

REPORT DOCUMENTATION PAGE				<i>Form Approved OMB No. 0704-0188</i>							
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1. REPORT DATE (DD-MM-YYYY) 27-05-2011		2. REPORT TYPE Master's Thesis		3. DATES COVERED (From - To) 24 July 2010 - 27 May 2011							
4. TITLE AND SUBTITLE INTEGRATING MISSION TYPE ORDERS INTO OPERATIONAL LEVEL INTELLIGENCE COLLECTION				5a. CONTRACT NUMBER							
				5b. GRANT NUMBER							
				5c. PROGRAM ELEMENT NUMBER							
6. AUTHOR(S) Jason D. Green, Lieutenant Colonel, USAF				5d. PROJECT NUMBER							
				5e. TASK NUMBER							
				5f. WORK UNIT NUMBER							
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) National Defense University, Joint Forces Staff College Joint Advanced Warfighting School (JAWS) 7800 Hampton Blvd Norfolk, VA 23511				8. PERFORMING ORGANIZATION REPORT NUMBER							
9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES)				10. SPONSOR/MONITOR'S ACRONYM(S)							
				11. SPONSOR/MONITOR'S REPORT NUMBER(S)							
12. DISTRIBUTION/AVAILABILITY STATEMENT Approved for Public Release, Distribution is Unlimited.											
13. SUPPLEMENTARY NOTES											
14. ABSTRACT Over the past two years, the U.S. Air Force has embraced the concept of using mission type orders (MTOs) to facilitate intelligence collection with theater intelligence, surveillance, and reconnaissance (ISR) assets. This thesis attempts to capture a fundamental understanding of precisely what ISR MTOs are within the general context of Auftragstaktik and MTOs writ large. It also offers discussion on how ISR MTOs differ from traditional intelligence collection tactics, techniques, and procedures. The researcher offers a single case study of Operation ENDURING FREEDOM, primarily constructed from qualitative interviews of deployed intelligence personnel, as a lens for viewing the utility of ISR MTOs at the operational level of war to answer whether or not it is a valid technique for supporting collection management. The thesis also addresses potential ways that ISR MTOs can be improved upon via a series of recommendations using the doctrine, organization, training, materiel, leadership, personnel, facilities, and interoperability construct.											
15. SUBJECT TERMS Auftragstaktik; Case Study; Collection Management (CM); DOTMLPFI; Intelligence, Surveillance, and Reconnaissance (ISR); International Security Assistance Force (ISAF); Mission Type Orders (MTOs); Operation ENDURING FREEDOM (OEF); Operational Level of War (OLOW); Theater											
16. SECURITY CLASSIFICATION OF: <table border="1" style="width: 100%; border-collapse: collapse; margin-top: 5px;"> <tr> <td style="width: 33%; padding: 2px;">a. REPORT</td> <td style="width: 33%; padding: 2px;">b. ABSTRACT</td> <td style="width: 33%; padding: 2px;">c. THIS PAGE</td> </tr> <tr> <td style="text-align: center; padding: 2px;">Unclassified</td> <td style="text-align: center; padding: 2px;">Unclassified</td> <td style="text-align: center; padding: 2px;">Unclassified</td> </tr> </table>			a. REPORT	b. ABSTRACT	c. THIS PAGE	Unclassified	Unclassified	Unclassified	17. LIMITATION OF ABSTRACT UU-Unclassified/ Unlimited		18. NUMBER OF PAGES 124
a. REPORT	b. ABSTRACT	c. THIS PAGE									
Unclassified	Unclassified	Unclassified									
			19a. NAME OF RESPONSIBLE PERSON								
			19b. TELEPHONE NUMBER (Include area code) 757 443-6301								

NATIONAL DEFENSE UNIVERSITY
JOINT FORCES STAFF COLLEGE
JOINT ADVANCED WARFIGHTING SCHOOL



**INTEGRATING MISSION TYPE ORDERS INTO OPERATIONAL LEVEL
INTELLIGENCE COLLECTION**

by

Jason D. Green

Lieutenant Colonel, USAF

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A paper submitted to the Faculty of the Joint Advanced Warfighting School in partial satisfaction of the requirements of a Master of Science Degree in Joint Campaign Planning and Strategy. The contents of this paper reflect my own personal views and are not necessarily endorsed by the Joint Forces Staff College or the Department of Defense.

