joint Intelligence*, is a seminal document that details the nature and principles of intelligence, outlines joint intelligence processes and organizations, and explains intelligence support to all aspects of joint operations. Guided by a set of overarching principles (figure 4), joint intelligence's primary mission is to "provide information and assessments to facilitate mission accomplishment" (US DOD 2013b, I-3). Synchronization, unity of effort, and agility are joint intelligence principles of particular interest for this study. Synchronization brings intelligence and operations together in order to facilitate the commander's decision making cycle (US DOD 2013b, II-2). Unity of effort optimizes intelligence through "centralized planning and direction and decentralized execution of intelligence operations, which enables Joint Force Commanders (JFCs) to apply all available collection capabilities and PED systems, efficiently and effectively" (US DOD 2013b, II-4-5). Lastly, intelligence agility is:

The ability to quickly shift focus and bring to bear the skill sets necessary to address the new problem at hand while simultaneously continuing critical preexisting work. Intelligence structures, methodologies, databases, products, and personnel should be sufficiently agile and flexible to meet changing operational situations, needs, priorities, and opportunities. Whether due to military contingencies or diplomatic and/or political challenges, sudden changes in the OE and requirements of intelligence consumers allow little reaction and recovery time. Therefore, the key to successful agility is preparation and organization for all contingencies well in advance. Maintaining responsiveness under such circumstances requires considerable vigilance and foresight. Intelligence professionals must anticipate not only the future decisions of adversaries, but of intelligence consumers as well. (US DOD 2013b, II-10)

Intelligence agility is dependent upon preparation, anticipation, and readiness.

Intelligence professionals must prepare and plan for contingencies, anticipate future operational requirements, and be continually ready to support the commander's decision cycle (US DOD 2013b, II-10-11).

Principles of Joint Intelligence

- Perspective (Think like the adversary.)
- Synchronization (Synchronize intelligence with plans and operations.)
- Integrity (Remain intellectually honest.)
- Unity of Effort (Cooperate to achieve a common end state.)
- Prioritization (Prioritize requirements based on commander's guidance.)
- Excellence (Strive to achieve the highest standards of quality.)
- Prediction (Accept the risk of predicting adversary intentions.)
- Agility (Remain flexible and adapt to changing situations.)
- Collaboration (Leverage expertise of diverse analytic resources.)
- Fusion (Exploit all sources of information and intelligence.)

Figure 4. Principles of Joint Intelligence

Source: United States Department of Defense (US DOD), Joint Publication 2-0, *Joint Intelligence* (Washington, DC: CJCS, 2013), II-1, accessed September 20, 2015, http://www.dtic.mil/doctrine/new_pubs/jointpub_intelligence.htm.

Joint commanders play a key role in the planning, execution, production, and consumption of intelligence (see figure 5 for the commander's intelligence responsibilities). While commanders are ultimately responsible, the Joint Force J-2 assists in synchronizing intelligence into the overall operational plan, executing joint intelligence processes (defined in chapter 1), and providing commanders with relevant and timely intelligence support (US DOD 2013b, III-9-11). Intelligence planning efforts divide between support to joint operations planning and planning intelligence operations. Support to joint planning efforts are typically tailored products resulting from the joint intelligence preparation of the operational environment intelligence estimates (US DOD 2013b, IV-2). Planning intelligence operations include activities associated with the joint intelligence process to "identify information gaps, prioritize intelligence requirements,

develop federated production and integrated collection plans, and assess intelligence capabilities for the purpose of identifying shortfalls and mitigation strategies” (US DOD 2013b, IV-3). Orchestrating the numerous planning, collection, processing, analysis, and dissemination (also known by the acronym PCPAD) sub-processes requires a knowledgeable and sizable staff to maintain a successful intel-ops fusion.

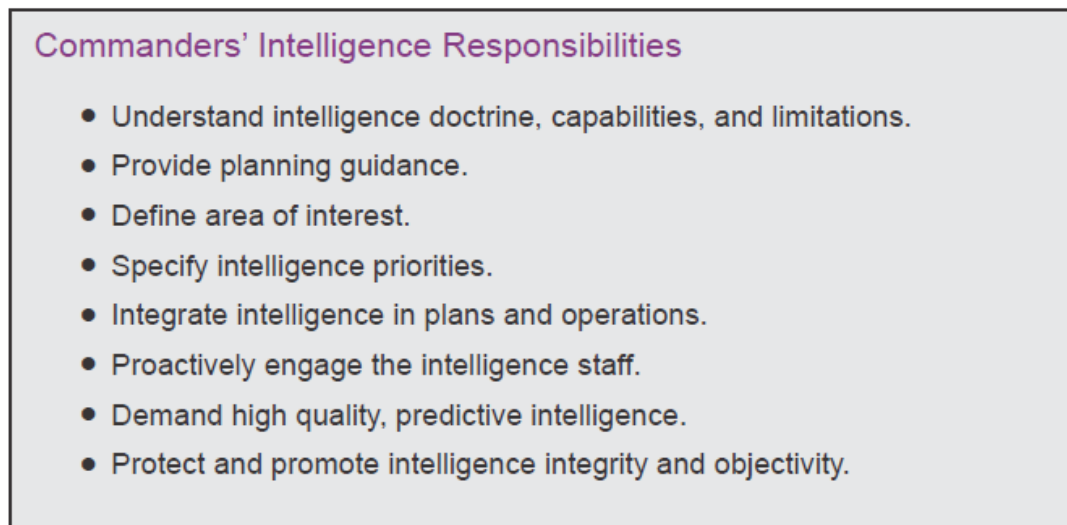


Figure 5. Commander's Intelligence Responsibilities

Source: United States Department of Defense (US DOD), Joint Publication 2-0, *Joint Intelligence* (Washington, DC: CJCS, 2013), III-10, accessed September 20, 2015, http://www.dtic.mil/doctrine/new_pubs/jointpub_intelligence.htm.

JP 2-01 serves as a formative companion to JP 2-0 that further details *Joint and National Intelligence Support to Military Operations*. JP 2-01 echoes previous doctrinal themes concerning the complexity of the operating environment, the criticality of tailored and accurate intelligence for the commander to understand and visualize the environment, and the need for sufficiently agile intelligence processes and organizations that can

support a wide-variety of operational missions (US DOD 2012a, I-2-3). Led by the JFCs J-2, joint intelligence focuses on executing intelligence needs based on the commander's guidance and intent, prioritizes requirements, develops plans and strategies, implements ISR authorities and relationships, and synchronizes theater and national intelligence to present a unified intelligence picture (US DOD 2012a, II-1-2). The J-2 directs and executes multiple intelligence operations categorized under the planning and direction, collection, and evaluation and feedback sections of the joint intelligence process model (see figure 1). The following section will break out the sub-actions and processes underneath their respective sections of the joint intelligence process as identified within the scope of this study (see delimitations in chapter 1).

Planning and direction lays the “foundation for how the Joint Force J-2 will manage preplanned collection and production tasks to satisfy the intelligence needs of the commander and staff (US DOD 2012a, III-4). Intelligence planners use intelligence and information requirements, objectives, and desired end state outputs from the joint operational planning process to develop the ISR concept of operation (CONOP) and ISR appendix. Developed by a joint ops-intel team, the ISR CONOP:

Documents the synchronization, integration, and operation of ISR resources in direct support of current and future operations. It outlines the capability to task, collect, process, exploit, and disseminate accurate and timely information that provides the awareness necessary to successfully plan and conduct operations. It addresses how all available ISR collection assets and associated PED infrastructure, including multinational and commercial assets, will be used to satisfy the Joint Force's anticipated collection tasks. (US DOD 2012a, III-8)

The JFC allocates and apportions limited ISR resources, via the established theater process, to subordinate forces based on the campaign objectives, identified intelligence gaps, and the commander's overall guidance and intent (US DOD 2012a, III-9-10).

Depending on the existing collection management authority (CMA) structure in theater, requirements are validated against the JFC's priorities, and ISR assets are allocated, apportioned, and deconflicted for collection.

Collection management is an art form in itself that converts requirements into collection tasks and seeks to "maximize the effectiveness of limited collection resources within the time constraints imposed by operational requirements" (US DOD 2012a, III-13). Collection management divides into the distinctive functions of collection requirements management (CRM) and collections operations management (COM) (see figure 6). In general, CRM advocates and prioritizes customer requirements while COM matches and tasks assets to satisfy the requirement (US DOD 2012a, III-16-17).

Ultimately, the J-2 retains full CMA that defines the collection management structure in theater by delegating CRM and COM authorities and functions to subordinate organizations. In general, customer requirements are validated by the theater CRM and are forwarded to the theater COM for collection. The COM reviews the requirements and considers collection asset capabilities and availability, area threats and weather, and the production requirements to develop the appropriate mission tasking orders or mission type orders (MTOs) to execute the collection operations and produce the required exploitation (US DOD 2012a, III-28-30). The CRM, COM, and CMA then assess the relative value of the resulting intelligence collection, analysis, and production against the JFC's planning guidance to determine overall mission success. The theater collection management structure, intelligence collection strategy, ISR allocation, tasking mechanisms, and dynamic collection operations within the theater all affect ISR asset

timeliness, responsiveness, availability, and capabilities to satisfy and support operations in accordance with the JFC's guidance and intent.

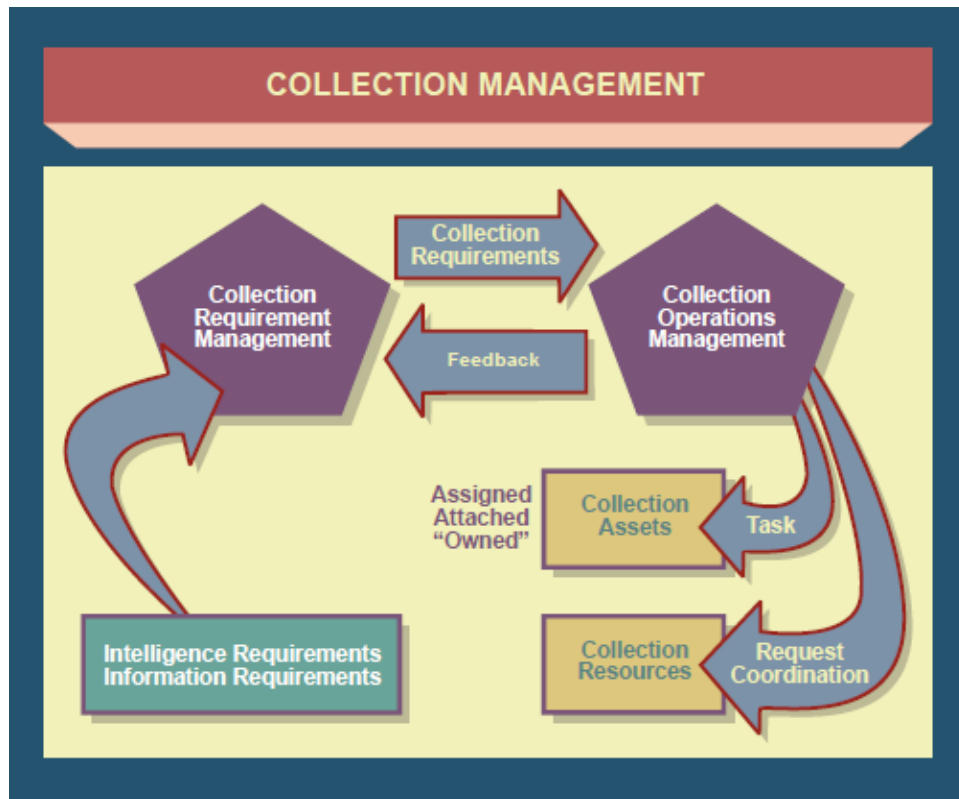


Figure 6. Collection Management

Source: United States Department of Defense (US DOD), Joint Publication 2-01, *Joint and National Intelligence Support to Military Operations* (Washington, DC: CJCS, 2012), III-17, accessed December 3, 2015, http://www.dtic.mil/doctrine/new_pubs/jp2_01.pdf.

The CJCS still maintains the U.S. Joint Forces Command *Joint Operations Insights and Best Practices* paper produced in 2011. The paper emphasizes the complexity of the global security environment acting as a catalyst for change across a Joint Force that requires greater operational integration, synergy, and agility (US JFC

2011, 3-6). The paper highlights the need for decentralized structures and MTOs “as the only way to be agile enough to take advantage of opportunities in today’s operational environment” (US JFC 2011, 6). Commanders shorten their decision cycles by providing subordinates the capabilities and delegated authorities to maintain the initiative and capitalize on chaos; however, commanders must recognize their responsibility to provide clear guidance, communicate their intent, and identify their risk tolerance (US JFC 2011, 19-20).

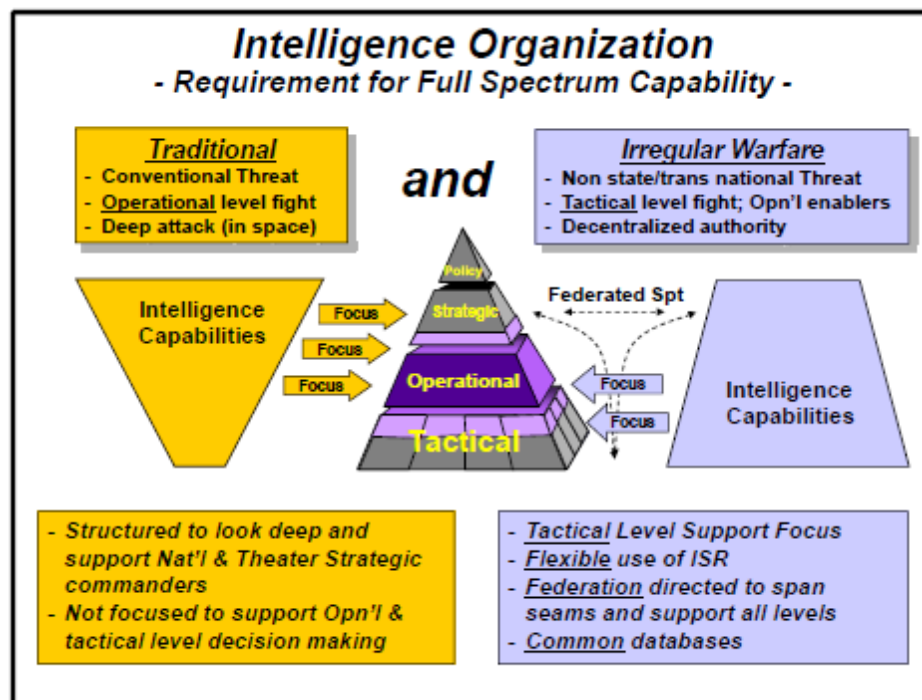


Figure 7. Balancing Intelligence Organizations

Source: United States Joint Forces Command (US JFC), *Insights and Best Practices, Joint Operations* (Suffolk, VA: Joint Warfighting Center, 2011), 70, accessed October 20, 2015, http://dtic.mil/doctrine/fp/joint_operations_fp.pdf.

During the conflicts in Iraq and Afghanistan commanders realized the need to tailor intelligence support to the mission (see figure 7). “The traditional model that focused on large conventional threats supporting strategic decisions didn’t meet the operational and tactical level decision making and execution requirements in irregular warfare” (US JFC 2011, 71). Commanders improved the agility and flexibility of ISR operations through decentralizing capabilities and authorities, flattening vertical and horizontal linkages, and increasing the use of liaisons that can leverage increased federation of PED capabilities (US JFC 2011, 71). This transition requires continuous commander involvement in order to balance the tradeoff between efficiency and effectiveness of operations, and prioritize the allocation of limited resources (US JFC 2011, 72).

The Joint Chiefs of Staff (JCS) J-7 captures many of the growing challenges with joint intelligence in the 2013 *Intelligence Operations Insights and Best Practices* focus paper (J-7 insights provided in table 2). The J-7 noted that in order to understand the complex operating environment, commanders were increasingly “instilling intelligence-driven operational mindsets in their headquarters, and increasing synergy between intelligence and operations personnel to leverage this mindset” (JCS DTD 2013, 3). Commanders capitalize on this synergy and increase the overall speed and agility of joint operations by better understanding intelligence capabilities, decentralizing collection and PED capabilities, balancing intelligence support between increased understanding and lethal targeting, and enabling the prioritization and apportionment of assets through operational priorities (JCS DTD 2013, 3).

Table 2. Joint Staff J7 Intelligence Operations Insights	
#	Description
1.	Take time upfront to develop and share your concept on how you will provide and employ ISR. Do not keep or minimize ISR assets in “reserve.”
2.	Manage expectations. The number of ISR assets is limited. This limitation can be mitigated by higher headquarters prioritization and a clear collection strategy that supports approved CONOPs. Ensure CONOPs are clear and concise and include a detailed collection strategy.
3.	Integrate the ISR collection management process and decision venue into the decision-making process. Nesting this process ensures that guidance and decisions by the commander inform the operations-intel ISR collection management team, enabling synchronization of apportionment and allocation decisions with Command priorities.
4.	Consider the use of “flex” packages that can be shaped and phased to specific mission sets. These packages can then be deliberately resourced to subordinates to achieve a specific operational effect. An example package could include a shaping package (broad sweep sensors) and a defeat package (with full motion video assets) to enable a “persistent stare” capability.
5.	Capture qualitative feedback on how ISR performs against information requirements. Measures of effectiveness (MOE) for ISR are necessary to assess the relative efficiency and optimal employment of ISR assets. This assists future planning and employment of ISR.
6.	Ensure J2, J3, and J5 staffs understand the ISR collection management processes, including individual and collective roles within the process to maximize the effects on operations.
7.	Recognize the value and agility of an ISR management process that enables pushing specific ISR asset control to the lowest possible echelon in the counterinsurgency (COIN) environment.
8.	Maintain operational staff involvement and supervision over “Unmanned aerial vehicle technical operators” during collection missions to ensure collection objectives are being met.
9.	Recognize the need and direct PED to support both understanding and tactical action (supporting named operations, targeting cycle).
10.	Tailor the structure recognizing that PED is often the limiting factor in gaining and providing intelligence. Recognize the personnel, space, and procedural limitations in fully resourcing PED in a forward-only posture. Forward PED may not have the capacity to perform all required analysis and data management.

Source: Joint Chiefs of Staff Deployable Training Division (JCS DTD), *Insights and Best Practices, Intelligence Operations* (Suffolk, VA: Joint Staff J7, 2013), 6-9, accessed October 20, 2015, http://dtic.mil/doctrine/fp/fp_intel_ops.pdf.

Furthermore, the J-7 adds that collection management has matured into a combined operations-intelligence function and that “ISR is one of the most effective ways for the commander to weight his efforts and remain agile within a complex environment” (JCS DTD 2013, 5). Fully integrating collection management processes into the overall headquarters decision making process ensures that ISR assets synchronize and nest within the commanders overarching priorities (JCS DTD 2013, 5-6). Commander’s critical information requirements and operational priorities enable the use of mission command by providing commander’s guidance and intent that prioritizes the allocation, apportionment, and employment of ISR assets in support of operations (JCS DTD 2013, 4).

Global Force Management

JP 5-0, Appendix H, *Global Force Management* details the Title 10 assignment, allocation, and apportionment processes used to align Joint Forces to meet combatant commander requirements, and balance national priorities and global risk. Assignment of forces occurs by the President, occurs through the Unified Command Plan. Joint forces are assigned to the “unified and specified combatant commanders to perform missions assigned to those commands” (US DOD 2011b, H-1). Forces not assigned to a combatant commander are retained by the respective military services. Allocated forces are forces transferred between commanders; based on operational necessity, the Secretary of Defense specifies the command relationships when forces are allocated for employment (US DOD 2011b, H-1). Apportioned forces are projected resource levels provided to combatant commands by the CJCS to use as a starting point for planning purposes only (US DOD 2011b, H-4). GFM processes occur on an established battle rhythm to manage

combatant command planning and operational requirements and requests for forces with the available force providers (US DOD 2011b, H-4). ISR platforms and PED are managed via the GFM processes. Due to the complex nature of the environment and the need for ISR to enable commanders to understand and visualize the environment, ISR decisions can be very contentious as commanders compete for very limited resources. The centralized processes for assigning, allocating, and apportioning ISR forces complicates intelligence authorities and limits the overall operational agility and flexibility for ISR platforms and PED to transition between commands and commanders.

Service Doctrine

The third section of the literature review frames the respective services doctrinal perspectives on mission command, and Joint ISR processes including collection management. For brevity's sake, service doctrine reflected in this section adds a different perspective to joint doctrine or diverges from other services doctrine.

Perspectives on C2

The U.S. Army perspective on mission command has evolved through the execution of operations in complex environments in Iraq and Afghanistan (HQ DA 2012b, 1-1). Faced with a thinking and adaptive enemy, U.S. Army officers were increasingly reliant on decentralized mechanisms, agile leaders, and disciplined initiative to exploit opportunities to meet the commander's intent. ADRP 6-0, *Mission Command*, details the U.S. Army's approach to mission command and its ability to integrate and synchronize operations through the unified land operations operational concept (HQ DA 2012b, 1-1). Mission command is described as:

The exercise of authority and direction by the commander using mission orders to enable disciplined initiative within the commander's intent to empower agile and adaptive leaders in the conduct of unified land operations. Mission command is one of the foundations of unified land operations. This philosophy of command helps commanders capitalize on the human ability to take action to develop the situation and integrate military operations to achieve the commander's intent and desired end state. Mission command emphasizes centralized intent and dispersed execution through disciplined initiative. This precept guides leaders toward mission accomplishment. (HQ DA 2012b, 1-1)

Commanders develop and foster an environment of mutual trust where subordinates understand the commanders purpose and intent and are empowered to “maintain unity of effort, take prudent action, and act resourcefully within the commander's intent” (HQ DA 2012b, 1-2). The U.S. Army approaches mission command as both a warfighting function and as a philosophy of command, taken together they encompass the exercise of mission command (figure 8 provides an overview of the exercise of mission command). While exercising mission command, commanders are guided by six principles including: building cohesive teams through mutual trust, creating shared understanding, providing clear commander's intent, exercising disciplined initiative, utilizing mission orders, and accepting prudent risk (HQ DA 2012b, 2-1).