This paper is entirely my own work except as documented in footnotes.

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25 May 2011

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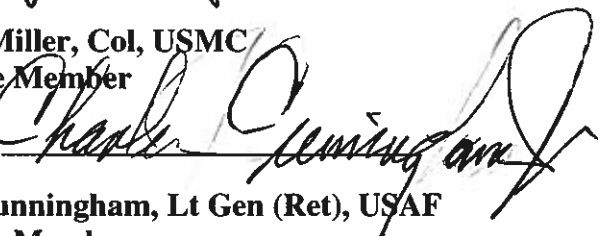
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ABSTRACT

Over the past two years, the U.S. Air Force has embraced the concept of using mission type orders (MTOs) to facilitate intelligence collection with theater intelligence, surveillance, and reconnaissance (ISR) assets. This thesis attempts to capture a fundamental understanding of precisely what ISR MTOs are within the general context of *Auftragstaktik* and MTOs writ large. It also offers discussion on how ISR MTOs differ from traditional intelligence collection tactics, techniques, and procedures. The researcher offers a single case study of Operation ENDURING FREEDOM, primarily constructed from qualitative interviews of deployed intelligence personnel, as a lens for viewing the utility of ISR MTOs at the operational level of war to answer whether or not it is a valid technique for supporting collection management. The thesis also addresses potential ways that ISR MTOs can be improved upon via a series of recommendations using the doctrine, organization, training, materiel, leadership, personnel, facilities, and interoperability construct.

DEDICATION

I would like to dedicate this thesis to the intelligence professionals of the U.S. Air Force who sacrifice day in and day out, whether at home station or deployed, to provide the best intelligence, surveillance, and reconnaissance the world has known. Without them, pilots would have no targets to strike.

ACKNOWLEDGMENT

First, I would like to thank the Air Force intelligence career field's developmental team. Without their involvement and infinite wisdom, I would have never gotten the "opportunity to excel" as the Deputy Director for Intelligence, Surveillance, and Reconnaissance at the International Security Assistance Force Joint Command in Kabul, Afghanistan and then attend Joint Advanced Warfighting School to write a thesis on ISR MTOs. Second, I want to thank Mr. Mark McAlpine for being the most levelheaded and patient thesis advisor that anyone could hope for. Finally, I want to thank my family for hanging in there while I deployed to Afghanistan and for putting up with me while I completed this thesis. You guys are the best.

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ABBREVIATIONS

AAR	After Action Report
AB	Air Base
AFB	Air Force Base
AFDD	Air Force Doctrine Document
AGI	Advanced Geospatial Intelligence
AMHS	Automated Message Handling System
AOR	Area of Responsibility
BAMS	Broad Area Maritime Surveillance
BDA	Battle Damage Assessment
BDE	Brigade
BN	Battalion
BPI	Basic Process Improvement
C-IED	Counter-Improvised Explosive Device (IED)
C2	Command and Control
C4ISR	Command, Control, Communications, Computers, Intelligence, Surveillance, And Reconnaissance
CAOC	Combined Air and Space Operations Center
CCIR	Commander's Critical Information Requirement
CCSG	Commander, Carrier Strike Group
CDR	Commander
CFACC	Combined Force Air Component Command

CFMCC	Combined Force Maritime Component Command
CI	Counterintelligence
CJTF	Combined Joint Task Force
CM	Collection Management
COIN	Counterinsurgency
COM	Collection Operations Management
COMAO	Composite Air Operation
COMIJC	Commander, ISAF Joint Command
COMINT	Communications Intelligence
CONOPS	Concept of Operations
CRM	Collection Requirements Management
CSG	Carrier Strike Group
DCGS	Distributed Common Ground System
DGS	Distributed Ground Station
DIRLAUTH	Direct Liaison Authority
DIV	Division
DoD	Department of Defense
DOPP	Distributed Common Ground System (DCGS) Operational Planning Process
DOTMLPFI	Doctrine, Organization, Training, Materiel, Leadership, Personnel, Facilities, Interoperability
DTIC	Defense Technical Information Center
EEI	Essential Element of Information
ELINT	Electronic Intelligence