The mission command philosophy helps commanders counter the uncertainty of operations by reducing the amount of certainty needed to act. Commanders understand that some decisions must be made quickly and are better made at the point of action. . . Through leadership, commanders build teams. They develop and maintain mutual trust and a shared understanding throughout the force and with unified action partners. Commanders understand that subordinates and staffs require resources and a clear intent to guide their actions. They allow them the freedom of action to exercise disciplined initiative to adapt to changing situations. Because mission command decentralizes decisionmaking authority and grants subordinates' significant freedom of action, it demands more of commanders at all levels and requires rigorous training and education. (HQ DA 2012b, 2-1)

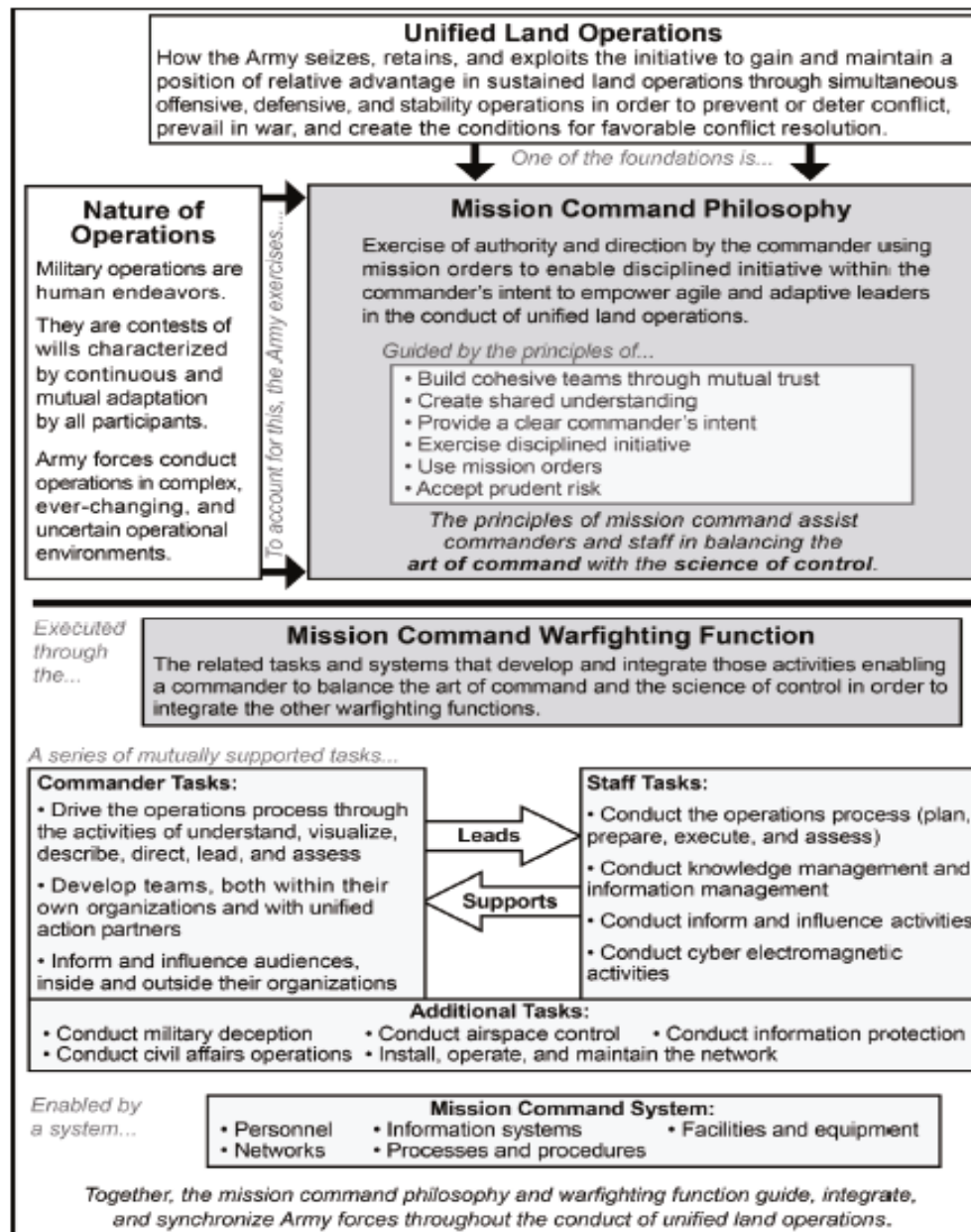


Figure 8. Overview of the Exercise of Mission Command

Source: Headquarters, Department of the Army (HQ DA), Army Doctrine Reference Publication (ADRP) 6-0, *Mission Command* (Washington, DC: Headquarters, Department of the Army, 2012), 1-3, accessed October 20, 2015, http://armypubs.army.mil/doctrine/ADRP_1.html.

U.S. Air Force (USAF) *Basic Doctrine* calls centralized control and decentralized execution a general philosophical approach for the C2 and employment of airpower (USAF 2015a, 67).

Because of airpower's unique potential to directly affect the strategic and operational levels of war, it should be controlled by a single Airman who maintains the broad, strategic perspective necessary to balance and prioritize the use of a powerful, highly desired yet limited force. . . The construct of centralized control is an encapsulation of a hard learned truth: that control of a valuable yet scarce resource (airpower) should be commanded by a single Airman, not parceled out and hardwired to subordinate surface echelons as it was prior to 1943. Tied to this fundamental truth is the recognition that no single Airman is capable of making all decisions, and should thus empower subordinates to respond in accordance with senior leader intent. (USAF 2015a, 67)

The USAF views C2 as a continuum that balances between direct control and total autonomy; commanders employ the appropriate level of control necessary dependent on the situation (USAF 2015a, 68). Centralized control recognizes the inherent flexibility and versatility of airpower by empowering the air component commander to capitalize on emerging opportunities (USAF 2015a, 68). Decentralized execution delegates authority to subordinate commanders to exercise initiative in complex and fluid environments (USAF 2015a, 69). The USAF Chief of Staff recently called centralized control and decentralized execution a continuing tenet central to airpower that closely aligns with the joint concept of mission command (USAF 2015c, 12). Additionally, "It is best realized when commanders give clear strategic guidance, and Airmen are entrusted to apply that guidance in a manner appropriate to the tactical situation as it unfolds" (USAF 2015c, 12).

Marine Corps Doctrine Publication 6, *Command and Control*, describes C2 as a spectrum that fluctuates between the extremes of detailed and mission forms of C2 (HQ DMC 1996, 77-79). "Historically, there have been two basic responses to the

fundamental problem of uncertainty: to pursue certainty as the basis for effective C2 or to accept uncertainty as a fact and to learn to function in spite of it” (HQ DMC 1996, 77). Detailed C2 is described as centralized and formal, coercive and directive, orders are detailed and explicit, decision making is vertical and slow, and subordinate decision making and initiative is minimized (HQ DMC 1996, 77-78). Mission command is described as spontaneous and decentralized, informal and flexible, orders are brief and simple, decision making is quick and fluid, and subordinates are given the freedom of action to act with initiative (HQ DMC 1996, 79-80). Marine Corps doctrine does not explicitly recommend one form of C2 over the other but acknowledges that the particular situation may require a combination of the two (see figure 9 for a visualization of the C2 spectrum). Leaders are called to apply their judgment and consider factors in order to develop the appropriate system of C2 (HQ DMC 1996, 80).

The Navy’s perspective on C2 reflect their history and culture where a commander was expected to rely on his best judgment while operating in a complex environment, with limited guidance, and far from centralized, bureaucratic structures. Naval Doctrine Publication 1, *Naval Warfare*, describes the C2 philosophy “having subordinate commander[s] execute operations in accordance with a thorough understanding of the commander’s intent” (Department of Navy 2010, 36). Complex operations are centrally planned but decentrally executed by subordinate commanders who are trusted, empowered, and expected to take the initiative (Department of Navy 2010, 35).



Figure 9. The Marine Corps Command and Control Spectrum

Source: Headquarters, Department of the Marine Corps (HQ DMC), *Command and Control* (Washington, DC: Headquarters, Department of the Navy, 1996), 81, accessed December 8, 2015, <https://www.doctrine.usmc.mil/signpubs/d6.pdf>.

Perspectives on Joint ISR Processes

In 2008, the USAF published the *Theater ISR CONOP* as a service supplement to JP 2-01 to “provide guidance and structure to assure optimal planning, allocation, tasking, use, and evaluation of ISR assets at all levels of war in a theater of operations” (USAF 2008, iii). The CONOP promulgates the use of a C2 concept built on mutual trust, initiative, and agility; promotes the use of operational art and design to link ISR operations with the overall theater strategy; emphasizes a collection management system that focuses on solving prioritized theater problem sets vice racking and stacking database requirements; describes the need to employ the appropriate intelligence collection tasks to achieve the desired effects; and highlights a holistic approach to qualitatively as well as quantitatively assessing ISR (USAF 2008, v-1). Operational art and design are used to employ a strategy-to-task framework to develop a comprehensive theater-wide ISR campaign plan that nests with and support the overarching theater strategy (USAF 2008, 2-4). Applying operational art enables the design of a Joint ISR system that:

- Clearly links ISR actions to commander’s objectives and, ultimately, the end state.
- Provides a clear understanding of priorities, weight of effort, and intended goals; thus enables lower-level initiative and flexibility.
- Is transparent and creates trust amongst joint players.
- Handles complexity while providing understandable processes to practitioners.
- Provides the appropriate unity of effort and command without over-centralization.
- Balances between “deep” and “close” (direct support) operations.
- Provides focus, enables MTOs, and reduces friction.
- Establishes the basis for ISR assessment. (USAF 2008, 4)

Due to the high demand for finite ISR resources, the operational reach of ISR assets, and the distributed nature of PED support, ISR may be supporting multiple

operations, commanders, and plans within a specific theater while simultaneously operating at the strategic, operational, and tactical levels of war (USAF 2008, 2). This complexity necessitates the synthesis of “multiple plans and strategies into a comprehensive ISR strategy-to-task and operational plan to provide the combatant commander with situational awareness of the theater” (USAF 2008, 2).

Operational design uses the military end state and operational objectives as “the unifying vehicle for the development of all effects and objectives by the Joint Force” (USAF 2008, 5). Understanding the commander’s guidance and intent, operational objectives, and military end state are the foundation for a successful ISR strategy (see figure 10). ISR requires a parallel design process that focuses on the development of ISR design elements such as prioritized intelligence problem sets, priority intelligence requirements, commander’s ISR guidance and intent, ISR objectives, ISR effects and ISR tasks (USAF 2008, 5-7). The CONOP maintains that:

ISR is a unique form of military operations that requires a dedicated effort to develop distinctive ends, ways, and means that help achieve the operational objectives and desired end state. ISR operations acquire the right intelligence to increase understanding of the adversary and the joint operating environment. The priority of things we need to know may not fall completely in line with things we need to do. Therefore, Joint ISR operational design, much like joint air operations planning, must be a distinct, supportive process. The process takes the ISR language and direction developed in the operational design elements of the campaign and then fleshes out the detailed ISR purpose and method. (USAF 2008, 5)

The additional focus on translating ISR objectives is necessary to define “the what” and “the why”, or the task and purpose, for ISR operations to be weighted and prioritized against (USAF 2008, 7). Understanding the ISR effects, objectives, priorities, and overall weight of effort enable collection planners to develop “the how;” appropriately balancing ISR tasks to successfully collect the required targets (USAF 2008, 16-18). The complex

and dynamic nature of the operational environment requires a corresponding ISR system that remains flexible, agile, and adaptive to meet the need for timely and relevant intelligence (USAF 2008, iii). “The more dynamic the operation, the less mechanical and more fluid ISR processes should be . . . mean[ing] human judgment and leadership must prevail over a strict adherence to a mechanical process” (USAF 2008, 30).

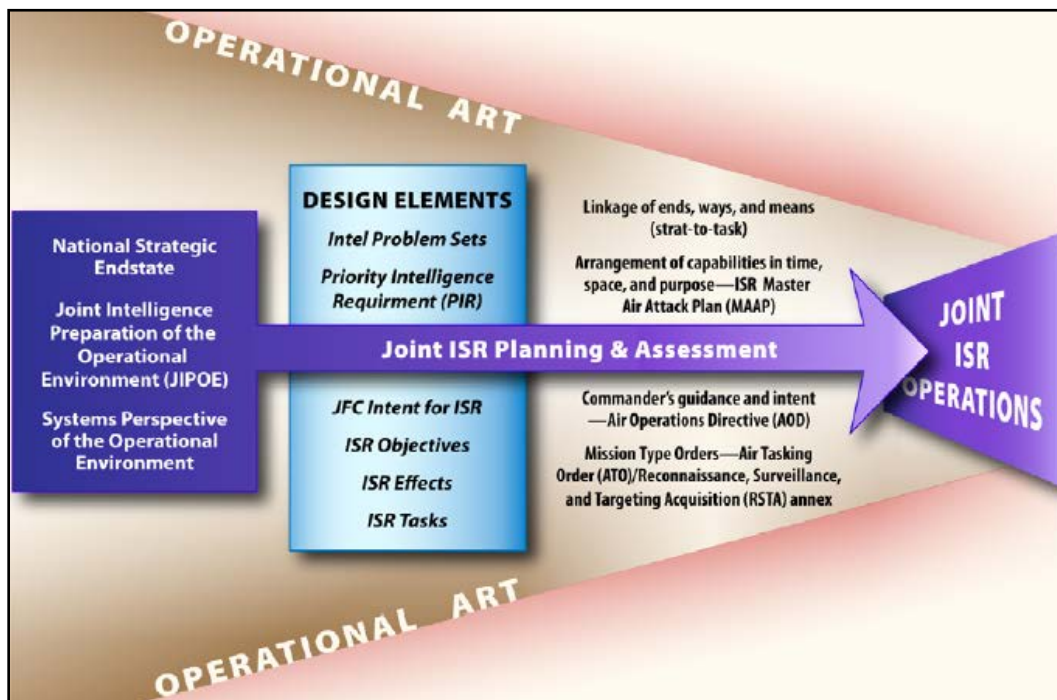


Figure 10. ISR Operational Art and Design

Source: United States Air Force, *Theater ISR CONOP* (Washington, DC: Headquarters, USAF, 2008), 4.

As the primary provider of ISR to the Joint Force, the USAF tends to approach ISR from the strategic and operational level down. In DOD Directive 5100.01, the USAF is directed to, “Provide timely, global integrated ISR capability and capacity from forward deployed locations and globally distributed centers to support world-wide

operations” (USAF 2015b, 1). Global requirements mandate a global approach and global presence to ISR, and the USAF approaches the problem holistically. USAF doctrine describes global integrated ISR as enabling the:

Utilization of multiple assets from multiple geographic commands; collecting data across all domains that may satisfy strategic, operational and tactical requirements; which may be used by national, joint or service specific personnel or any combination thereof. . . . The Air Force currently uses the majority of its ISR assets to directly support national objectives and the JFCs strategic and operational goals. One of the most valuable attributes of airpower is its flexibility, the inherent ability to project power dynamically across large swaths of an operational area. (USAF 2015b, 4)

At the operational level, the USAF sees itself as the most capable and likely service to execute COM on behalf of a combatant commander. The Joint or Combined Air Force Component Commander (JFACC or CFACC) will typically have the preponderance of ISR assets, preponderance of PED, collection management subject matter expertise, and the ability to C2 them in accordance with the JFC’s guidance and intent (USAF 2015b, 19).

The JFACC usually exercises authority through a joint or combined air operations center. The joint air operations center is in the best location to fully integrate and C2 ISR assets and act as a broker to fulfill the JFC’s ISR objectives. Additionally, the Commander of Air Force Forces, when designated as the JFACC, is the supported commander for theater ISR, as well as the area air defense commander, the airspace control authority, and the space coordinating authority. Each of these functions demands integration to ensure unity of command and effort. (USAF 2015b, 15)

The Joint Air Operations Center ISR Division integrates Joint ISR and Air Tasking Order processes to execute the JFC’s priorities and guidance in support of the Joint Force (USAF 2015b, 18-19). USAF collection managers must balance competing requirements from multiple commanders while trying to maximize the use of finite resources. Air Force doctrine captures the need to tailor ISR processes to increase the flexibility and

agility of ISR to support dynamic situations, engage targets of opportunity, and synchronize and integrate with supported maneuver elements.

Generally, the U.S. Army approaches intelligence from the tactical level and up and sees intelligence as a warfighting function that enables the commander to understand and visualize the environment, supports a commander's decision cycle, and helps commanders organize and control their forces (HQ DA 2012a, 1-1). ADRP 2-0 describes intelligence support to unified land operations and decisive action as:

Army forces conduct decisive and sustainable land operations through the simultaneous combination of offensive, defensive, and stability tasks appropriate to the mission and environment. Intelligence supports the commander within decisive action. It helps the commander visualize threats and relevant aspects of the operational environment in time and space. This support helps the commander and staff decide when and where to concentrate sufficient combat power to defeat the threat while mitigating risk. Commanders and staffs at all levels synchronize intelligence with the other warfighting functions to maximize their ability to visualize the operational environment and disrupt the threat simultaneously throughout the Area of Operations. (HQ DA 2012a, 1-2)

While the U.S. Army does provide intelligence to the Joint Force, the focus is on leveraging the greater intelligence enterprise at the national and joint levels to feed information into the common operational picture and help the command and staff visualize the operational environment (HQ DA 2012a, 2-8-2-9). Overall, U.S. Army doctrine does not address collection management functions, the development of ISR strategy, or joint intelligence processes at the operational and strategic levels.

While the Navy does not add to the joint definitions of intelligence, the Marine Corps views intelligence as a direct and personal command responsibility. "Intelligence failures are failures of command—just as operations failures are command failures" (HQ DMC 1997, 77). Intelligence requirements are commander requirements, and commanders should intervene directly when the go unsatisfied (HQ DMC 1997, 79).

While intelligence must support the main effort, the Marines highlight the reciprocal relationship between intelligence and operations, “Just as intelligence identifies opportunities for exploitation through operations, so can operations provide the stimulus for intelligence” (HQ DMC 1997, 82).

Emerging Concepts

The final section of the literature review discusses the relevant emerging concepts contained within peer reviewed articles, research papers, and pertinent studies. In order to facilitate understanding for the reader, the literature is sub-categorized into three topic categories and organized chronologically in order to show the development of the associated concepts over time. The three sub-categories are: mission type orders and mission command; improving ISR strategy, planning, and design; and refining joint intelligence processes.

Mission Type Orders (MTOs) and Mission Command

Lieutenant Colonel Jason D. Green’s thesis from the Joint Advanced Warfighting School discusses “Integrating Mission Type Orders into Operational Level Intelligence Collection”. Lieutenant Colonel Green conducts a qualitative review of the current use of MTOs by deployed intelligence personnel within Operation Enduring Freedom. Many of the key figures performing collection operations across U.S. Central Command, Air Force Central Command, the International Security Assistance Force, Joint Command, and many of the primary ISR operators were interviewed for the study. Lieutenant Colonel Green presents MTOs as the current manifestation *Auftragstaktik*; used by operational level ISR professionals to improve initiative, and cut through bureaucratic

collection management processes to increase the speed and flexibility of ISR support (Green 2011, 76-77). ISR MTOs are concluded as a proven way to “execute collection in support of intelligence requirements at the operational level of war” (Green 2011, 77), and should be normalized into the joint collection management process. However, Lieutenant Colonel Green was hesitant to call for MTOs to “replace existing collection management practices and techniques” (Green 2011, 77) and called for further research and debate on the topic.

Major Max Pearson’s thesis on “The New ISR Paradigm” in 2011 discusses the emergence of the MTO vehicle to synchronize Joint ISR efforts and initiative around the commander’s guidance and intent (Pearson 2011, iii). Major Pearson argues that Joint ISR doctrine is out of date and focuses primarily on prosecuting and managing linear systems (Pearson 2011, 1-2). In reality, ISR has become a complex adaptive system that must be operated, optimized, and led (Pearson 2011, 13-14). Major Pearson summarizes the distinction between systems as:

The predictability of the [intelligence preparation of the battlespace] process represents an assumption that the adversary operates as a linear system. The adversary template for the Soviet forces showed a forward deployment of aircraft alone did not equate to a pending attack. Also, the bureaucratic inflexibility of the collection management process represents an understanding of DOD ISR as a linear system in which collectors, analysts, and collection managers all interact with each other in a very rigid manner. An input to the system (collection requirement) generates the same output (satisfied requirement and satisfied analyst) every time, and interactions between the analysts and the collectors are mechanical. In reality, the complex adaptive system model is much more appropriate. Al Qaida has clearly learned from our offensive operations and is becoming less and less predictable. They are changing the way they interact with their multiple cells worldwide, and they are adapting based on observation. Analysts find new colleagues to work with based on their collection targets and the value of the products these colleagues deliver. DOD ISR simply does not operate as a linear system. The new paradigm must be built on an understanding of both the adversary, and DOD ISR, as complex adaptive systems. must

capitalize on the nature of interactions within DOD ISR to best thwart those of our adversary. (Pearson 2011, 14)

Adhering to antiquated and rigid intelligence processes limits the overall effectiveness of intelligence analysis, hinders analysts from discovering new and unexpected developments, confines interactions between ISR collectors and customers, and obstructs the network from exploiting dynamic situations (Pearson 2011, 7-9). MTOs provide a common “content, purpose, and intent of the requirements to ISR planners at all levels, enabling them to make more educated decisions about prioritization than those based on the database entries of today” (Pearson 2011, 20). Properly employing MTOs will enable greater integration between ISR and maneuver elements, and enable lower-level initiative within the defined bounds of behavior (Pearson 2011, 20).

Captain Jaylan Haley’s article in the *Air and Space Power Journal* on *The ISR MTO* details the emerging tactics, techniques, and procedures (TTPs) developed by USAF ISR operators to employ ISR MTOs in theater. Captain Haley argues that ISR MTOs are a proven way to increase flexibility over the traditional collection management process and provide more relevant and timely support to maneuver elements (Haley 2012, 34). Overall, ISR MTOs offered three benefits by: emphasizing qualitative effects versus a quantitative high score, delivering “just-in-time” intelligence to the units that needed it, and focusing on a commander’s operational intent versus prioritizing individual targets based upon their own merit (Haley 2012, 38). ISR MTOs foster lower-level initiative by tasking a holistic mission instead of a collection deck of discrete targets. Collectors could now dynamically adjust the collection deck, continually optimize collection capabilities, and drive operations by knowing the commander’s intent and coordinating directly with the supported unit (Haley 2012, 39-41).

Lieutenant Colonel Garry S. Floyd's School of Advanced Military Studies monograph on "Airborne ISR: Mission Command and Centralized Control" traces the lineage of the mission command philosophy and assesses the impacts of further inculcating mission command within theater ISR force (Floyd 2013, iii). Lieutenant Colonel Floyd contends that Helmuth Von Molke's conceptualization of discipline initiative through *Auftragstaktik*, and refined by the U.S. Army's mission command philosophy is germane for today's ISR (Floyd 2013, 3). Recent USAF MTO execution "highlights the similarities between the Air Force's doctrinal views of centralized control and decentralized execution and the Army's philosophy of mission command" (Floyd 2013, 45). The ability to generate mutual understanding within the ISR community enables the production of tailored and accurate reporting and facilitates trust as ISR operations nest within the commander's operational intent (Floyd 2013, 45-47). While ISR MTOs were developed in a COIN environment, Lieutenant Colonel Floyd concludes that the ISR MTO could also support the dynamic requirements of a Brigade Combat Team (BCT) in a major combat operation (Floyd 2013, 47).

Improving ISR Strategy, Planning, and Design

In 2007, the RAND Corporation researched *A Strategies-to-Tasks Framework for Planning, and Executing ISR Operations* for the USAF to understand the challenges facing ISRs ability to prosecute emerging and fleeting targets of opportunity (Rhodes 2007, iii). RAND identified the continuing challenges posed by the complex operational environment, the importance of ISR to characterize and understand the environment, and the competing demands overwhelming those responsible for planning, managing and executing ISR operations (Rhodes 2007, 1). The study recommended employing a

strategies-to-tasks framework that linked intelligence collection with commander's guidance, objectives, and operational tasks (Rhodes 2007, ix). By providing better guidance and pushing decision making to lower levels (Rhodes 2007, 6), this framework would enable intelligence officers to dynamically optimize intelligence collection by balancing pre-planned targets with time-sensitive and emergent collection opportunities (Rhodes 2007, ix). A subsequent study by RAND in 2008, recommended improving the ISR assessment process to better understand the employment and utilization of ISR assets (Lingel 2008, iii).

Colonel Jason M. Brown has commented multiple times on intelligence strategy, planning, and operational design. In addition to multiple journal articles and papers, he produced a thesis on "Fighting for Intelligence: The Design of Intelligence-Led Operations" while attending the Marine School of Advanced Warfighting, and research on "Strategy for ISR" while attending the Air War College.

While discussing intelligence-led operations, Colonel Brown proposed using operational design as a method to "develop and guide intelligence in the pursuit of systemic awareness as well as campaign goals and objectives" (Brown 2008, 17). Recognizing the need and pursuit for awareness within different phases of the overall campaign framework, would harmonize interdependent lines of operations and contribute to the Joint Force's operational agility (Brown 2008, 14). Integrating intelligence into design establishes the need for intelligence goals and objectives to fully support the campaigns desired end state (Brown 2008, 13). Integrated goals and objectives provides:

An overarching purpose for subordinate objectives and tasks. . . . The benefit of expressing a purpose that links objectives and tasks is the communication of intent, which allows for the necessary creativity in planning and executing intelligence-led operations. It subsequently enables the development of mission-

type orders for supporting ISR, strike, and maneuver operations. Most importantly, it fosters the lower-level initiative necessary to engage modern adversaries. (Brown 2008, 15-16)

Furthermore, Colonel Brown argues that the evolving complex and adaptive environment requires the design of campaigns that are intelligence-led in order to gain the level of understanding required to facilitate decision making (Brown 2008, 2-3).

Designing operations that are intelligence-led is a fundamental necessity in modern campaigning, though it will require a significant change in our mode of thinking. Ultimately, attaining the necessary paradigm shift for conducting modern warfare depends on Joint Forces to accept the following premise: Achieving the level of learning, understanding, and systems thinking necessary to cope with modern, complex rivals and operating environments requires a reciprocal and carefully designed relationship between operations and intelligence. (Brown 2008, 3)

Transitioning to ISR strategy, Colonel Brown argues that the Joint Force requires increased organization and operational agility to meet the challenges of a complex and unpredictable global security environment (Brown 2013, 1-2). In order to achieve this, commanders should focus on implementing an overarching ISR strategy and move beyond the collection management processes that overly value production metrics over goals and objectives (Brown 2013, 1). Colonel Brown defines ISR strategy as, “set of ideas that integrates organizations and balances ends, ways, and means in pursuit of that purpose” (Brown 2013, 2). Commanders develop and ISR strategy to:

Create a problem-centric, versus a requirements-centric, approach to operations. In other words, analysts, platform operators, and consumers should state the problems they need to solve, not simply what requirements they have to satisfy. Achieving the ends for any military operation requires commanders and their staff to unify the ISR enterprise in support of campaign goals. Articulating intent—the traditional method commanders use to establish unity of effort for organizationally complex operations—is the necessary, but often overlooked, step to specifically focus ISR strategy. (Brown 2013, 6-7)

Commanders clearly stating their intent, establish shared understanding and purpose, and form the basis for mission command (Brown 2013, 7-8). Colonel Brown reasons that the four necessary components for any commander's ISR intent and the building blocks for any ISR strategy are, "campaign and operational goals, intelligence problem sets, ISR roles and missions, and ISR objectives" (Brown 2013, 14). This level of planning represents a significant investment of time up front to correctly identify and frame the problem(s), but will establish the operational agility leaders require in a high-tempo operation on the back end (Brown 2013, 14).

Refining Joint Intelligence Processes

In 2007, Major Michael L. Downs argued that the air component needed to increase its capacity for flexible, responsive, and dynamic ISR support to support COIN operations in Iraq and Afghanistan (Downs 2007, iii) in "Rethinking the CFACC's ISR Approach to Counterinsurgency". The air components adherence to ISR TTPs associated with major theater war prevented effective ISR support to maneuver units (Downs 2007, 2). Major Downs maintains that the joint collection management process was designed for an environment in which ISR "locate[d] enemy equipment and report[ed] hostile locations to the Air Operations Center so that it could, in turn, direct air assets to destroy enemy threats" (Downs 2007, 10). While this system is able to manage a massive amount of requirements, the system becomes unwieldy and unresponsive to changing conditions on the ground with units submitting ISR requirements at least 72 hours in advance (Downs 2007, 10-11). Based upon the prioritized requirements and the air component's ISR capacity, collection managers would rack and stack a collection deck for tasking (Downs 2007, 11).

For example, units in Iraq may put in requests for 900 targets to be imaged, but the CFACC may only have the capacity to image 500 targets. In this case, the 500 highest-ranking targets will be imaged. This collection management method is known as “peanut butter spreading,” whereby ISR is divided among a large number of requestors giving each requester a portion of the collection it asked for. The advantage of this method is that a significant number of customers are supported and a sizeable amount of targets are imaged. While this process works fine in a conventional fight, it is woefully inadequate for COIN, where it is often preferable to devote an ISR asset to focus on a specific problem for a longer period of time in order to detect activity more clearly. (Downs 2007, 11)

Major Downs recommends increasing the effectiveness of ISR support by truncating request timelines, synchronizing ISR with the ground scheme of maneuver, and providing narrative tasking and context to ISR units (Downs 2007, 15-16) that would “move CFACC collection from a target-centric to a mission-focused model” (Downs 2007, 16).

In 2008, General Raymond Odierno published an article in *Joint Forces Quarterly* that discussed the *ISR Evolution in the Iraqi Theater*. The article discussed how the exponential increase in ISR collection, analysis, and exploitation served as a powerful enabler for BCTs and facilitated commander’s understanding and visualization of the operating environment (Odierno 2008, 52). The environment in Iraq called for a tailored collection management approach, and an intel-operations fusion to achieve the agility commanders required.

The current environment in Iraq is complex and consists of four interacting conflicts: counteroccupation, terrorism, insurgency, and a communal struggle for power and survival. All are occurring in the context of a fragile state. . . hence, there is no silver bullet solution; instead, solutions are as complex as the problem set. . . . The nature of the conflict makes it apparent that no single approach to ISR management will apply effectively. To gain understanding and provide the battlespace owners at all echelons situational awareness, ISR must be robust and dynamic and controlled at the right headquarters in order to get commanders the information and intelligence needed to make decisions on a decentralized COIN battlefield. (Odierno 2008, 52)

General Odierno argues for an ISR strategy that moves beyond the current allocated and apportioned system and allows the BCT commanders to “own” ISR assets for given periods of time (Odierno 2008, 53-55). Iraqi ISR operations sought to push ISR assets down to lower levels for decentralized execution by tactical commanders in a decentralized fight; however, the article also discusses the challenges of synchronizing effects on the battlefield by commanders who have no experience employing ISR systems (Odierno 2008, 53-54). In addition to the themes of decentralization of command, more capability, and increased ISR agility, air component ISR liaison officers (LNOs) provided the requisite subject matter expertise to assist commanders with integrating and synchronizing ISR with operations (Odierno 2008, 55). In the future, U.S. Army BCTs will only become more reliant on ISR effects to break through the fog of war to understand complex environments and enable timely decision making (Odierno 2008, 55).

Lieutenant Colonel Danny R. Wolfe authored “ISR: The Right Question to Ask” While attending the Air War College in 2009. Wolfe’s research addressed the problems combatant commanders face when trying to assess the efficiency and effectiveness of their ISR assets (Wolfe 2009, 1-2). The merging of intelligence collection, operations support, and kinetic missions blurs the lines between the strategic and tactical, and complicates the efforts to qualitatively and quantitatively apply metrics to determine operational success or optimize performance (Wolfe 2009, 2-4). Lieutenant Colonel Wolfe argues that the efficiency and effectiveness of ISR is inextricably linked, and qualitative and quantitative performance measures should be paired to create a compressive system (Wolfe 2009, 21-22). Comprehensive systems that seek to answer if

operations are “effectively using Joint ISR capabilities in an efficient manner to enable superior decisions leading to actionable operations” (Wolfe 2009, vi) are best able to successfully employ ISR.

Major Michael Grunwald’s Wright Flyer Paper for the Air Command and Staff College highlights the challenges increased physical distances and distributed ISR operations have on achieving mutual trust and shared understanding (Grunwald 2009, v). Major Grunwald emphasizes the continued application of the tenants of centralized control and decentralized execution operations while recognizing the need for continued face-to-face relationships (Grunwald 2009, v). The study maintains that LNOs continue to be key in “bridg[ing] the gap from operational to tactical levels of war and provides a human element and expertise in ISR planning and execution” (Grunwald 2009, 5). ISR LNOs are an extension of the importance that ISR continues to play on the battlefield and enables the air component to regain mutual trust and achieve a shared understanding with the respective supported unit (Grunwald 2009, 7-9).

Lieutenant Colonel Jason M. Brown’s *Air and Space Power Journal* article on *Operating the Distributed Common Ground System* argues for a balanced and complimentary relationship between ISR efficiency and effectiveness (Brown 2009, 54). The Air Force distributed enterprise optimizes operational-level efficiency while maximizing tactical-level effectiveness (Brown 2009, 54). Distribution operations enables the Joint ISR enterprise to flex and mass intelligence capacity and capability within and across theaters; however, “Commanders need to know that ISR personnel understand the issues within their areas of operations” (Brown 2009, 55). This places a premium on establishing habitual relationships and maintaining face-to-face connections

through LNOs with forward units (Brown 2009, 55-56). Lieutenant Colonel Brown holds that joint doctrine must be updated to reflect the operational realities of ISR, the increased need and capability for dynamic operations, and address the challenges of seamlessly shifting ISR across different combatant commanders (Brown 2009, 56-57).

Major David C. Quinene's 2012 thesis for the Marine Corps University argues that future operating environments will require decentralized execution to successfully employ ISR in non-permissive environments (Quinene 2012, 1). Major Quinene argues that future environments will require a truncated kill chain that enables the dynamic prosecution of sophisticated and technologically advanced threats (Quinene 2012, 15-16). Providing a clear commander's intent allows subordinates to exploit dynamic opportunities and decentralizing authorities will shorten the timeline between sensor and shooter (Quinene 2012, 15-16). The traditional collection process will not meet the complexity and speed of the future operating environment.

Summary and Conclusions

While the body of literature provides a necessary foundation at the unclassified level, the literature review alone is insufficient in answering the primary and secondary research questions. The literature review exposes a number of overarching themes that are important to note. First, the literature—from strategic guidance to emerging concepts—collectively cites the challenges posed by a globally complex and unpredictable security environment, and the increasing need for greater agility, innovation, and integration across the Joint Force. Second, dynamic environments demand forces, operations, leaders, and processes that are agile, flexible, responsive, and adaptive. Third, while the use of mission command is increasingly instilled throughout joint and service doctrine, it

is remarkably absent from all joint intelligence doctrine. Since at least 2008, there has been a steady argument for the increasing use of MTOs, commander's guidance and intent, mutual trust, and disciplined initiative to overcome the inherent barriers with the traditional joint intelligence processes. Lastly, there is a gap between understanding the need for an ISR strategy and what an effective ISR strategy would actually look like. The literature review provides the data collection needed to enable the application of the qualitative meta-analysis research methodology in chapter 3 to further aggregate, interpret, and synthesize the literature in chapter 4 to answer the secondary and then ultimately the primary research question in chapter 5.

CHAPTER 3

RESEARCH METHODOLOGY

Introduction

All models are wrong . . . but some are useful.

— George E. P. Box, *Science and Statistics*

The purpose of this research is to explore how applying the six principles of the U.S. Army mission command philosophy would enable Joint ISR doctrine and collection operations to be more operationally agile. The six principles of mission command include: building cohesive teams through mutual trust, creating shared understanding, providing clear commander's intent, use mission orders, exercising disciplined initiative, and accepting prudent risk (HQ DA 2012b, 1-3). The study's independent variable is mission command, and the dependent variable is agility. As the independent variable, mission command is presumed to directly influence corresponding changes to the dependent variable of agility within an environment. Overall, the research's objective is to make recommendations regarding the application of U.S. Army mission command philosophy to Joint ISR doctrine in order to improve Joint ISR's operational agility.

Research Methodology

The study employs a qualitative research design that utilizes an inductive logic approach with a meta-analysis research methodology to support or refute the thesis that mission command would increase ISR agility. The study moves linearly through observations or data collection, analysis, inferences, and confirmation criteria to form a strong and cogent inductive argument to answer the secondary and ultimately the primary

research question (Flick 2009, 94-95) (see figure 11 for a visual depiction of a linear logic progression). The literature review in chapter 2 serves as the vehicle for observation or data collection enabling the application of the meta-analysis research methodology to aggregate and analyze the data. Based upon the evidence from the full body of literature, inferences are made in chapter 4 about the probable relationships between the principles of mission command and operational agility. Additionally, conclusions from chapter 4 are applied to a representative operational example in chapter 5 to facilitate the application and evaluation of the concepts in a realistic context. While the study seeks to minimize errors in logic, weaknesses of this study include the ability for inductive arguments to probably support versus prove a conclusion, the inherent biases of the researcher when drawing inferences, and the underpinning subjectivity of assigning value or weight to data and confirmation and evaluation criteria.

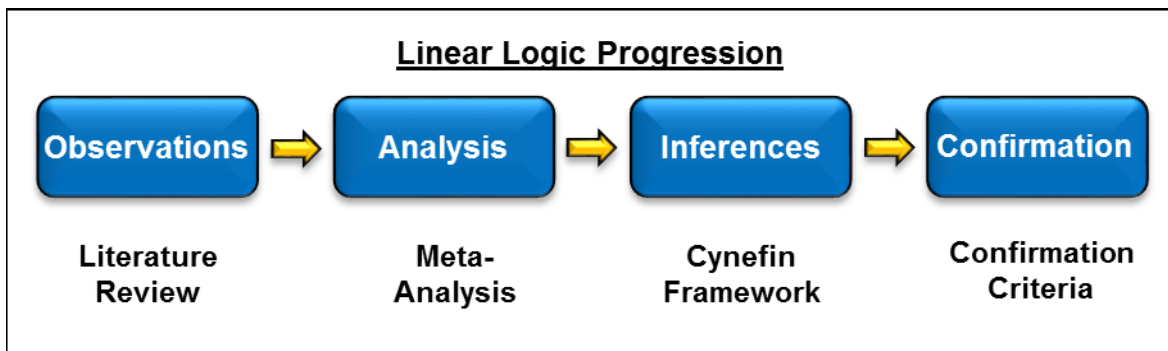


Figure 11. Linear Logic Progression

Source: Uwe Flick, *An Introduction to Qualitative Research* (Thousand Oaks: Sage Publications, 2009), 94-95.

Data Collection and Analysis

Rita Schreiber, Dauna Crooks, and Phyllis Noerager Stern defined the qualitative meta-analysis method as, “the aggregating of a group of studies for the purposes of discovering the essential elements and translating the results into an end product that transforms the original results into a new conceptualization” (Schreiber 1997, 314). Meta-analysis goes beyond the summarization of the body of knowledge contained within the literature review by aggregating and interpreting the results, synthesizing concepts and findings, and explicating a more comprehensive theoretical foundation for the resulting analysis (Schreiber 1997, 315-317). Meta-analysis is suitable in this situation as it enables the author to fully capture, synthesize, and analyze the body of knowledge of the applicable Joint ISR processes at the unclassified level. Additionally, it increases the theoretical rigor of the study by combining an analysis of the respective joint and service doctrinal foundations with the emerging concepts resident within the scholarly body of knowledge.

In order to maintain the study’s credibility, due diligence was exercised to identify and capture all relevant data at the unclassified level within the limitations and delimitations identified in chapter 1. Research queries focused on material speaking to joint and service doctrine, ISR processes, mission command, operational agility, and intelligence in general. Potentially due to the classification limitation, material on the employment, assessment, and execution of ISR in a real world environment and the GFM process can be limited. Research focused on using primary sources from respected military and civilian institutions limited to within the last 20 years. In order to maximize the strength of the meta-analysis, literature is comprised of joint and service guidance and

doctrine, joint and service TTPs, scholarly articles and publications, and professional research from multiple and diverse sources.

The resulting meta-analysis is organized into sections corresponding to the study's research sub-questions and will utilize the Cynefin framework, developed by David J. Snowden within several journal articles, as a theoretical lens. The meta-analysis first compares joint and service doctrine to establish if there are any gaps or limitations with the current Joint ISR doctrine. Next, the analysis seeks to establish whether Joint ISR is managed or led, and then what ISR agility is and why does the Joint Force need it. Lastly, the analysis will explore what Joint ISR would look like with a mission command philosophy lens. Answering the sub-questions in turn, will yield findings that can be applied to the representative operational example of the GAAT situation. Table 3 provides a visualization of the linear progression used in the study to answer the primary and secondary research questions. The use of the GAAT operational example facilitates the application and evaluation of the concepts resulting from the meta-analysis in a realistic context.

Table 3. Research Methodology Linear Progression				
Question	Observation	Meta-Analysis	Inference	Confirmation
What are the limitations of current Joint ISR Doctrine?	Full body of literature and experience of author.	Aggregation and analysis of data from the full body of literature.	Based upon evidence, inferences are made about probable relations between facts.	Argument strong and cogent according to established criteria.
Should ISR be managed or led?	Full body of literature and experience of author	Previous secondary question analysis and aggregation of data from the full body of literature.	Based upon evidence, inferences are made about probable relations between facts.	Argument strong and cogent according to established criteria.
What is ISR agility and why do we need it?	Full body of literature and experience of author	Previous secondary question analysis and aggregation of data from the full body of literature.	Based upon evidence, inferences are made about probable relations between facts.	Argument strong and cogent according to established criteria.
What would Joint ISR collection look like with a mission command lens?	Full body of literature and experience of author	Previous secondary question analysis and aggregation of data from the full body of literature.	Based upon evidence, inferences are made about probable relations between facts.	Argument strong and cogent according to established criteria.
How would applying the six principles of the U.S. Army mission command philosophy change Joint ISR doctrine	Full body of literature and experience of author	Previous secondary question analysis and aggregation of data from the full body of literature.	Based upon evidence, inferences are made about probable relations between facts.	Argument strong and cogent according to established criteria.

Source: Created by author.

Inference Theoretical Model

Once the data collection and analysis are accomplished, a relevant theoretical model was necessary to help understand and frame the problem. As George E.P. Box's aphorism notes, "all models are wrong. . . but some are useful" (Box 1976, 792). Box's point was that all models are wrong because at their fundamental level they oversimplify reality, but they can be useful by helping us understand and explain phenomena. A useful model to apply to Joint ISR can be found within the Cynefin framework. The Cynefin framework is a sense making model for leaders to understand and adapt their leadership styles to the contextual complexity of their environment (Kurtz 2003, 468). The Cynefin framework enables decision makers to "see things from new viewpoints, assimilate complex concepts, and address real-world problems and opportunities" (Snowden 2007, 70-71).

The framework sorts the issues facing leaders into five contexts defined by the nature of the relationship between cause and effect. Four of these—simple, complicated, complex, and chaotic—require leaders to diagnose situations and to act in contextually appropriate ways. The fifth—disorder—applies when it is unclear which of the other four contexts is predominant. . . . Since the complex domain is much more prevalent in the business world than most leaders realize—and requires different, often counterintuitive, responses—we concentrate particularly on that context. (Snowden 2007, 70)

For the purposes of this study, the simple and complex domains provide the most appropriate framework to understand the contextual complexity prevalent in Joint ISR doctrine, operations, and leadership.

Simple contexts "require straightforward management and monitoring" (Snowden 2007, 70) as the situation and established processes are typically linear, predictable, and orderly in nature as the relationships between cause and effect are generally known (Kurtz 2003, 468). Hierarchical organizations can rely on a more directive style for C2 by

issuing relatively straightforward guidance, establishing the parameters of the system, delegating decision making authority within defined outcomes, and optimizing or standardizing functions, processes, and procedures to maximize efficiency across the system (Kurtz 2003, 468). Leaders operating within this context run the risk of misidentifying and oversimplifying complex problems as simple problems (Snowden 2007, 70). When this occurs, leaders blinded by complacency and entrenched thinking miss changes in the context, and the system collapses under the weight of its inability to adjust simple processes to handle complex problems (Snowden 2007, 70-71).

Alternatively, complex contexts are more representative of the complex and unpredictable global security environment currently facing the U.S. military. Complex environments challenge a “fundamental assumption of organizational theory and practice: that a certain level and predictability and order exists in the world” (Snowden 2007, 70). Complex systems are non-linear, unpredictable, and dynamic as agents operate in the realm of the unknown unknowns (Snowden 2007, 74). Organizations operating in this realm tend to be synergistic and amorphous which may appear chaotic to an outsider (Snowden 2007, 71). Additionally, complex systems tend to be self-regulating within a set of overarching boundaries, and as elements within the system interact, constrain, and enable each other to develop and mature emergent solutions to evolving problems (Snowden 2007, 71). Leaders operating within a complex environment must be comfortable with a greater degree of ambiguity, accept a greater degree of risk, and communicate in different and interactive ways.

As in the other contexts, leaders face several challenges in the complex domain. Of primary concern is the temptation to fall back into traditional command-and-control management styles—to demand fail-safe business plans with defined outcomes. Leaders who don’t recognize that a complex domain

requires a more experimental mode of management may become impatient when they don't seem to be achieving the results they were aiming for. They may also find it difficult to tolerate failure, which is an essential aspect of experimental understanding. If they try to overcontrol the organization, they will preempt the opportunity for informative patterns to emerge. Leaders who try to impose order in a complex context will fail, but those who set the stage, step back a bit, allow patterns to emerge, and determine which ones are desirable will succeed. (Snowden 2007, 74)

By challenging the overall assumption of order – operating within the known and the knowable, organizations are able to accept the reality of complexity – operating in the unknown and the unknowable (Kurtz 2003, 481). Accepting complexity and sacrificing a measure of efficiency enables leaders to use the system to effectively solve its problems. Leaders successfully manage complex systems by setting overarching boundaries which act to encourage an environment where good patterns can emerge within an acceptable deviance. As evolving problems and patterns of emergence are communicated across the system, innovative and creative ideas gain momentum as they develop structure and coherence over time (Snowden 2007, 75).

Confirmation and Evaluation Criteria

Since inductive arguments cannot prove conclusions, the study is reliant on building strong and cogent inductive arguments that probably support the secondary and ultimately the primary research question. Strong inductive arguments rely on a logical assumption that if the arguments premises are true then its conclusion is also probably true (Hurley 2010, 47). Conversely, weak inductive arguments are arguments where the conclusion does not probably follow the premises (Hurley 2010, 47). Cogent arguments are inductive arguments that are strong and have all true premises; true in a sense that the premise's evidence is accurate and the evidence is fair by not overlooking evidence that

would infer an alternate conclusion (Hurley 2010, 49-50). Probable is defined by the Director of National Intelligence as an expression of likelihood or probability between 55 to 80 percent (DNI 2015, 3).

Table 4. Confirmation and Evaluation Criteria			
Criteria		Criteria Definition	Measure
1.	Is the argument <i>accurate</i> ?	The argument is accurate if the evidence is presented without error.	T or F
2.	Is the argument <i>fair</i> ?	The argument is fair if the evidence presented considers all relevant points of view alike without bias.	T or F
3.	Are the inferences <i>reasonable</i> ?	The argument is reasonable if the conclusion logically follows from the evidence.	T or F
4.	Is the argument logically <i>cogent</i> ?	The argument is cogent if the evidence supports the truth of the conclusion at the probable level (55-80%).	Prob. T or Prob. F

Source: Created by author.

In order to increase the theoretical rigor of the study and to improve the strength and cogency of the inductive argument, confirmation and evaluation criteria will be used to assess the argument and serve as a check on the biases of the researcher. Each argument supporting the secondary and primary research questions will be evaluated via the four listed criteria and their associated definitions and measures in table 4 above. Richard Paul and Linda Elder's universal intellectual standards serve as the foundational lens of the logic confirmation and evaluation criteria (Paul and Elder 2014). Evaluating the inductive arguments accuracy and fairness is an assessment of the overall truth of the premises and their associated evidence. Evaluating the reasonableness of the argument is a check on the overall strength of the inductive argument by judging if the conclusion

follows the premises. Finally, cogency is a measure of an inductive arguments truth and strength by assessing the probability that the evidence supports the truth of the conclusion at the probable level (55-85 percent).

Accordingly, if an argument is logically evaluated to be accurate, fair, and reasonable then the inductive argument is confirmed as a strong argument. Strong arguments that have probably true premises are cogent (Hurley 2010, 51). Arguments that are both strong and cogent are “probably true in the actual world in light of all the known evidence” (Hurley 2010, 51). Conversely, strong arguments may be uncogent if the truth of the premises or evidence cannot be supported at the probable level. In this case the argument may require further research and analysis before the argument’s cogency can be reevaluated. Weak arguments contain false premises with inaccurate or biased evidence and are by definition uncogent. Ideally, the research will produce strong and cogent inductive arguments that can be used to within the GAAT operational example in chapter 5 and will form the conclusions of the study. Strong but uncogent inductive arguments will be evaluated on a case by case basis to determine the specific weaknesses to either identify further recommended research or caveat any findings used in the operational example from the GAAT scenario within the South Caucus region. Finally, weak arguments are not logically defensible and will be thrown out. Figure 12 outlines the cumulative inductive logic tree possible from the study’s confirmation and evaluation criteria.

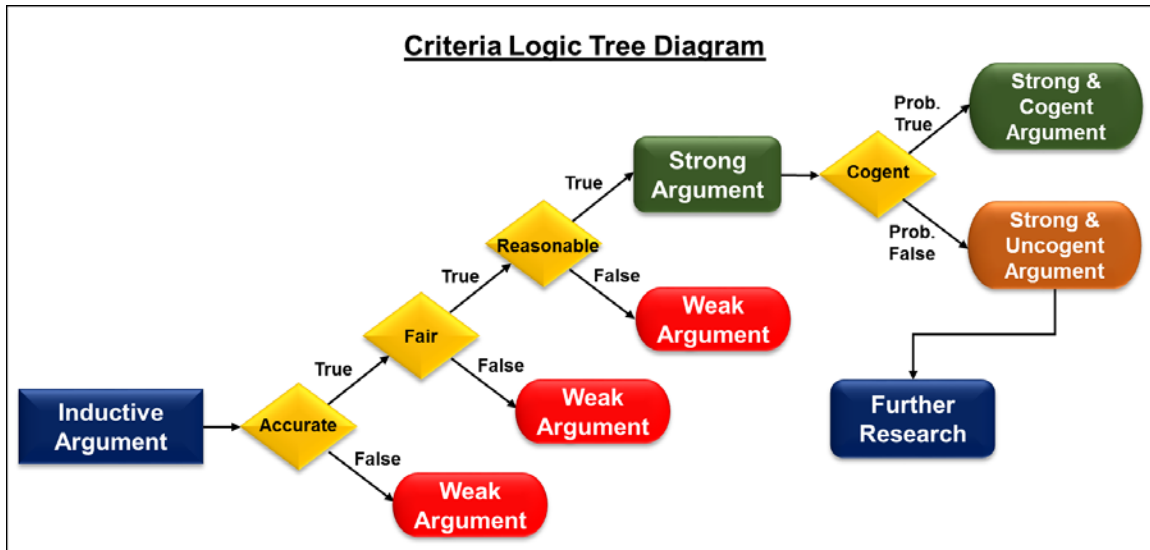


Figure 12. Criteria Logic Tree Diagram

Source: Created by author.

Summary and Conclusion

The future demands of a complex and unpredictable global security environment require future Joint Forces that can integrate globally with leaders employing mission command in order to facilitate a more agile and adaptable Joint Force. If the end goal is a more agile and adaptable force, and mission command a means to increase agility then “smart operations” should seek to maximize the use of mission command. Answering the secondary research questions in turn will establish what Joint ISR would look like with a mission command philosophy lens. Qualitatively approaching the study enables the reader to understand the context of the current body of literature, assess the relative weight and validity of the meta-analysis, and evaluate the relationship between mission command philosophy and ISR agility as presented in the GAAT operational example. Overall, the study’s intent is to make recommendations regarding the application of U.S.

Army mission command philosophy to Joint ISR doctrine in order to improve Joint ISR's operational agility. Chapter 4 provides the meta-analysis of the literature organized by the study's secondary research questions. Chapter 5 theoretically applies the resulting meta-analysis to the representative GAAT operational example and provides the concluding recommendations and comments for the study.

CHAPTER 4

ANALYSIS

Introduction

I believe the solution to almost every problem we face is strong leadership – leadership built on the ability to adapt. Adaptation, as history shows us is the key to survival not only in business or out on the battlefield, but in life. The phrase “adapt or die” exists for a reason, and the best leaders, the strongest leaders, live by it.

— Lieutenant General Rick Lynch, *Adapt or Die: Leadership Principles from an American General*

The purpose of this research is to explore how applying the six principles of the U.S. Army mission command philosophy would enable Joint ISR doctrine and collection operations to be more operationally agile. The six principles of mission command include: building cohesive teams through mutual trust, creating shared understanding, providing clear commander’s intent, use mission orders, exercising disciplined initiative, and accepting prudent risk. Chapter 4 will focus on accomplishing a meta-analysis by further aggregating and analyzing the observation or data collection represented within the literature review from chapter 2. Chapter 3 detailed how the research methodology will be applied to build strong and cogent inductive arguments that probably support the secondary and ultimately the primary research question. Chapter 4 is organized by the study’s secondary research questions in order to methodically construct what Joint ISR would look like with a mission command philosophy lens. Each section will contain the question, an inductive argument used to answer the question, a summary of the supporting evidence, and an evaluation strength and cogency inductive argument premises and conclusion.

What are the limitations of current Joint ISR Doctrine?

Before attempting to advance Joint ISR, it is first necessary to understand its limitations. Identifying the current limitations of Joint ISR is an attempt to understand and frame the problem before progressing to the next question. The body of literature identified a number of trends; however, the intent is not to create an expansive list of limitations, but rather identify the underlying root cause. The game plan in approaching this question was to start with the proposition that all of the trends identified within the body of literature were symptoms of an overarching problem. This enabled the formation of an inductive argument by linearly identifying the effects identified throughout the literature review and then inferring the cause by using the Cynefin framework.

Simple Processes and Complex Environments

First, the body of literature universally identifies the need for greater agility for Joint ISR processes, guidance, and controls in order to meet the challenges of the complex, unpredictable, and challenging global security environment. U.S. strategic guidance has continually cited the increasingly complex and unpredictable nature of the global security environment since the 1992 *NMS* (CJCS 1992, 1-2). The 2012 *Capstone Concept for Joint Operations: Joint Force 2020* by the CJCS calls for a “globally postured Joint Force [that can] quickly combine capabilities with itself and mission partners across domains, echelons, geographic boundaries, and organizational affiliations” (CJCS 2012a, 4). In addition to the strategic guidance, every joint and service publication reviewed, as well as the emerging concepts in the literature review, all characterized the challenges posed by complex, uncertain, fluid, and rapidly changing strategic security environment. “To meet these formidable challenges, the intelligence

process must be sufficiently agile and intelligence organizations prepared and ready to respond to myriad anticipated and unanticipated requirements in a wide variety of situations across the full range of military operations” (US DOD 2012a, I-3). Complex and fluid environments require agile and adaptive forces, leaders, and organizations that can act rapidly and exploit opportunities. Considering the sheer volume of evidence, this premise has a high to nearly certain probability of being true.

Second, despite the exponential expansion of the Joint ISR enterprise over the last 10-15 years, the body of literature overwhelmingly identifies the inability of current bureaucratic processes, guidance, and controls to provide the necessary agility, adaptiveness, and flexibility necessary to meet the challenges of the complex, unpredictable, and challenging global security environment. The 2014 *ISR Joint Force 2020 White Paper* recommends the review and revision of Joint intelligence policy and doctrine limiting the effectiveness of the GFM, intelligence planning, and collections management processes (CJCS 2014, 6). While the white paper does not provide the detail necessary to identify what specifically is limiting the joint intelligence processes, the literature review provides a credible base with an abundant amount of evidence for comparing what “is” versus what “should be.”

Joint and service doctrine details what “is”, i.e. the Joint ISR process or the traditional collection management system. Joint doctrine exists in the reality of process, efficiency, and assumed order. According to doctrine, the joint intelligence process is a set of interrelated categories of processes, procedures, activities, and operations conducted by staffs and organizations to provide relevant and timely intelligence (US DOD 2013b, I-5). The overall joint intelligence process is broken down into multiple

sub-processes by category (see figure 1 for a visualization of the Joint intelligence process): planning and direction processes, collection processes, processing and exploitation processes, analysis and production processes, and dissemination and integration processes, and evaluation and feedback processes (US DOD 2013b, I-5).

Within the categories of processes there are still further compounding processes. For example, “Collection management is the process of converting intelligence-related information requirements into collection requirements, establishing priorities, tasking or coordinating with appropriate collection sources or agencies, monitoring results, and re-tasking, as required” (US DOD 2013b, I-13). Collection management is subdivided into further processes for CRM and COM and so on. Another example is the GFM process to prioritize and allocate collection and PED resources (US DOD 2013b, II-6). Additional examples are the joint intelligence preparation of the environment process for analysis, or the intelligence assessment processes that uses measures of performance (MOPs) to evaluate task performance at all levels of war, and measures of effectiveness (MOEs) to determine progress of operations toward achieving objectives” (US DOD 2013b, IV-10). For brevity’s sake we will stop there, but suffice it to say that joint intelligence doctrine is chock-full of processes.

Processes are commonly described as “a series of actions or steps taken in order to achieve a particular end” (Oxford Dictionary, s.v. “Process” [accessed February 3, 2016] <http://www.oxforddictionaries.com/us>). Referring back to the Cynefin framework, processes are optimized for the simple context where the environment is predominately linear, predictable, and orderly (Kurtz 2003, 468). Processes in and of themselves are not wrong and serve a valuable purpose. When cause and effect are known, processes are

designed to optimize standardized functions between expected inputs and outputs, enable consistent decision making within hierarchical organizations, and maximize the efficiency of the system (Kurtz 2003, 468). However, processes that are designed to efficiently perform functions to convert defined inputs into defined outcomes are unable to meet the demands of a complex environment where the inputs and outputs are unknown, undefined, or evolving.

The body of literature strongly characterizes the traditional collection management process as being optimized for capacity, predictability, and efficiency while becoming cumbersome or unresponsive when conditions begin to change. Collection managers operating within defined hierarchical structures, maximize the operational efficiency of the system by centrally allocating and apportioning limited collection assets. Subordinate unit requirements are consolidated and prioritized through their chain of command until they are eventually racked and stacked within a database against the JFCs theater priorities. Target decks are generated and tasked for collection within the air component's 72-hour air tasking order cycle, and MOPs evaluate the effectiveness of the system by measuring the successful collection of planned targets and thereby the satisfaction of customer requirements. In order to deliver the maximum level of intelligence capacity, the system relies on standardized processes, procedures, and functions; personnel and organizations are trained to execute standard operating procedures in order to present the appropriate input to produce the desired output. The science of collection management is practiced by those who understand how, when, and where to influence the system to produce the desired result. While this type of system

efficiently maximizes capacity, the centralized management of the system limits opportunities for speed, flexibility, and initiative.

On the other hand, Joint lessons learned, the USAF *Theater ISR CONOP*, and the emerging concepts section of the literature review provide a comprehensive look at what “should be.” Beginning around 2006, literature began to identify the need for the air component to increase its capacity for flexible, responsive, and dynamic ISR support to support COIN and counterterrorism operations in Iraq and Afghanistan (Downs 2007, iii). In dynamic environments the context constantly fluctuates. As operations in Iraq and Afghanistan evolved, more and more sources called for tailored approaches to collection management to drive a closer intel-operations fusion and gain the agility commanders required. In 2008, the USAF Force published the *Theater ISR CONOP* calling for more fluid ISR processes to enable lower-level initiative and flexibility (USAF 2008, 30). In addition to the multiple articles, theses, and studies in the body of literature, Joint Staff lessons learned products have captured the need for JFCs to weight their efforts to understand processes and organizations in order to balance the tradeoff between efficiency and effectiveness of collection operations (US JFC 2011, 72).

Analysis of the literature shows the evolution of theory from early emerging concepts to various examples of successful execution in real-world operations. New mechanisms for tasking, such as the MTO, emerged to provide a platform for narrative tasking to enable the synchronization of ISR with the commander’s intent. As the art of collection management has matured to meet the demands of the environment, new concepts facilitated the synchronizing, massing, and layering of ISR capabilities to produce desired effects. Commanders improved the agility and flexibility of ISR

operations by decentralizing capabilities and authorities, flattening vertical and horizontal linkages, and increasing the use of liaisons to leverage increased federation capabilities (US JFC 2011, 71). In effect, commanders set up alternate processes within the collection management system in order to meet the demands of the dynamic operational environment.

Therefore, it probably follows that overall limitation with Joint ISR doctrine is that it misapplies simple processes, guidance, and controls to a complex environment. This would explain why in a simpler context leaders are able to utilize various processes to manage the efficiency of the system, but the system becomes cumbersome or unresponsive when the context becomes more complex. If we entertain the notion that joint collection management is a complex system operating within a complex environment; patterns of emergent innovation and adaptation are indications of self-regulation as elements within the system interact to solve evolving problems. In other words, analogous to symptoms of a disease, innovations and adaptations are indications of challenges facing the system. The challenges resident within the traditional collection management system are met with emergent processes to increase system agility, adaptiveness, and flexibility. Looking across a decade of evidence, the body of literature strongly supports this proposition.

Argument Confirmation and Evaluation

Using the observation materiel from the literature review to feed the meta-analysis enabled the aggregation of data to identify the effects or the symptoms of limitations to Joint ISR doctrine. Inferences were drawn from the evidence and are organized to create the structure of inductive argument with premises and conclusion (see

table 5 below for the argument structure for this secondary research question). The last step in the linear progression for the research methodology is to evaluate and confirm the arguments strength and cogency according to the established criteria (see table 4 in chapter 3, for the study's confirmation and evaluation criteria).

Upon reviewing the arguments structure (see table 5), premises one and two are fairly straightforward and are overwhelmingly supported by the evidence. Premises three and four use the Cynefin framework to interpret the issues confronting the traditional collection management system; limitations well documented throughout joint, service, and emerging concepts for over a decade. The Cynefin framework provides an unbiased perspective to draw inferences that are strongly supported by the aggregated literature, and reasonably link the premises to the overall conclusion of the argument. Overall, the argument is deemed cogent due to the volume of evidence to support the individual truth of the premises and the reasonableness of the conclusion.

Table 5. Secondary Question 1: Argument Confirmation and Evaluation			
Form	Claim	Criteria	T or F
Premise 1	The body of literature overwhelmingly identifies the need for greater agility for Joint ISR processes, guidance, and controls in order to meet the challenges of the complex, unpredictable, and challenging global security environment.	Accurate	True
		Fair	True
Premise 2	The body of literature overwhelmingly identifies the inability of current bureaucratic processes, guidance, and controls to provide the necessary agility, adaptiveness, and flexibility necessary to meet the challenges of the complex, unpredictable, and challenging global security environment.	Accurate	True
		Fair	True
Premise 3	The body of literature strongly characterizes the relevance of the traditional collection management processes for a simple context; a system optimized for capacity, predictability, and efficiency while becoming cumbersome or unresponsive when conditions begin to change.	Accurate	True
		Fair	True
Premise 4	According to the Cynefin framework, simple processes are ill-suited for unpredictable, complex, and dynamic systems. Leaders who oversimplify complex problems, impose simple processes onto complex systems, and overcontrol dynamic organizations risk catastrophic failure as the processes are unable to keep pace with the problems evolving within a complex environment.	Accurate	True
		Fair	True
Conclusion	Therefore, it probable follows that the overall limitation with Joint ISR doctrine is that it misapplies simple processes, guidance, and controls to a complex environment.	Reasonable	True
		Cogent	Prob True

Source: Created by author.

Should ISR be managed or led?

The body of literature identified a number criticisms regarding the inclination for Joint ISR doctrine to favor management over leadership. In his research on “Strategy for

ISR”, Colonel Brown was the most forceful in his criticism by stating that, “If there is one fundamental flaw in current joint doctrine, it is this: ISR is *managed*, while other forms of operations are *led* . . . and doctrine that relies on management over leadership will fail time and again in the heat of battle” (Brown 2013, 25). This criticism naturally builds upon the previous analysis concerning the limitations of Joint ISR doctrine. While joint and service doctrine both speak to the need for commanders to tailor their approach to the situation, there seems to be a perceived or real gap when it comes to ISR. For example, while the tenets of mission command have been inculcated throughout the majority of joint doctrine, they noticeably absent from all joint intelligence doctrine. If Joint ISR doctrine is misapplying simple processes, guidance, and controls to a complex environment; then which type of management or leadership style is best appropriate for this type of environment? There are a number of implications central to this question. First, how should context influence the style of leadership? Second, is Joint ISR a process to be managed, or an operation that should be led? Third, is anything preventing a paradigm shift or how would a leader transition between the two?

Prior to unpacking the implications, it is necessary to briefly pause to define leadership and management. Joint doctrine uses leadership and management throughout the doctrinal library, but it does not specifically define and distinguish between leadership and management tasks. The U.S. Army defines leadership as the “process of influencing people by providing purpose, direction, and motivation to accomplish the mission and improve the organization” (HQ DA 2012c, 1-1). On the other hand, management is commonly defined as “the process of dealing with or controlling things or people” (Oxford Dictionary 2016). The definitions provided are consistent with the

extensive body of knowledge within the business domain—examining the difference between leadership and management—and are sufficient for this study’s use.

Simultaneously Managing and Leading

First, successful leaders must understand and adapt their leadership styles to the contextual complexity of their environment. As a result, as the contextual complexity changes, leaders must also modify their corresponding leadership style. This premise is extensively supported by the body of literature. The Cynefin framework focuses on “five contexts defined by the nature of the relationship between cause and effect” (Snowden 2007, 70). Simple contexts are more straightforward and leaders assume low levels of risk as the relationships between cause and effect are known, while complex contexts require leaders to assume greater risk when there is more ambiguity between cause and effect. Additionally, joint doctrine consistently identifies mission command as the most appropriate command philosophy for complex and dynamic environments; however, it also notes that mission command may not be appropriate when detailed control is required, such as the efficient synchronization of resources (CJCS 2012a, 4-5). As previously discussed, simple contexts are typically associated with linear, predictable, and orderly systems that seek to maximize the efficiency of the system (Kurtz 2003, 468).

Combining the Cynefin framework with joint doctrine reveals a spectrum of command that varies between mission command and complex contexts on one side and detailed control and simple contexts on the other. Remarkably, this connection is already captured within the Marine Corps *Command and Control* doctrine from 1996 (see figure 9 in chapter 2 for the Marine Corps C2 spectrum). While the words simple or complex are not specifically used, the doctrine finds that, “Historically, there have been

two basic responses to the fundamental problem of uncertainty: to pursue certainty as the basis for effective C2 or to accept uncertainty as a fact and to learn to function in spite of it” (HQ DMC 1996, 77). Building upon the Marine Corps C2 spectrum with elements from the Cynefin framework and elements from the philosophy of mission command constructs a more complete picture on how the varying aspects of context influence and affect leadership styles (see figure 13 for a visualization of the spectrum of context).

It logically follows that if context and leadership styles are directly linked then as the contextual complexity changes, leaders should appropriately modify their corresponding leadership style. Throughout doctrine, intelligence is called to play a “critical role across the range of military operations” (US DOD 2012b, I-3). The range of military operations is a sliding continuum of conflict and associated operations ranging from peace to war (US DOD 2013a, I-14). Another way to visualize the range of military operations would be a continuum of context that ranging from simple to increasingly complex operations and environments on one axis, and another axis representing the spectrum of C2 (see figure 14). This is not to imply that all peaceful environments are simple or that all wartime environments are complex, the intent is to broadly illustrate how intelligence must operate across changing and dynamic environmental contexts and how the context is directly related to command style. Generally, as military operations become more complex, they demand increasingly flexible command styles as embodied by mission command (see figure 13).



Figure 13. Spectrum of Environmental Context

Source: Created by author.

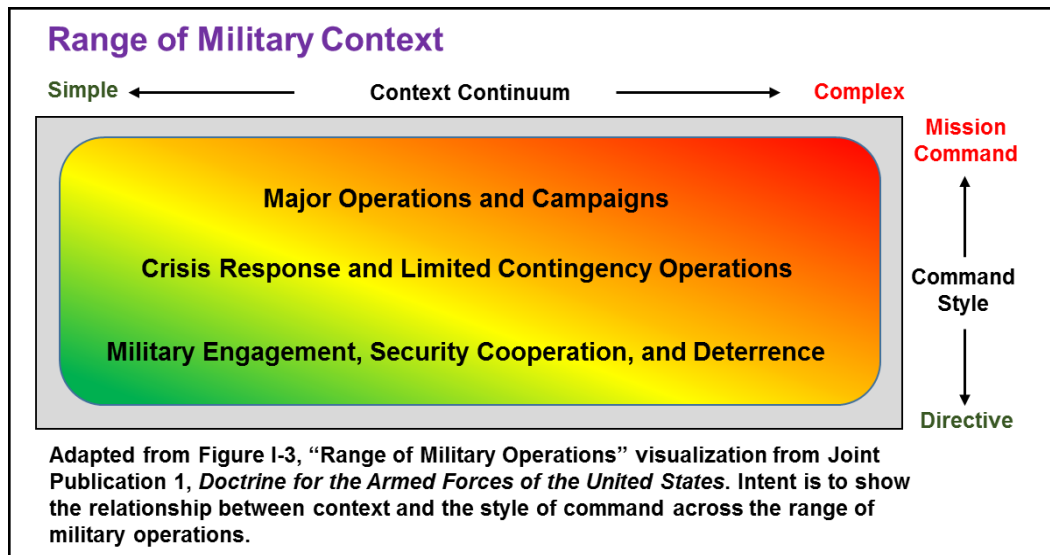


Figure 14. Range of Military Context

Source: Adapted by author from United States Department of Defense (US DOD), Joint Publication 1-0, *Doctrine for the Armed Forces of the United States* (Washington, DC: CJCS, 2013), I-14, accessed September 20, 2015, http://www.dtic.mil/doctrine/new_pubs/jointpub_personnel.htm.

In addition to operating across various strategic contexts, joint intelligence must support the wide variety of military operations. While each operation is unique, the joint phasing construct in JP 3-0 provides a framework in which “JFCs and staffs visualize, design, and plan the entire operation or campaign and define requirements in terms of forces, resources, time, space, and purpose” (US DOD 2011a, V-5). As the operation proceeds through its phases, there is a relationship between the type of military operation, the phase of the conflict, the level of military effort, and the changing complexity of the context (see figure 15). This is not to imply that context is directly related to the effort required to solve them, i.e. simple problems may not be easy to solve, but to illustrate that context can and will change between phases. JFCs choose the appropriate mix of offensive, defensive and stability operations tailored to fit the operational environment

and achieve the desired end state. In other words, operations occurring in the shaping phase should look different, require different levels of effort, and occur in a different context than those occurring in the dominate phase and so on. However, despite the fluctuating contexts, Joint ISR largely executes via the same bureaucratic processes, guidance, and controls regardless of the strategic environment, the type of military operation, the level of military effort, or the phase of the conflict.

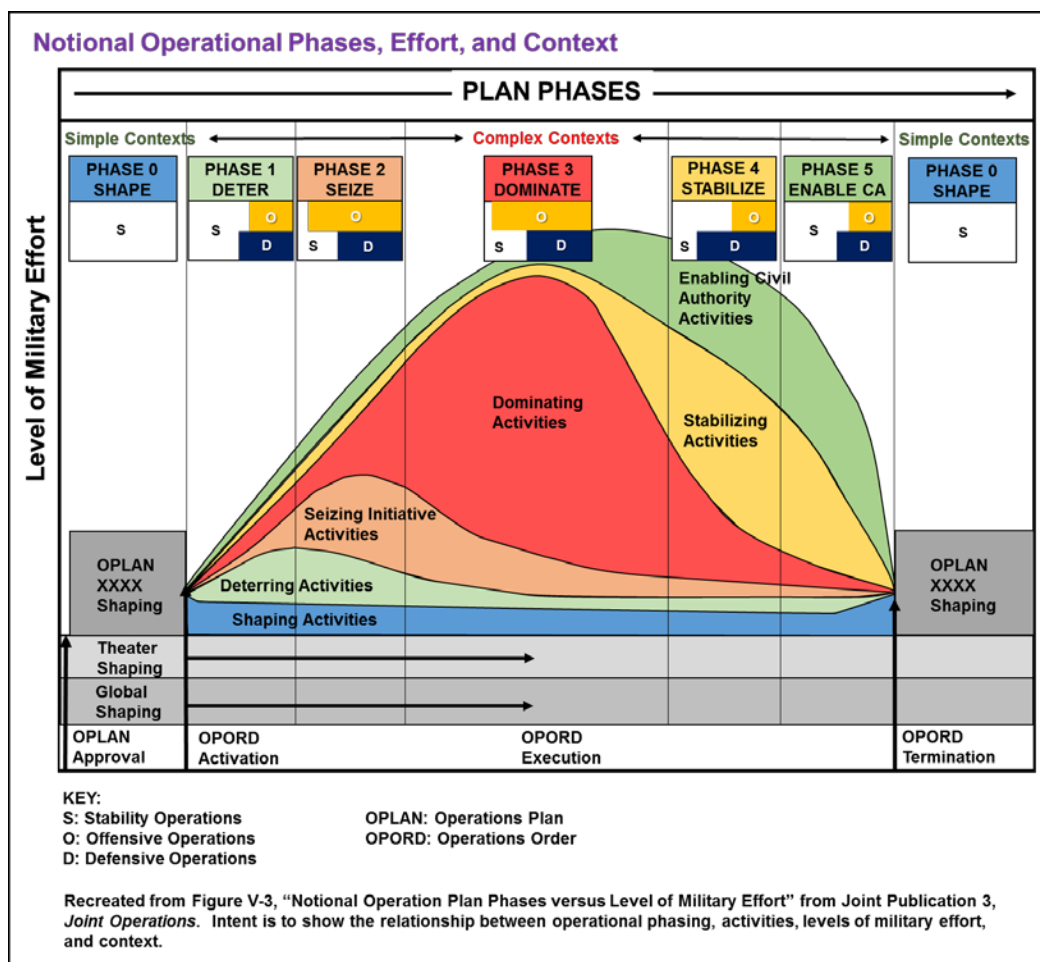


Figure 15. Notional Operational Phases, Activities, Effort, and Context

Source: Adapted by author from United States Department of Defense (US DOD), Joint Publication 3-0, *Joint Operations* (Washington, DC: CJCS, 2011), I-14, accessed September 20, 2015, http://www.dtic.mil/doctrine/new_pubs/jointpub_operations.htm.

Second, because of the various activities performed, Joint ISR is simultaneously a process to be managed “and” an operation that should be led. Understanding this inconsistency is fundamental to leaders successfully achieving unity of effort across the system. As a result, it would follow that since activities, effort, and context will change over time, leaders must tailor the controls of the system to enable the appropriate level of agility, adaptiveness, and flexibility required. This is a gap in Joint ISR doctrine. While joint intelligence doctrine addresses the need “tailor intelligence support to the nature and scope of operations to be conducted” (US DOD 2013b, I-6), doctrine offers nothing on how leaders can actually tailor the system accordingly. Generally, the context is fluid and dynamic, but doctrine contains hundreds of pages of Joint ISR processes, procedures, and organizations that are largely static and tedious. This matter will be further addressed within the subsequent secondary question addressing ISR agility.

There are countless ways to divide and categorize the activities and operations of Joint ISR. For the purposes of this study there are four overarching missions and tasks for Joint ISR including: indications and warning (I&W), targeting, operations support, and collections management (see figure 16 for a breakout of the overarching missions and tasks). Just as JFCs and their staffs choose the appropriate mix of offensive, defensive and stability operations, the J2 must also choose the appropriate mix of I&W, targeting, operations support, and collections management to fit the operational environment and enable the desired end state.

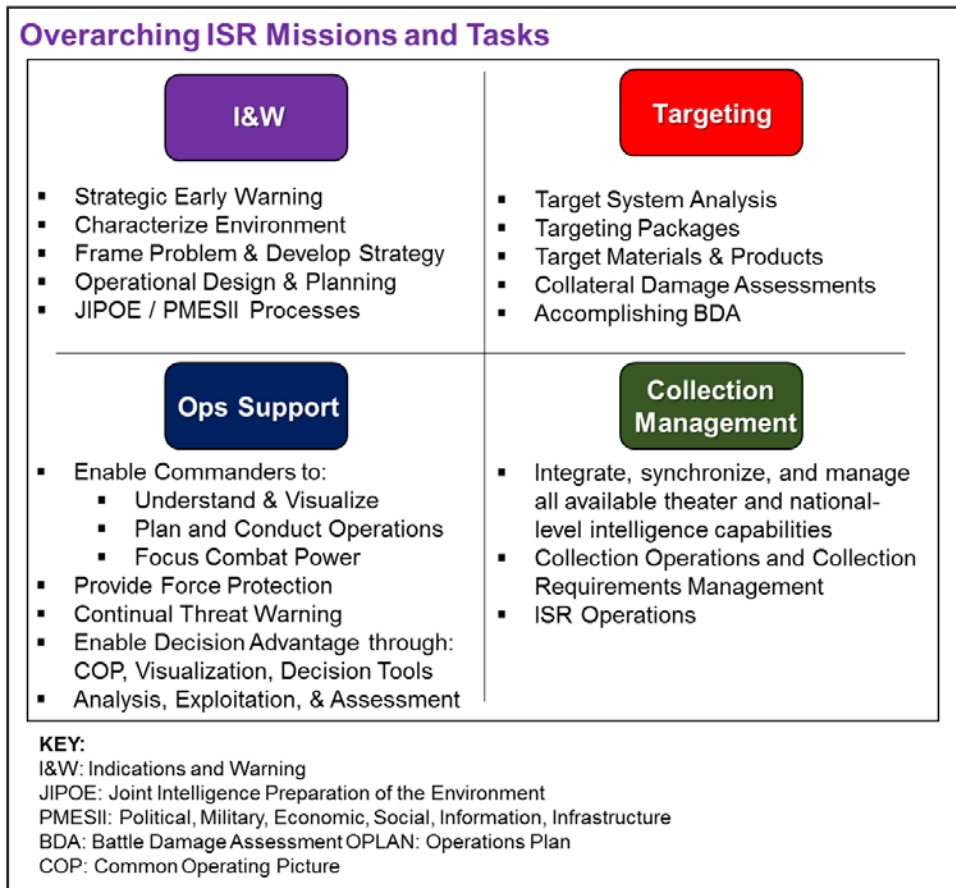


Figure 16. Overarching Joint ISR Missions and Tasks

Source: Created by author.

As the operation progresses and complexity changes across phases, the types of ISR missions and tasks, and levels of intelligence effort should change to provide the appropriate balance for operational missions and tasks. I&W activities are typically weighted towards the shaping and deterrence phases as commanders are trying to characterize the environment, frame the problem, and develop the appropriate operational designs. I&W activities are typically occurring in a simpler context and tend to lend themselves to management by maximizing efficiencies of processes and resources. On

the other hand, targeting and operations support activities are weighted towards the middle phases as the planning and conduct of combat operations take precedence. Within the more complex environments, leadership takes precedence. There are always requirements for collection management; however, as the context changes from simple to complex problem sets and environments they require increasingly agile, adaptive, and flexible leadership. I&W, targeting, operations support, and collections management activities exist in all phases but at varying levels of effort (see figure 17 for a notional representation of the intelligence activities by operational phase). In other words, joint intelligence may be balancing ISR activities that require different levels of management or leadership depending on the context of the operational phase. Since Joint ISR requires different levels of management and leadership, it is incumbent on leaders to understand and therefore plan to this dichotomy.

Third, misunderstanding the dichotomy between ISR management and leadership causes leaders to try and overcontrol the organization when the context begins to change. As discussed above, portions of Joint ISR activities prevalent during the initial phases of an operation reinforce the tendency to adhere to simple processes to manage the efficiency of the system. Leaders seeking to maintain linear, predictable, and orderly processes in a complex environment end up fighting and constraining the system's ability to compensate. Entrenched thinking contributes to the overall failure of the system as the system collapses under the inability of the bureaucracy to adjust processes to the new context (Snowden 2007, 70-71). Leaders seeking to simplify complex contexts attempt to standardize or formalize innovations within the bureaucratic processes. On the other hand, leaders that recognize a context transition begin to shift resources away from the

bureaucracy and accept increased levels of disorder and inefficiency. Thereby creating potential energy and space for the system to adapt, innovate, and experiment to evolving challenges (see figure 13).

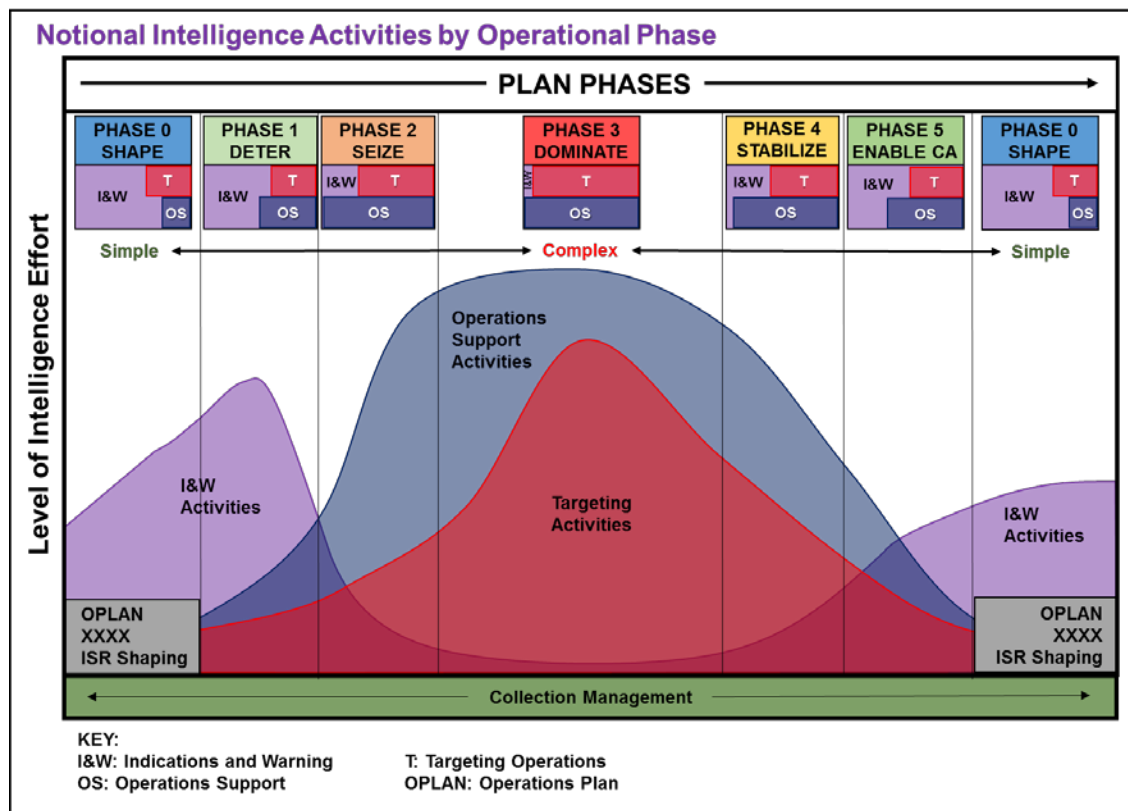


Figure 17. Notional Intelligence Activities by Operational Phase

Source: Created by author.

Therefore, it probably follows that when leaders successfully balance the appropriate style of leadership to their environmental context they end up expending less energy to achieve the same results (Kurtz 2003, 481). In complex and dynamic spaces, this requires leaders to relax their overall assumption of order and embrace the reality of operating in a complex world. Leaders primarily enable this transition by accepting

increased measures of ambiguity and risk and relaxing system controls. Relaxing assumptions of order and accepting ambiguity and risk means recognizing that not all solutions are orderly and efficient. As the system adapts, patterns of emergence occur within the overarching boundaries established. Leaders “learn to detect these forming patterns, stabilize or disrupt them depending on their desirability, and seed desirable patterns by creating attraction points” (Kurtz 2003, 481). Instead of fighting the system to maintain an illusion of order, leaders empower system innovation and focus on minor course corrections and exploiting successes. Leaders who empower the system, establish the conditions necessary to successfully meet the challenges of the complex, unpredictable, and challenging global security environment.

Argument Confirmation and Evaluation

As previously discussed, the question regarding which type of management or leadership style is best suited for a complex environment naturally builds upon the previous analysis concerning the limitations of Joint ISR doctrine. While joint and service doctrine both speak to the need for commanders to tailor their approach to the situation, the literature review raised questions regarding a perceived or real gap when it comes to ISR. The meta-analysis for this question utilized observation materiel from the literature review, and built upon the previous analysis to characterize the appropriateness balance between management or leadership within Joint ISR. The respective inferences from the analysis are structured to create premises and a conclusion that are evaluated and confirmed according to the established criteria (see table 4 in chapter 3, for the study’s confirmation and evaluation criteria).

Table 6. Secondary Question 2: Argument Confirmation and Evaluation			
Form	Claim	Criteria	T or F
Premise 1	The body of literature strongly suggests that successful leaders must understand and adapt their leadership styles to the contextual complexity of their environment.	Accurate	True
		Fair	True
Premise 2	The evidence strongly suggests that since activities, effort, and context will change over time; leaders must also tailor the controls of the system over time to enable the appropriate level of agility, adaptiveness, and flexibility required.	Accurate	True
		Fair	True
Premise 3	The body of literature characterizes the requirement to simultaneously manage and lead ISR due to the various activities concurrently performed by Joint ISR; as the balance of Joint ISR activities change, the corresponding levels of management or leadership must also change dependent on the context of the phase.	Accurate	True
		Fair	True
Conclusion	Therefore, it probably follows that when leaders successfully match the appropriate balance of leadership to their environmental context they establish the conditions necessary to meet the challenges of the complex, unpredictable, and challenging global security environment.	Reasonable	True
		Cogent	Prob True

Source: Created by author.

Reviewing the structure of the argument reveals that there is a compelling amount of evidence from the Cynefin framework, joint and service doctrine, and emerging concepts to support the first two premises (see table 6 above for the argument's confirmation and evaluation). Premise three builds upon the joint operations phasing construct to create a parallel construct for Joint ISR to understand the varying ISR activities by phase. Additionally, it enables analysis regarding the need to balance between management and leadership activities as phases, activities, and context change.

The premise does not attempt to argue for a specific mix of management and leadership, but objectively show that ISR activities contain different levels of both styles by phase and that leaders must understand this and balance accordingly. The Cynefin framework, joint and service doctrine, and emerging concepts coalesce to create a reasonable link between the premises and the arguments conclusion. Overall, the argument is deemed cogent due to the strength of the evidence to support the individual premises and the reasonableness of the premises linking to the conclusion.

What is ISR agility and why do we need it?

One of the major themes throughout the complete body of literature, and the dependent variable of this study, is the desire to increase agility. The *NMS*, *Capstone Concept for Joint Operations: Joint Force 2020*, CJCS white papers, and joint and service doctrine all point to increased global agility as the key to success in a complex, unpredictable, and challenging global security environment. In addition to increased global agility, there is a recognition that this will require increased reliance on ISR to play more pronounced roles in future joint operations (CJCS 2012a, 7). While ISR is called to be more agile, doctrine offers very little on what agility is or how ISR can actually create agility. In light of the previous analysis and the focus on agility within the study itself, it is essential to understand what ISR agility is, why we need it, and how we can influence agility within individuals and organizations as a whole.

The Three Pillars of Agility

Joint doctrine defines agility as the “ability to quickly shift focus and bring to bear the skill sets necessary to address the new problem at hand while simultaneously

continuing critical preexisting work. Intelligence structures, methodologies, databases, products, and personnel should be sufficiently agile and flexible to meet changing operational situations, needs, priorities, and opportunities” (US DOD 2013b, II-10). While doctrine often uses the words agile, flexible, adaptable, adjustable, dynamic, fluid, and tailored interchangeably; in reality, agility is an umbrella term that is supported by the three foundational pillars of preparation, anticipation, and readiness (figure 18 provides a visualization of the three pillars of ISR agility). The ability to be flexible and adaptive as a leader and an organization is bigger than at the point of execution. It requires continuing efforts to prepare in advance, anticipate requirements and posture resources, and exploit potential energy to quickly adapt as conditions and context change. In an effort to better understand agility, the three pillars of ISR agility are further broken out below.

The pillar of preparation encompasses efforts to prepare people, structures, guidance, and processes to meet the commander’s needs throughout the full-spectrum of military operations and environmental contexts. Preparation includes efforts to create the potential and capacity for agility within individuals and organizations as a whole. On the individual level, this includes investing in people with technical training, education, and experiences to develop the appropriate set of skills necessary to remain agile when required (US DOD 2013b, II-10). Leaders purposefully foster and develop subordinate leaders to exercise initiative, recognize and capitalize on emerging opportunities, problem solve, and experiment within boundaries. Developing individual agility contributes to developing increasingly agile, adaptive, and flexible leadership that can operate in challenging and complex environments.

At the organizational level, leaders must also purposefully set the conditions for organizational agility. Agile organizations can adapt to the changing contextual complexity of their environment over time. As previously discussed, complexity is influenced by such factors as the phase of the conflict, the level of military effort, and the changing environmental context (see figure 17). As context changes, successful leaders tailor their leadership styles to the appropriate environmental context (see figure 13). With this in mind, leaders must plan to establish an applicable groundwork in the organization that enables future agility by adjusting to meet the demands of the contextual complexity of their environment. Essentially, agility requires planning.

The pillar of anticipation comprises efforts to remain fully integrated with operations to create potential energy by understanding prospective requirements, monitoring changes, and posturing intelligence resources accordingly. Anticipation synchronizes joint intelligence with the overall operational plan by understanding the commander's intent, objectives and end state. With the appropriate groundwork to enable agility, anticipation embodies an ISR strategy that balances ISR effects, tasks, objectives, priorities, and weight of effort to provide the appropriate agility for the contextual complexity of the environment. Anticipation produces potential energy within the ISR system to respond to "sudden changes in the operating environment. . . [that] allow little reaction and recovery time" (US DOD 2013b, II-10). Like a coiled spring, leaders create potential energy by accepting increased levels of disorder and inefficiency. Potential energy is a recognition that while it is impossible to plan for every contingency in a complex environment, it is possible to optimize the system's capacity to meet evolving challenges (see figure 13).

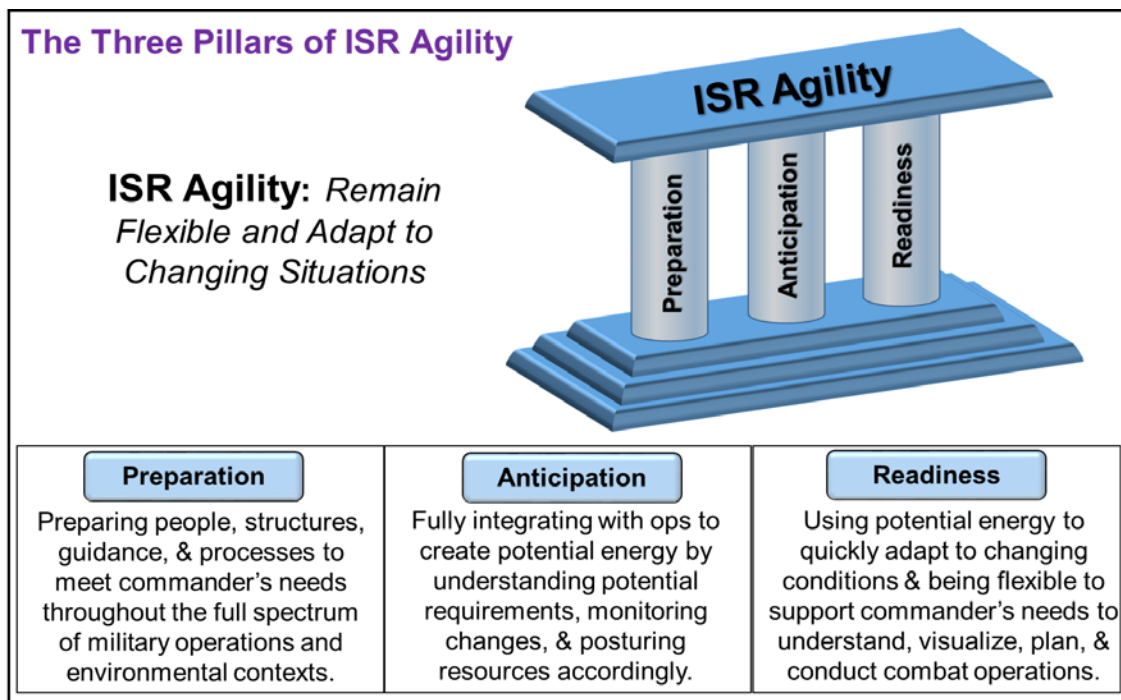


Figure 18. The Three Pillars of ISR Agility

Source: Created by author.

The pillar of readiness uses the system's potential energy to quickly adapt to changing conditions while remaining flexible to support the commander's needs to understand, visualize, plan, and conduct full-spectrum combat operations. Potential energy created by trading order and efficiency is converted into initiative, innovation, and emergence. As the system adapts, leaders focus on minor course corrections and exploiting successes. In other words, after laying the groundwork and creating the potential to be agile, readiness is unleashing the system to meet the challenges of the complex, unpredictable, and challenging global security environment within the established boundaries of behavior.

ISR Agility is the Objective

So why do we need ISR agility? Joint intelligence doctrine states that, “the key to successful agility is preparation and organization for all contingencies well in advance” (US DOD 2013b, II-10). The proposition that it is possible for ISR to prepare for all contingencies in a complex environment is simply absurd and shows how naive and detached ISR doctrine can be on this topic. Complex environments are by definition unpredictable, unordered, and dynamic as leaders operate in the realm of the unknown unknowns (Snowden 2007, 74). We need ISR agility because increasing the agility, adaptiveness, and flexibility of the system is the best response to a complex, unpredictable, and challenging environment. This foundation is supported by a considerable amount of evidence from the literature as well as the previous analysis within the study. Furthermore, the evidence logically links the need to increase ISR agility with the capacity to enable and improve the overall operational agility and effectiveness for the Joint Force (CJCS 2014, 1-3). However, while ISR agility is essentially identified as “the” objective, Joint ISR has struggled to recognize and bridge the gap of organizational agility emerging between simple and complex environments.

How Leaders Influence Agility

By further evaluating the pillars of ISR agility it becomes clear that agility does not just happen. At some point along the spectrum of context, simple processes designed to maximize efficiencies obstruct the transition to a complex system that trades order and efficiency for agility, adaptability, and flexibility. This first and foremost requires leaders to understand and acknowledge that their style of leadership should match their environmental context, and that the complexity of the context will change over time.

Leader's efforts to increase ISR agility must focus on implementing a purposeful effort to prepare individuals and organizations for the potential and capacity to be agile.

Individually this involves investing in people; organizationally this involves accepting ambiguity and risk, relaxing bureaucratic controls, decentralizing authorities, flattening communication, and encouraging and rewarding initiative, innovation, and emergence within established boundaries of behavior. Conceptually this makes sense, but it is practically difficult to implement.

Next, after establishing the foundation for agility by preparing individuals and organizations, leaders must anticipate operational needs. Anticipating operational needs involves creating potential energy within the system, and then releasing the system to meet the varying challenges across the spectrum of environmental context (figure 13). One way to think about ISR agility would be to equate it to building a reservoir on a river. During simple contexts, processes act like a steady river. There are few ways to affect the flow of the river as there are defined inputs and outputs that move along a defined and orderly space at a consistent pace. However, complex systems require a reservoir. Reservoirs are foundations that establish the potential and capacity to be agile. Decreasing the efficiency of the river, creates potential energy that can be released in various ways to create desired effects across the environment. The intent of the reservoir is not to block the river, but rather provides options otherwise not available.

Argument Confirmation and Evaluation

Understanding what ISR agility is and why it is needed in a complex environment is one of the key questions for not only this study but across the full body of literature. Inherent within the line of questioning is the need to understand how leaders influence

individual and organizational agility. The study has previously established that Joint ISR doctrine is misapplying simple processes, guidance, and controls to a complex environment, and that leaders should seek to match the appropriate balance of leadership style to their environmental context. If it is not possible to know what the contingencies will be ahead of time, then our focus must be on optimizing the system's ability to remain flexible and adaptive to contingencies as they unfold . . . or ISR agility. The meta-analysis for this question is extensively supported by evidence from the full body of literature as well as the analysis from preceding sections. As with the previous secondary research questions, the inferences from the analysis are structured into premises and a conclusion and are evaluated and confirmed according to the established criteria (see table 4 in chapter 3).

Reviewing the structure of the argument (see table 7) reveals that the first three premises are strongly supported by a large volume of evidence from the entire body of literature. Premise one largely takes the definition and description of agility from JP 2-0, *Intelligence*, and uses the literature review to further breakout the supporting pillars of ISR agility. There is wealth of knowledge across the business world that further defines the concepts of agility, adaptability, flexibility, and fluidity; however, upon review the author decided that fleshing out the joint definition would meet the same end without introducing additional variables into the study. Premise four directly follows from the first three premises and is a synthesis of concepts from strategic guidance, joint and service doctrine, the Cynefin framework, and emerging concepts. The conclusion naturally follows the premises by answering the expected question of how do leaders influence agility along the three pillars of ISR agility. Overall, the argument is cogent due

to the probability of truth of the premises and the reasonableness of the conclusion's link to the argument's premises.

Table 7. Secondary Question 3: Argument Confirmation and Evaluation			
Form	Claim	Criteria	T or F
Premise 1	The body of literature characterizes ISR agility an umbrella term supported by the pillars of preparation, anticipation, and readiness. Overall ISR agility is the ability to remain flexible and adapt to the changing complexity of the environment.	Accurate	True
		Fair	True
Premise 2	The body of literature strongly advocates for increasing the agility, adaptiveness, and flexibility of a system's agility as the best response to a complex, unpredictable, and challenging environment.	Accurate	True
		Fair	True
Premise 3	The evidence strongly suggests that as the environment increases in complexity, it requires equivalent increases in agility, and adaptability, and flexibility by leaders and organizations.	Accurate	True
		Fair	True
Premise 4	The body of literature strongly submits that agility does not just happen; ISR agility is the result of purposeful efforts by leaders to prepare individuals and organizations for the potential and capacity to be agile.	Accurate	True
		Fair	True
Conclusion	Therefore, it probably follows that leaders increase ISR agility by purposefully implementing efforts to prepare for the potential and capacity to be agile, anticipating operational needs by creating potential energy, and unleashing the system within the established boundaries of behavior	Reasonable	True
		Cogent	Prob True

Source: Created by author.

What would Joint ISR collection look like with a
mission command lens?

The study has so far assessed Joint ISR's inability to meet the demands of a complex environment, the need for leaders to balance their style of leadership to their environmental context, and the importance of ISR agility as the best response to a complex, unpredictable, and challenging environment. The next logical step in this study is transitioning to the independent variable of mission command. Strategic guidance, joint and service doctrine, and the emerging concepts from the literature review provide an overwhelming amount of evidence supporting the need for mission command as "the most appropriate command philosophy for the increasingly uncertain future environment" (CJCS, 2012a, 4). Likewise, the literature overwhelmingly links mission command as one of the key enablers of agility within the Joint Force (CJCS 2012a, 4-5). However, despite the inculcation of mission command throughout joint and service doctrine, it is remarkably absent from all joint intelligence doctrine. First, this section will examine the links between mission command and Joint ISR by coupling the principles of mission command with the appropriate evidence. Next, the analysis will examine the relationship between mission command and ISR agility to understand what ISR would look like with a mission command lens. Finally, the section will address the primary research question regarding the relationship between mission command and ISR agility. Filling in these gaps enables the concluding analysis of the study's thesis regarding the improvement of Joint ISR's agility.

Applying Principles of Mission Command

The first principle of U.S. Army mission command is building cohesive teams through mutual trust. Effective commanders establish an environment of mutual trust that is built upon shared confidence, professional competence, integrity, and two-way open and honest communication between commanders and subordinates (HQ DA 2012b, 2-1). Mutual trust between commander and subordinates empowers subordinates to exercise initiative “when they believe their commander trusts them. . . [and] commanders delegate greater authority to subordinates whose judgment they trust” (HQ DA 2012b, 2-2). Additionally, establishing an environment of mutual trust enables commanders to achieve unity of effort as multiple organizations, commands, and partners focus their respective capabilities towards a common goal (HQ DA 2012b, 2-2).

However, much like ISR agility, mission command does not just happen. Leaders purposefully invest in efforts to build cohesive teams and foster mutual trust that create the potential and capacity for individuals and organizations to execute mission command. As the contextual complexity of the environment changes over time, leaders are more willing to relax bureaucratic controls, decentralize authorities, flatten communication, and encourage and reward initiative, innovation, and emergence if they trust the individuals and organizations supporting them. Likewise, subordinates are more willing to take the initiative, innovate, and exploit opportunities within the commander’s intent if they trust the commander will support them. In other words, preparing individuals and organizations to execute mission command is an investment in future ISR agility and potential energy.

Creating shared understanding is the second principle of U.S. Army mission command. Commanders create shared understanding by establishing a common “understanding of their operational environment, the operation’s purpose, problems, and approaches to solving them” (HQ DA 2012b, 2-2). Shared understanding is achieved through a culture of collaboration and serves as the foundation for unity of effort and trust across the force (HQ DA 2012b, 2-2). Shared understanding directly impacts Joint ISRs ability to maintain unity of effort by anticipating operational needs, understanding prospective requirements, monitoring changes in the environment, and posturing intelligence resources accordingly. As the contextual complexity of the environment changes over time, Joint ISR remains agile by building a reservoir of potential energy that can be employed when required by the operational plan.

The third principle of U.S. Army mission command is to provide a clear commander’s intent. The commander’s intent is the unifying vehicle that establishes the boundaries of behavior and enables unity of effort in a complex and dynamic environment (HQ DA 2012b, 2-3). The commander’s intent offers the “why” behind the operation. Enabled by mutual trust and maintaining a common understanding of the environment, the commander’s intent provides a “clear and concise expression of the purpose of the operation and the desired military end state that supports mission command” (HQ DA 2012b, 2-3). The commander’s intent enables organizations to transition from simple to complex environments as the commander establishes overarching boundaries of behavior within which subordinate commanders coordinate their dispersed efforts, exercise disciplined initiative, and exploit opportunities as the situation and mission unfolds (HQ DA 2012b, 2-4). Furthermore, the commander’s intent

permits ISR agility by focusing individual and organization preparation, anticipation, and readiness to support the operation.

Exercising disciplined initiative is the fourth principle of U.S. Army mission command. Subordinates exercise disciplined initiative to create and exploit opportunities when “in the absence of orders, when existing orders no longer fit the situation, or when unforeseen opportunities or threat arise” (HQ DA 2012b, 2-4). Disciplined initiative is the result of commanders who accept risk and a measure of inefficiency by decentralizing authorities in order to gain agility, adaptability, and flexibility. Decentralization generally increases the speed of operations by enabling subordinate leaders to “act quickly to seize, retain, or exploit the initiative” (HQ DA 2012b, 2-4). Underwritten by trust and enabled through shared understanding, disciplined initiative is the result of the preparation to create potential energy and then the release of that energy to meet the demands of a complex and dynamic environment. Essentially, disciplined initiative requires more work up front to understand and communicate the commander’s overall intent, but achieves the flexibility and synergy of ISR on the back end.

The fifth principle of U.S. Army mission command is the use of mission orders. Mission orders are a narrative tasking that relies on effective vertical and horizontal coordination to provide maximum freedom of action and maximum initiative to subordinates (HQ DA 2012b, 2-4). “Commanders use mission orders to assign tasks, allocate resources, and issue board guidance. . . focus[ing] the activities and achievement of the main objective” (HQ DA 2012b, 2-4-5). The mission order provides the mechanism for the commander to state the purpose, intent, and concept of the operation to guide the activities of the force (HQ DA 2012b, 2-5). Mission orders accept the truth

that change will occur in a complex environment, and the best response is to provide overarching boundaries of behavior for the system to operate within. Trusted subordinate commanders understand and are guided by the commander's overall intent of the operation and will exercise disciplined initiative to create and exploit opportunities.

Finally, accepting prudent risk is the sixth principle of U.S. Army mission command. Essentially, commander's trade risk for opportunity. Risk is inherent in any context where the relationship between cause and effect are unknown, and the environment is ambiguous and fluid. "Prudent risk is a deliberate exposure to potential injury or loss when the commander judges the outcomes in terms of mission accomplishment as worth the cost" (HQ DA 2012b, 2-5). Commanders must accept ambiguity and risk as a prerequisite for operating in a complex environment or they will constrain the system's ability to operate and adapt. Leaders accepting risk when allowing a measure of disorder and inefficiency within the system, relaxing bureaucratic controls, decentralizing authorities, and flattening communication; however, this is key to enable ISR agility to prepare, anticipate, and employ the potential energy of the system.

The Link Between Mission Command and ISR Agility

The study's thesis theorizes that applying the six principles of the mission command philosophy would improve Joint ISR's agility at the operational level. Accordingly, there is extensive evidence from the body of literature that supports the ability of the mission command philosophy to directly influence agility. First, the evidence overwhelmingly characterizes mission command as the best response to a complex, unpredictable, and challenging global security environment. As previously stated, mission command is continually cited as "the" way for leaders to increase the

agility, adaptiveness, and flexibility of a system; as leaders accept risk and inefficiency they gain initiative, innovation, and emergence by decentralizing authorities. This relationship is again depicted in the spectrum of environmental context in figure 13.

Second, as previously identified, mission command is markedly absent from all joint intelligence doctrine. There is an underlying caveat in several references that states that mission command may not be appropriate when the priority is about the synchronization of resources (CJCS 2012a, 5). While one of the assumptions of the research is that the mission command philosophy is appropriate to apply to Joint ISR at some level, elements of the literature review and previous research regarding the secondary research questions strongly supports the applicability of mission command to Joint ISR. For all intents and purposes, mission command is just as applicable to Joint ISR as it is to any other mission area where commanders need to increase the agility, adaptiveness, and flexibility of a system. There is no need for a special ISR mission command, but rather mission command should be applied to Joint ISR.

Third, Joint ISR operates across the full range of military contexts; ranging on a spectrum from simple to complex (see figure 14). Additionally, the multiple processes, systems, organizations, and personnel operating that encompass Joint ISR, makes Joint ISR a complex environment in and of itself where simple processes are insufficient in meeting the challenges of those environments. As previously discussed, leaders must adjust and tailor their leadership and management approaches to the environment in which they are operating. Since Joint ISR performs multiple mission and tasks (see figure 16) that vary across operational phases, commanders should be preparing their subordinate leaders and organizations to operate across the full scope of military

contexts. In other words, leaders should be increasing the application of mission command as complexity increases in order to provide the agility and flexibility required to support the commander's intent (see figure 17).

Fourth, there is sufficient evidence to support the observation that mission command is the vehicle that enables ISR agility. Mission command seamlessly dovetails over the three pillars of ISR agility (see figure 18) by establishing the necessary foundation, enabling anticipation, and unleashing the readiness of the system to respond to a complex and changing environment. Mission command, like ISR agility, does not just happen. Mission command and ISR agility require purposeful preparation and investment by leaders to build cohesive teams and foster mutual trust that create potential and capacity to meet the commander's needs. Shared understanding, a clear commander's intent, and disciplined initiative enables ISR anticipation by creating potential energy and posturing resources accordingly. Finally, mission orders and accepting prudent risk enables ISR readiness by empowering subordinate leaders to execute disciplined initiative in line with the commander's intent to adapt and exploit opportunities.

Argument Confirmation and Evaluation

The meta-analysis addressing what Joint ISR looks like with a mission command lens utilizes the full body of literature and previous analysis to evaluate the link between mission command and ISR agility. At this point in the study there is enough evidence to from the literature review and the previous analysis to answer the primary research question and establish the relationship between mission command and ISR agility. Reviewing the structure of the argument identifies an overwhelming amount of evidence from joint and service doctrine, emerging concepts, and the previous analysis to support

the first three premises (see table 8). Additionally, the literature review and previous analysis strongly supports premise four regarding the applicability of mission command to Joint ISR. When looking across the various ISR mission and tasks that are accomplished across the full scope of operations, it becomes clear that mission command should be increasingly applied as the environmental complexity increases. Finally, by establishing the applicability of mission command to Joint ISR, as well as the previous link between mission command and the creation of agility, it logically follows that increases in the amount of mission command will likely result in comparable increases in ISR agility. Considering the evidence to support the individual premises and the reasonableness of the premises link to the conclusion, the argument is generally cogent.

Table 8. Secondary Question 4: Argument Confirmation and Evaluation			
Form	Claim	Criteria	T or F
Premise 1	The body of literature overwhelmingly characterizes mission command as the most appropriate command philosophy for complex, unpredictable, and challenging environments.	Accurate	True
		Fair	True
Premise 2	The body of literature strongly advocates for increasing the agility, adaptiveness, and flexibility of a system's agility as the best response to complex, unpredictable, and challenging environments.	Accurate	True
		Fair	True
Premise 3	The body of literature overwhelmingly identifies mission command as directly related to the creation of agility within the Joint Force; therefore, increases in mission command would likely result in comparable increases in agility.	Accurate	True
		Fair	True
Premise 4	The body of literature strongly supports the applicability of mission command to Joint ISR; as contextual complexity increases leaders should respond with increasing level of mission command.	Accurate	True
		Fair	True
Conclusion	Therefore, it probably follows that increases in the amount of mission command within an environment will likely result in comparable increases within ISR agility.	Reasonable	True
		Cogent	Prob True

Source: Created by author.

Summary and Conclusion

The full body of literature paired with the meta-analysis provides sufficient evidence to answer the primary research question regarding mission command's ability to increase ISR agility. Methodically answering the secondary research questions creates a framework to understand the limitations with Joint ISR doctrine, assess the relationship between leadership and environmental context, fully appreciate the aspects of ISR agility, and understand the probable relationship between mission command and ISR agility. So

how would applying the six principles of the U.S. Army mission command philosophy change Joint ISR doctrine? As the analysis reveals, it is highly probable that there is a direct relationship between mission command and ISR agility; increases in the amount of mission command will likely result in comparable increases within ISR agility.

The linear logic model enabled the development of a series of inferences that were structured into logically strong and cogent inductive arguments. In order to ensure the overall strength and cogency of the arguments, each inductive argument was subjected to the study's confirmation and evaluation criteria. All arguments within chapter 4 were written in a way to remain logically strong and cogent. The premises were structured in a way to ensure that the inferences were well supported by the evidence to at least the probable level (55-80 percent), that the evidence was accurately and fairly presented, and that the conclusions were reasonably derived from the evidence. Chapter 5 will consolidate the resulting synthesis, concepts, and analysis regarding the primary research question before applying the analysis to the South Caucus operational example. Chapter 5 will also provide the study's concluding remarks and recommendations.

CHAPTER 5

CONCLUSIONS AND RECOMMENDATIONS

ISR is much more than a support function. It is the foundation upon which every joint, interagency, and coalition operation achieves success.

— *Global Vigilance, Global Reach, Global Power for America*

Agility is the counterweight to the uncertainty of the future and its associated rapid rate of change. . . . We must transform into a more agile enterprise to maintain our edge in the emerging environment and leverage the full innovative potential resident in all our Airmen.

— *America's Air Force: A Call to the Future*

The primary research question for this study is how would applying the six principles of the U.S. Army mission command philosophy change Joint ISR doctrine and collection operations to be more operationally agile? If mission command is the preferred and most appropriate command philosophy for Joint Force operations (CJCS 2012a, 5) then its potential for increasing agility within Joint ISR planning and management processes at the operational level should be explored. In order to examine the relationship between mission command and ISR agility, the study employed a qualitative research design that utilized an inductive logic approach with a meta-analysis research methodology to support or refute the thesis that mission command would increase ISR agility.

The study progressed through the secondary and ultimately the primary research question to create a series of increasingly strong and logically cogent inductive arguments. In order to increase the theoretical rigor of the study and to improve the strength and cogency of the inductive argument, confirmation and evaluation criteria were used to assess the argument and serve as a check on the biases of the researcher.

The meta-analysis throughout chapter 4 paired with the literature review in chapter 2 provided sufficient evidence to understand the probable relationship between mission command and ISR agility. This section of the study will provide the consolidated conclusions from the primary research question, apply the resulting analysis to a South Caucasus operational example, and offer the study's concluding remarks and recommendations.

Primary Research Conclusion

The analysis of the secondary and primary research questions has shown that it is highly probable that there is a direct relationship between mission command and ISR agility. Therefore, it logically follows that changes in the amount of mission command within a given environment will likely result in comparable changes within the level of ISR agility (see figure 19). With the established relationship between mission command and ISR agility, it is possible to address how this connection influences the study's thesis that Joint ISR's agility at the operational level could be improved by applying the six principles of the U.S. Army's mission command philosophy to Joint ISR doctrine. To be clear, the intent is not to rehash the previous meta-analysis accomplished throughout chapter 4, but to pullout the resulting concepts and synthesis from the secondary and primary research questions that directly support the study's thesis.

First, mission command is the foundation that supports and enables ISR agility. As previously identified, the principles of mission command dovetail seamlessly with the three pillars of ISR agility. Figure 20 below provides a more comprehensive visual model and definitions for the relationship between mission command and the pillars of ISR agility. Commanders establish the foundations for an environment of mission command

by building cohesive teams by fostering mutual trust. Establishing an environment built upon shared confidence, professional competence, integrity, and two-way open and honest communication between commanders and subordinates takes preparation and planning ahead of time (HQ DA 2012b, 2-1). Commanders need to trust that subordinates are competent and will act within their intent, while subordinates need to trust that their commanders will support their decisions.

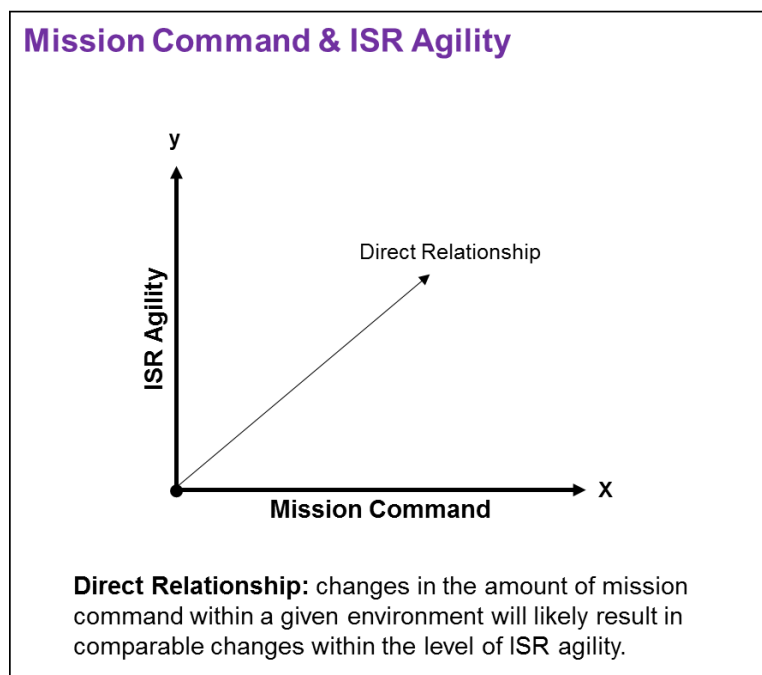


Figure 19. The Relationship Between Mission Command and ISR Agility

Source: Created by author.

It is important to note that developing the foundations for individual and organizational agility is not the same thing. Individually, leaders must purposefully develop subordinates through education, training, and experiences to exercise initiative,

recognize and capitalize on emerging opportunities, problem solve, and experiment within the established boundaries. Organizationally, leaders must accept ambiguity and risk, relax bureaucratic controls, decentralize authorities, flatten communication, and encourage and reward a culture of initiative, innovation, and emergence within the established boundaries of behavior. In effect, agility requires purposeful preparation by leaders to create the potential and capacity for individuals and organizations to be agile and successfully execute mission command within a complex environment.

Commanders that develop a shared understanding and accept prudent risk enable their subordinates and organizations to anticipate future operational requirements, create potential energy, and posture intelligence resources accordingly. Commanders create shared understanding within their teams by maintaining a culture of collaboration by establishing a common “understanding of their operational environment, the operation’s purpose, problems, and approaches to solving them” (HQ DA 2012b, 2-2). Additionally, commanders that accept prudent risk by accepting increased levels of disorder and inefficiency, create opportunities for employing the potential energy of the system. Anticipating operational needs involves creating a reservoir of potential energy within the system. Within ISR this may include assets, capability, and capacity that are devoted to applying initiative, innovation, and emergence to meet the varying challenges being experienced by the system across the full spectrum of environmental context.

Through mission orders and disciplined initiative, commanders enable the readiness of their subordinates and organizations to quickly adapt to changing conditions and flexibly support the commander’s needs to understand, visualize, plan, and conduct combat operations. Mission orders provide the purpose, intent, and concept of the

operation that provide the overarching boundaries of behavior for the system to operate within. Subordinates then exercise disciplined initiative to create and exploit opportunities when “in the absence of orders, when existing orders no longer fit the situation, or when unforeseen opportunities or threat arise” (HQ DA 2012b, 2-4). Centered by the commander’s intent and built upon a foundation of mutual trust, readiness is unleashing the system with a task and purpose to meet the challenges of the complex, unpredictable, and challenging global security environment. Readiness is where the products of preparation and anticipation are realized with increased agility and flexibility; greater operational speed; and where increased initiative, innovation, and emergence collide.

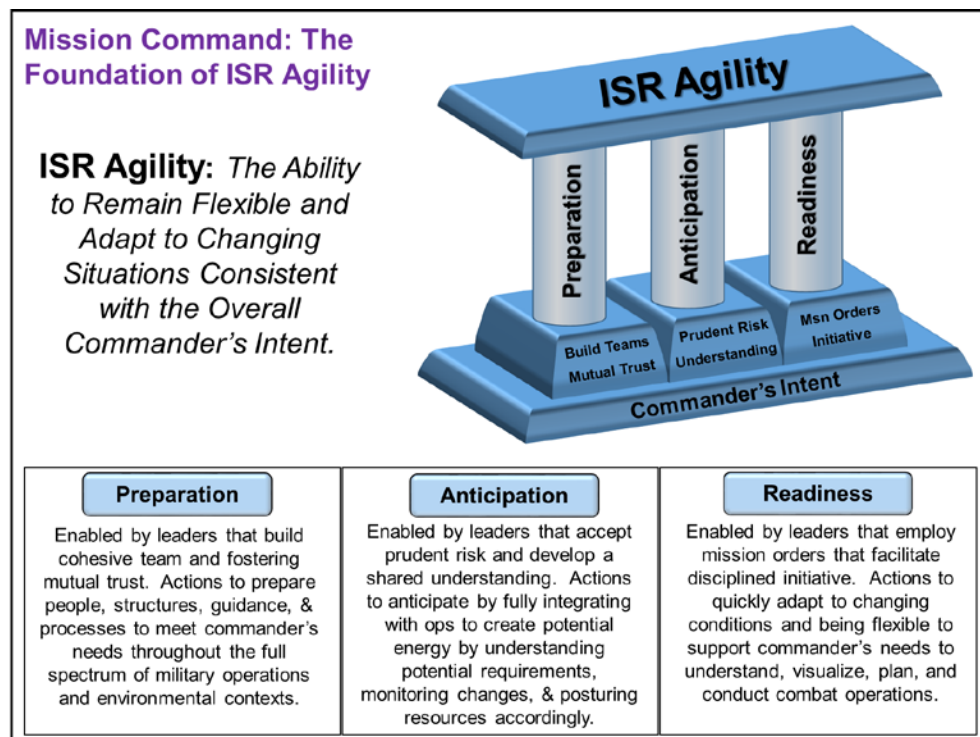


Figure 20. Mission Command: The Foundation of ISR Agility

Source: Created by author.

Second, the creation of agility within organizations is inherently a leadership responsibility. The responsibility is for leaders to understand the contextual context of the environment, appropriately tailor their style of leadership to the operating environment, and set the conditions necessary for their subordinates and organizations to successfully accomplish the mission. The spectrum of environmental context, depicted in figure 13 of chapter 4, provided a visualization of the continuum of not only environmental context but also of leadership styles, characteristics of organizations, leadership values, and types of communication. Leaders operating in a simple environment can maximize performance and efficiency of a system when they know the relationship between cause and effect. Previously, the metaphor of a steady river was used to depict operations in a simple context. There are few ways to affect the flow of the river as there are defined inputs and outputs that move along a defined and orderly space at a consistent pace. On the other hand, leaders that operate in a complex environment must accept increasing levels of ambiguity, risk, disorder, and inefficiency as prerequisites or they will constrain the system's ability to operate and adapt (see figure 21). Accepting the reality of a complex environment is what enables leaders to build a reservoir that creates potential energy and capacity for future system agility. Reservoirs provide commanders with options otherwise not available.

Third, while perhaps implied within the previous analysis, complex environments require tailored solutions that will evolve over time. The meta-analysis recognized that the overall limitation with the current Joint ISR doctrine is that it misapplies simple processes, guidance, and controls to a complex environment. In simpler contexts leaders are able to utilize various ISR processes to maximize the efficiency of the system, but the

system becomes cumbersome or unresponsive when the context becomes more complex. Currently, the collection management process or system is the unifying vehicle across the Joint ISR Force; however, it is also the constraint as the system is artificially limited in its ability to adapt (see figure 21). In a complex environment, the context changes over time as the operation progresses through its different phases, therefore the unifying vehicle should be the commander's intent. Centered by the commander's intent, subordinates and organizations can adapt and evolve within the boundaries of behavior to solve the emerging problems of the environment over time. With that being said, the limitation with this approach is the considerable investment that must occur up front to frame the problem, communicate the commander's intent, establish the boundaries of behavior, define success, and prepare individuals and organizations to be agile in order to reap the benefits on the back end.

Fourth, building upon the need for tailored solutions and the inherent responsibility of leadership to create agility, leaders must develop an overarching ISR strategy that is able to support the various ISR mission and tasks throughout all phases of an operation. As the operation progresses and complexity changes across phases, the types of ISR missions and tasks, and levels of intelligence effort should change to provide the appropriate balance for operational missions and tasks. As previously discussed, as the environmental context changes from simple to complex problem sets they require increasingly agile, adaptive, and flexible leadership. Additionally, in this environment commanders should value different things; focusing on qualitative assessments, operational effectiveness, and patterns or emergence for signs of success (see figure 13 in chapter 4). Figure 21 builds upon figure 17 to provide a visualization on how

leaders balance intelligence activities by operational phase as well as illustrating the transition between management and leadership activities. Leaders who do not plan for this transition will end up fighting the system by attempting to maintain the illusion of order.

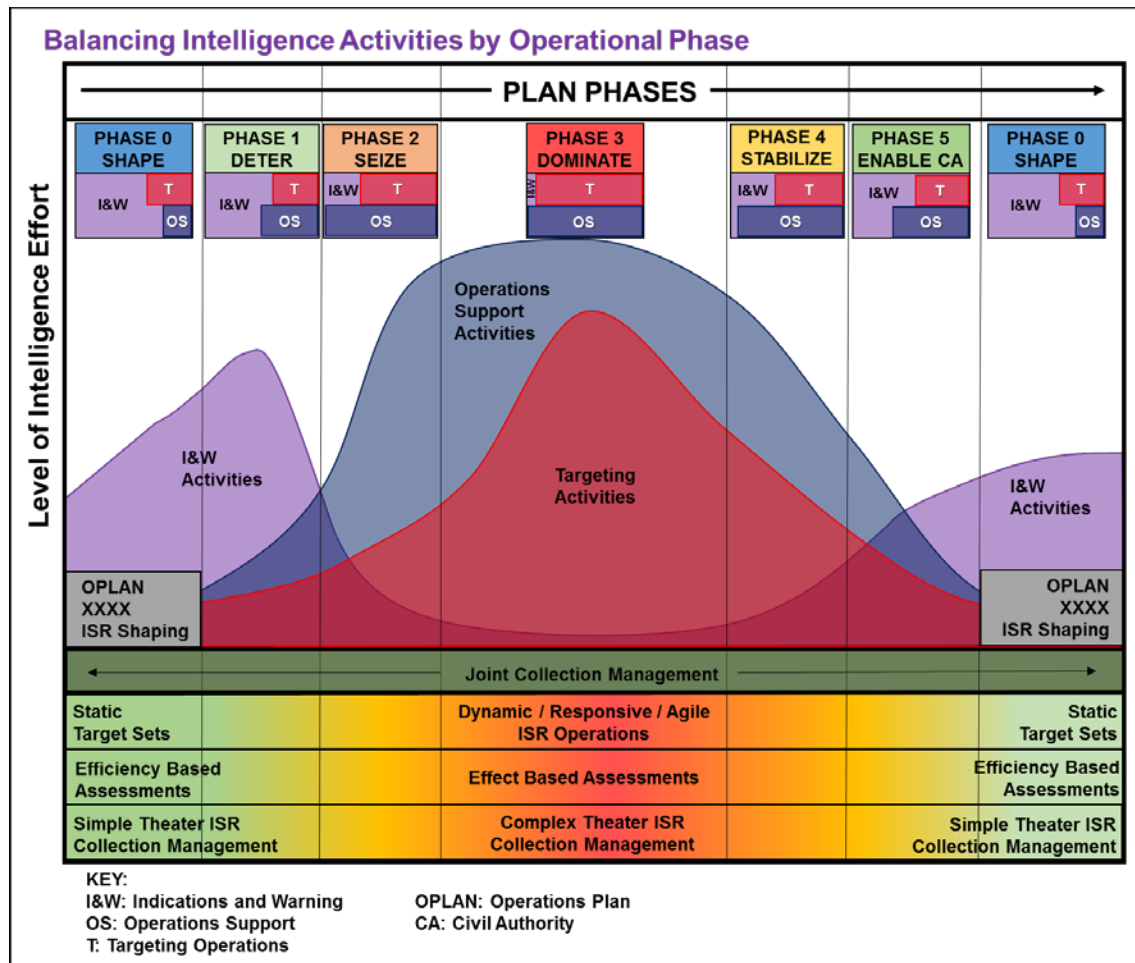


Figure 21. Balancing Intelligence Activities by Operational Phase

Source: Created by author.

Application in a Real-World Context

The purpose of this section is to use the GAAT scenario as a vehicle to discuss mission command's potential in increasing operational agility in a real-world context. The GAAT scenario has been developed by U.S. Army Training and Doctrine Command (TRADOC) and the U.S. Army Command and General Staff College (CGSC) to create a training setting more representative of the current and projected threats within the strategic operating environment (TRADOC 2013, 1). The GAAT scenario is intended to present a complex and unpredictable environment with a hybrid threat consisting of a dynamic combination of conventional, unconventional, and criminal elements that are all acting simultaneously within the operating environment (TRADOC 2013, 9). It is not possible to capture the intricacies of the full scenario so the intent is to provide a brief overview of the strategic environment before transitioning to breaking down the analysis by the scenario's operational phases. More information about the scenario can be found in the *OPFOR Battle Book for the Operational Environment*, ST 7-100, and the CGSC *Scenario Reference Books* produced by TRADOC.

The GAAT scenario is set in a future environment of deteriorating security within the South Caucasus region (see figure 22). Internal Iranian tensions caused the north-western region of Ahuristan to breakaway from Iran and seek international recognition (CGSC 2015a, 60). Over the past few years, Ahuristan has become increasingly aggressive with Azerbaijan on its northern border by pushing a narrative of unifying the ethnic Azeri-Turk populations residing within both countries (CGSC 2015a, 60). To this end, Ahuristan has been supporting breakaway political movements and militant groups operating within Azerbaijan (CGSC 2015a, 61). Additionally, Ahuristan poses an

increasingly destabilizing force in the region with its significant armor and artillery ground forces, modern air forces and air defense network, irregular forces, and strategic ballistic missile systems (CGSC 2015a, 60-61). With the deteriorating strategic environment, the Commander of U.S. European Command has directed the establishment of a Joint Task Force to help Azerbaijan secure and defend its borders, improve the capacity of the Azerbaijani government and security forces, and ensure the regional stability of the Southern Caucasus region (CGSC 2015b, 1-9).



Figure 22. The South Caucasus Region

Source: U.S. Library of Congress Geography and Map Division Collection, *The Caucasus Region*, accessed March 25, 2016, <https://www.loc.gov/resource/g7120.ct000478/>.

The complex strategic environment offers the opportunity for multiple operational variations; however, the joint phasing construct from JP 3-0 provides an outline for

potential operations and phasing options for the JFC (see figure 15 in chapter 4). Initially during Phase 0—shaping, operations the JFC will seek to influence the environment and establish long-term partnerships to increase the capacity of the Azerbaijani government to care for its people, and improve the capacity and capability of Azerbaijani security forces secure its population and protect its borders. During shaping operations, Joint ISR activities are focused on traditional I&W missions and tasks to characterize the environment, provide strategic warning, and support the development of operational design (see figure 16 in chapter 4). At this stage, ISR leadership focuses developing an overarching ISR strategy to synchronize ISR with future operational needs, and prepare ISR organizations with the potential and capacity to be agile in the future. Preparation is critical to ensure that the foundations are appropriately built to enable an environment of mission command and ISR agility in more complex environments.

During Phase 1—deterrence, operations the JFC will apply flexible deterrent options (FDOs) to progressively demonstrate U.S. resolve to confront further Ahuristani aggression within the region (CGSC 2015c, 64-65). FDOs may include increased diplomatic activity, more visible Joint ISR presence, joint exercises with the Azerbaijani military, or forward deployed or positioned combat power within the region (CGSC 2015c, 65-66). During deterrence operations, Joint ISR activities are increasing their activities to provide the JFC I&W of Ahuristani intent and mobilization. Additionally, Joint ISR will provide operational support to FDOs and will be increasing their targeting efforts to analyze adversary centers of gravity, build target packages, and produce targeting materials for potential future operations (see figure 16 in chapter 4).

As additional actors are introduced into the environment, the complexity and uncertainty begins to increase with each action and reaction. Depending on the FDOs being supported, ISR leadership may need to start balancing ISR capacity and agility to meet the JFC's guidance and intent (see figure 21). I&W target decks should begin to transition to more narrative task and purpose communicated through mission orders. Deterrence operations and activities present Joint ISR leadership with increased opportunities to train and exercise Joint ISR to identify limitations, test and validate TTPs, and develop mutual trust and rapport across the force. Leadership must focus on building a reservoir of agility in preparation for supporting the reality of complexity for subsequent combat operations.

Phase 2—seize initiative, operations are designed to seize the initiative and assure friendly forces freedom of action in the environment by gaining and maintaining air superiority, attack Ahuristani strategic weapons of mass destruction facilities and delivery systems, and interdict Ahuristani offensive ground forces (CGSC 2015c, 73-75). During operations to seize the initiative, Joint ISR is primarily focused on supporting planned operations and targeting of adversary combat power by enabling commanders to understand and visualize the environment, assess operations, provide threat warning, and enable JFC decision advantage (see figure 16 in chapter 4). ISR leadership must be aware that as the contextual complexity of the environment changes, the Joint ISR system will become overburdened and constrained by adhering to simple processes.

Seize the initiative operations will become increasingly dynamic as pre-planned targets are actioned and the adversary responds by relocating assets to increase survivability. An example to illustrate this point would be targeting ballistic missile

systems. Initially, the JFC will attempt to strike assets before they are dispersed; once dispersed, the target set becomes dynamic as ISR must first locate the assets before they can be targeted and eliminated. Dynamic problem sets require agility as a response; however, as discussed the traditional collection management system—focusing on discrete target decks—lacks the agility, adaptability, and flexibility to meet operational demands within this new context. ISR leadership must have a strategy to manage the transition to an increasingly complex system by understanding the ambiguity of the environment and accepting increased risk by relaxing bureaucratic controls, decentralizing authorities, flattening communication, and encouraging and rewarding initiative, innovation, and emergence within their established boundaries of behavior.

In this environment, collection decks should transition to narrative tasking, such as MTOs, to provide purpose, intent, and boundaries of behavior that enable subordinate leaders to apply initiative and capitalize on opportunities. Instead of receiving decks of hundreds of points on the ground that may or may not support the commander's priority of eliminating Ahuristani ballistic missile delivery systems, ISR operators receive task and purpose through mission orders to dynamically identify and target ballistic missile delivery systems. ISR operators are free to apply initiative and solve problems within the boundaries of behavior to meet the commander's intent. By removing the bureaucracy and empowering subordinate leaders, Joint ISR's operational speed, flexibility and agility is maximized to meet the challenges of this complex environment. Leaders that have prepared their subordinate leaders and organizations to operate within an environment of mission command will successfully accomplish this transition.

Phase 3—dominate, operations by the JFC will include some combination of offensive operations by Coalition forces to destroy Ahuristani forces and restore the international border of Azerbaijan (CGSC 2015c, 79-80). Ahuristan is expected to cross the border with approximately five divisions of combat power while being supported by irregular and insurgent forces operating in the Coalition's rear areas (CGSC 2015c, 79-80). Additionally, Ahuristan maintains a modern air and air defense force, capacity for employing weapons and mass destruction, and maintains significant stockpiles of ballistic missiles (CGSC 2015c, 16-18). Conventional combat between opposing forces is an extremely complex endeavor as opposing forces attempt to think, act, react, and adapt to the dynamic environment faster than their opponent.

To account for the complexity of this environment, the Joint Force has increasingly relied upon the tenants of mission command to increase operational agility. Guided by the JFC's intent and the purpose of the mission, ground commanders will decentrally execute unified land operations to "seize, retain, and exploit the initiative to gain and maintain a position of relative advantage" (HQ DA 2012b, 1-1) over the adversary. Similarly, in order for the Joint Force to have the greatest opportunity for mission accomplishment, Joint ISR will need to integrate and synchronize its effects with the maneuver elements to enable the mission and maximize the agility of the overall Joint Force (see figure 23). Commanders who try to overcontrol Joint ISR by applying simple processes to a complex environment will reduce the operational and tactical flexibility of ISR by taking away the initiative from the operators as they try to exploit opportunities.

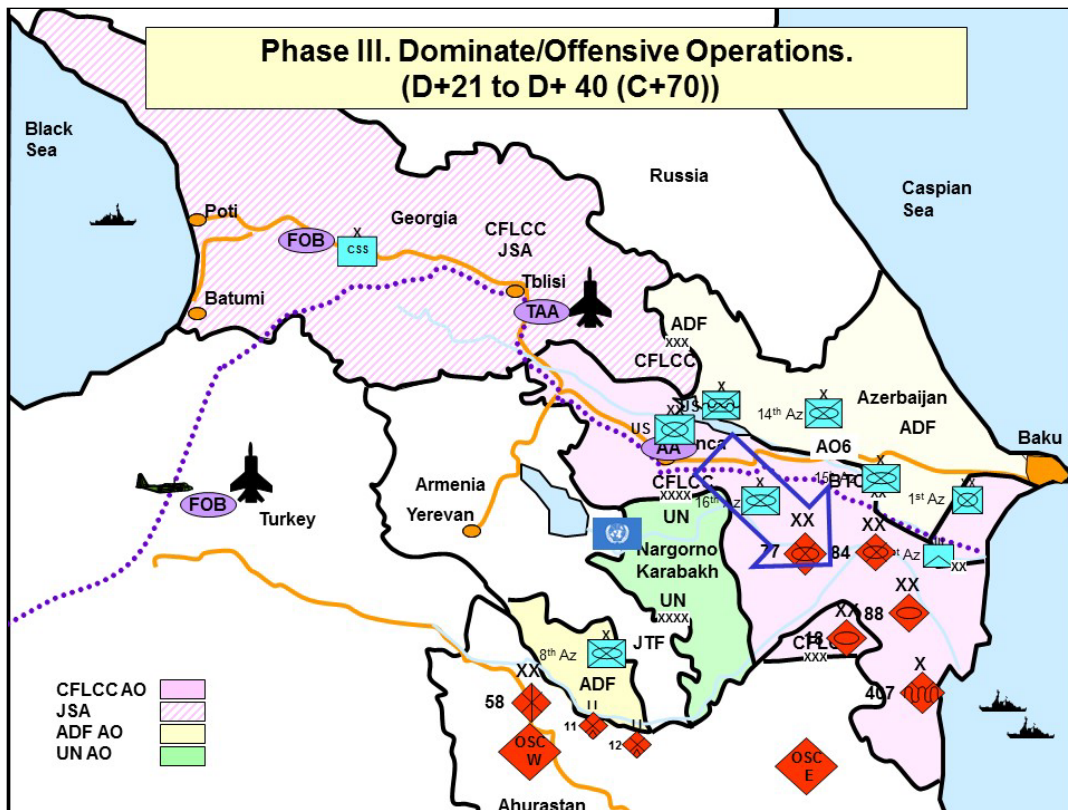


Figure 23. GAAT Scenario Phase III Operations

Source: CGSC, Scenario Reference Book 3, *Phase III. Dominate/Offensive Operations* (Fort Leavenworth, KS: CGSC, 2015), 79.

At this point, Joint ISR leaders should focus on unleashing the system that was prepared to respond the challenges of the dynamic environment within an environment of mission command. Essentially, efficiency and order are sacrificed for effectiveness and agility as Joint ISR resources predominately positioned on the battlefield to optimize the potential to be agile under narrative tasks (see figure 13 in chapter 4). The resultant effects sought are an ISR system that is best positioned to maximize the agility of the ISR supporting Coalition maneuver operations and providing targeting support to the Joint Force (see figure 21). Mission orders that provide the commander's intent, mission,

priority of support, and scheme of maneuver empower ISR leaders, planners, and operators with the information required to execute with a high degree of decentralization to synchronize the required effects with the maneuver elements on the ground. Joint ISR leaders monitor the system for evolving problems, patterns of emergence, and assessments of ISR effects on the battlefield that can be communicated across the entire system. Additionally, qualitative assessments serve as a check on the system to ensure that the commander's guidance is being followed.

Similar to Phase 2, the transition into Phase 4—stabilize, operations by the JFC marks another change in contextual complexity of the environment (see figure 21) as combat operations shift to focus on stability (CGSC 2015c, 85-86). Combat operations to destroy and expel Ahuristani combat power have removed one of the threats; however, the capacity of the Azerbaijani security forces will most likely be decimated at this point and the insurgency threat has not been neutralized (CGSC 2015c, 85-86). Coalition operations will transition to establishing civil security, executing COIN operations, restoring essential services, and providing humanitarian assistance until the government of Azerbaijan and its security forces can be reconstituted and assume responsibility in the area (CGSC 2015c, 85-86). This shift on the operational side necessitates a comparable shift in Joint ISR's task and purpose from focusing on identifying and destroying enemy conventional combat power to supporting a COIN fight that identifies and targets non-conventional, insurgent, and criminal networks. This involves ISR leaders that again balance between narrative tasking to maximize operational agility for COIN operations with the predictability of process required to support and maximize the JFC I&W needs to monitor Ahuristani threats across the international border.

Finally, Phase 5—enable civil authority, operations by the JFC seeks to promote long-term regional stability and the redeployment of remaining Coalition combat power as authority is transitioned back to civilian agencies (CGSC 2015c, 90-91). As the environment becomes simpler, Joint ISR's focus changes to I&W and collection management activities to maximize the efficiency of the system. Throughout the GAAT scenario's operational phasing, each phase presents its own varying level of contextual complexity that is met with a set of tailored operational activities from the JFC to achieve the desired end state. The research maintains that Joint ISR leaders must develop an overarching ISR strategy that is able to synchronize the various ISR mission and tasks throughout all phases of an operation. The key to creating ISR agility within later operational phases is preparing a system with the capacity and potential to be agile through the employment of mission command. Additionally, as the operation progresses and complexity changes across phases, it is an inherent responsibility of leadership to provide the appropriate balance of agility, adaptability, and flexibility required to meet the operational missions and tasks.

Recommendations

The research's overall objective is to make recommendations at the unclassified level regarding the application of mission command philosophy to Joint ISR doctrine in order to improve Joint ISR's agility at the operational level. To this end, recommendations from the study are organized into two categories: improvements to Joint ISR agility, and options for future research on this topic.

Improvements to Joint ISR Agility

Analysis regarding the secondary and ultimately the primary research question has yielded a number of recommendations regarding how applying the principles of mission command would improve the operational agility of Joint ISR. Recommendations are applicable to joint and service organizational and strategic level leadership seeking to maximize the agility of finite ISR resources across the Joint Force. One of the study's delimitations was to limit analysis regarding Joint ISR materiel and resourcing concerns. For that reason, recommendations emerging from the research are limited to the Joint Capabilities Integration and Development System, capability based assessment categories of doctrine, training, and leadership and education, i.e., DOTMLPF analysis (US DOD 2012b, A-4).

Doctrine are the fundamental principles guiding the employment of the Joint Force (US DOD 2012, A-4). As identified in the study, primary Joint ISR doctrine is found in JP 2-0, *Joint Intelligence*, and JP-2.01, *Joint and National Intelligence Support to Military Operations*.

1. Joint ISR doctrine should be updated to reflect the how applying the principles of mission command increase the agility of Joint ISR. Mission command is the most appropriate command philosophy for Joint Force operations and the study has shown the applicability of mission command to Joint ISR. As identified in the analysis, mission command is directly related to the creation of ISR agility and acts as the foundation that supports and enables the three pillar of ISR agility (see figure 20).

2. Joint ISR doctrine should be refined to reflect the three pillars of ISR agility in order to illustrate how leaders must purposefully prepare individuals and organizations

for the potential and capacity to be agile, anticipate operational needs by creating potential energy, and being ready to use the system's potential energy to quickly adapt to changing conditions. ISR agility increases the agility, adaptiveness, and flexibility of a system to respond to a complex, unpredictable, and challenging environment.

3. Joint ISR doctrine should be refined to reflect the need to develop a strategy to balance and synchronize the various intelligence missions and tasks (see figure 16 in chapter 4) across all operational phases (see figure 21). As the operation progresses and complexity changes across phases, the types of ISR missions and tasks, and levels of intelligence effort should change to provide the appropriate balance for operational missions and tasks. Identifying the notional intelligence activities by phase promotes the use of operational art and design to develop a comprehensive theater-wide ISR campaign plan that nests with the overall theater strategy.

4. Joint ISR doctrine should be refined to illustrate the relationship between leadership styles and environmental context. The study identified the need for ISR leaders match the appropriate balance of leadership to their environmental context (see figure 13 in chapter 4). This transition requires leaders to understand that at some point along the spectrum of context, simple processes designed to maximize efficiencies obstruct the transition to a complex system that trades order and efficiency for agility, adaptability, and flexibility. Leaders need to understand how they affect this conversion by transitioning from process management to leadership direction that gives a narrative task and purpose.

Training includes the necessary preparation, rehearsals, drills, exercises to prepare joint forces to execute their missions (US DOD 2012, A-5). Training ensures ISR professionals can put key doctrinal concepts into practice.

1. Training is a key component for the future success of the Joint Force within the GIO concept. As the study illustrated, mission command and ISR agility do not just happen, they require purposeful efforts by leaders to prepare individuals and organizations for the potential and capacity to be agile. The services should continue to inculcate mission command as well as train the force to changing joint doctrinal concepts and TTPs; ideally this would include the recommendations from this study. Training is an important element in preparing the “globally postured Joint Force [that can] quickly combine capabilities with itself and mission partners across domains, echelons, geographic boundaries, and organizational affiliations” (CJCS 2012a, 4).

2. The Joint Force must train like it intend to fight in the future and exercises are an important venue to validate Joint Doctrine and TTPs; identify limitations, and build trust and rapport cross the Joint Force. Traditionally it has been difficult to integrate ISR into exercises due to classification and resource limitations; however, joint exercises will continue to be critical enablers for a ready and effective Joint Force. While it is not always possible to get additional ISR assets to exercise, commanders should consider using more flexible command styles in simpler contextual environments. Exercising mission command fosters mutual trust as teams gain repetition at gaining shared understanding, using mission orders, exercising disciplined initiative, and accepting prudent risk. Exercising the principles of mission command by providing narrative task and purpose

for ISR operators will help prepare individuals and organizations with the potential and capacity to be agile within future complex environments.

Leadership and education includes the professional development and education of Joint leaders (US DOD 2012, A-5).

1. Mission command should continue to be inculcated throughout the Joint Force. Joint leaders who employ mission command will also increase the overall agility of the Joint Force. Nevertheless, several themes should be reinforced including: the importance of understanding and matching the appropriate leadership style to the contextual complexity of the environment, the inherent responsibility of leadership to create individual and organizational agility, to need to underwrite and accept risk to create opportunity, and the applicability of mission command to Joint ISR. The ISR enterprise is a complex environment in itself and leaders who do not understand how to operate within this environment end up fighting vice empowering the system (see figure 21).

2. Joint leaders require further development in regards to how to develop an effective ISR strategy that balances and synchronizes the various intelligence missions and tasks with all phases of the overarching operation. As identified in the Air Force *Theater ISR CONOP*, “ISR is a unique form of military operations that requires a dedicated effort to develop distinctive ends, ways, and means that help achieve the operational objectives and desired end state” (USAF 2008, 5). Commanders need to understand how to effectively promote the use of operational art and design to link ISR operations with the overall theater strategy.

3. Joint leader development needs to move beyond the typical ISR asset and organization capability slides. Leaders should appreciate the art of posturing ISR

resources to create potential energy for operations, and understand how to communicate ISR effects vice requesting specific asset capabilities. Joint leaders should be familiar with the need to synchronize, mass, and layer ISR in order to maximize their desired effects in support of other warfighting functions. Additionally, many Joint leaders do not have experience employing the full capabilities of the Joint ISR enterprise. Increasing professional development and education of Joint ISR builds trust and understanding across the Joint Force.

4. Mission command relies on leaders that can communicate their guidance and intent that can be translated into a narrative task and purpose. Leadership development and education must continue to familiarize future Joint Force leaders with how to communicate their intent in a way to maximize disciplined initiative by subordinate leaders.

Future Research

Considering the scope, limitations, and delimitations of the study the following recommendations are provided to help guide future research efforts to improve Joint ISR operations. First, the original intent of the study was to also address how GFM process and policies affect Joint ISR agility. Considering the lack of literature at the unclassified level, the author decided to leave the limited GFM literature and analysis in the study to identify the potential link and recommend the topic for future research. Several sources from the literature review implied that the qualitative metrics currently required by the GFM process to enable Joint Staff and Secretary of Defense decisions were restrictive to operational level commanders seeking increased agility. Future research could explore how GFM processes and policies impact operational level mission command or agility.

Second, as identified within the study, there is a gap within Joint ISR doctrine between appreciating the need for an ISR strategy and understanding what an effective ISR strategy would actually look like. In other words, how do leaders create an ISR strategy at the operational level and effectively overlay it with the overall operational plan. As the study contends, there should be a tailored approach to ensure Joint ISR can effectively support the commander throughout all phases of the operation. Considering the range of military operations and the range of military contexts, there would logically be a continuum of possibilities that commanders could employ. Essentially, is it possible to outline what right looks like? The 2008 Air Force *Theater ISR CONOP* should provide a starting point.

Third, the study supported the direct relationship between mission command and ISR agility. One of the core foundations was preparing individuals and organizations for future agility. Building upon the analysis, future research could focus on how commanders actually prepare individuals and organizations for future agility? Where can commanders trade risk for opportunity, and what techniques would be effective within Joint ISR to increase individual and organizational agility with mission command.

Fourth, in order to keep the study as accessible as possible, the study limited itself to unclassified sources. Future research could use classified case studies or quantitative data to better understand and characterize the challenges of the traditional collection management system, the evolution of MTOs and mission command in Joint ISR to increase agility, and address needed joint intelligence process refinement.

Conclusion

The best response to a complex and unpredictable global security environment is a globally agile and integrated Joint Force guided by the employment of mission command. While there are definitely some aspects of the Joint ISR force that require continued management, the major limitation with Joint ISR doctrine is that it continues to misapply simple processes, guidance, and controls to a complex environment that requires leadership, direction, and purpose. The continued failure of the traditional collection management system to provide the required agility, adaptiveness, and flexibility necessitates a new approach. Applying the principles of mission command to Joint ISR doctrine would improve Joint ISR's agility at the operational level. Mission command is the most appropriate command philosophy for Joint Force operations in an increasingly complex world, and creating agility within subordinate leaders and organizations is an inherently a leadership responsibility. Future successful Joint ISR commanders will be those that are able to recognize the reality of complexity and accept risk by trading order and efficiency for opportunities in agility, adaptability, and flexibility. Investing in leaders and preparing organizations to have the potential and capacity to be agile, that can anticipate operational requirements and posture resources accordingly, and that can execute disciplined initiative within the established boundaries of behavior will offer the best opportunity for Joint ISR to meet the demands of the complex and unpredictable global security environment.

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