EO	Electro-Optical
ESG	Expeditionary Strike Group
FISINT	Foreign Instrumentation Signals Intelligence
FMV	Full-Motion Video
FTU	Formal Training Unit
GEOINT	Geospatial Intelligence
GFMB	Global Force Management Board
GH	Global Hawk
GMTI	Ground Moving Target Indicator
HA	High Altitude
HUMINT	Human Intelligence
HVI	High Value Individual
IADS	Integrated Air Defense System
IED	Improvised Explosive Device
IJC	International Security Assistance Force (ISAF) Joint Command
IMINT	Imagery Intelligence
IN	Information Need
INT	Intelligence Discipline
IPOE	Intelligence Preparation of the Operational Environment
IR	Infrared
IROC	Intelligence, Surveillance, and Reconnaissance (ISR) Operations Course
ISAF	International Security Assistance Force
ISR	Intelligence, Surveillance, and Reconnaissance

ISR MTO	Intelligence, Surveillance, and Reconnaissance (ISR) Mission Type Order (MTO)
ISRD	Intelligence, Surveillance, and Reconnaissance (ISR) Division
ISREC	ISR Exploitation Cell
ISRLO	Intelligence, Surveillance, and Reconnaissance (ISR) Liaison Officer
ITDB	Intercept Tasking Database
J2	Intelligence Directorate
J3	Operations Directorate
JAWS	Joint Advanced Warfighting School
JCIDS	Joint Capabilities Integration Development System
JFACC	Joint Force Air Component Commander
JFC	Joint Force Commander
JFCC-ISR	Joint Functional Component Command-ISR
JOA	Joint Operations Area
JSTARS	Joint Surveillance Target Attack Radar System
JTF	Joint Task Force
LCDR	Lieutenant Commander
MARSS	Medium-Altitude Reconnaissance and Surveillance System
MASINT	Measurement and Signatures Intelligence
MCO	Major Combat Operation
MDA	Maritime Domain Awareness
MDS	Mission-Designation Series
MGRS	Military Grid Reference System

mIRC	Mardam-Bey Internet Relay Chat
MOC	Mission Operations Commander
MOE	Measure of Effectiveness
MOP	Measure of Performance
MOS	Military Occupational Specialty
MTO	Mission Type Order
MTW	Major Theater War
Multi-INT	Multi-Intelligence Discipline
NAS	Naval Air Station
NDIC	National Defense Intelligence College (formerly Joint Military Intelligence College)
OEF	Operation ENDURING FREEDOM
OIF	Operation IRAQI FREEDOM
OLOW	Operational Level of War
OND	Operation NEW DAWN
OP	Operation
OPCON	Operational Control
OPLAN	Operation Plan
OSINT	Open Source Intelligence
OT	Exercise OLYMPIC TITAN
PED	Processing, Exploitation, and Dissemination
PIR	Priority Intelligence Requirement
PRISM	Planning tool for Resource Integration, Synchronization, and Management

RC	Regional Command
RJ	Rivet Joint
RSTA	Reconnaissance, Surveillance, and Target Acquisition
SA	Situational Awareness
SAR	Synthetic Aperture Radar
SATCOM	Satellite Communications
SIGINT	Signals Intelligence
SIPRNet	Secret Internet Protocol Router Network
SIU	Supporting ISR Unit
SOF	Special Operations Force
SOP	Standard Operating Procedure
SRO	Sensitive Reconnaissance Operation
STT	Strategy-to-Task
SU	Supported Unit
TCPED	Tasking, Collection, Processing, Exploitation and Dissemination
TECHINT	Technical Intelligence
TF	Task Force
TF-ODIN	Task Force-Observe, Detect, Identify, and Neutralize
TTP	Tactics, Techniques, and Procedures
U.S.	United States
UAS	Unmanned Aircraft System
UAV	Unmanned Aerial Vehicle
UNICORN	Unified Collection Operation Reporting Network

USAF	United States Air Force
USAFCENT	U.S. Air Forces Central
USAFWS	U.S. Air Force Weapons School
USCENTCOM	U.S. Central Command
USCG	U.S. Coast Guard
USN	United States Navy
USNAVCENT	U.S. Naval Forces Central Command

CHAPTER 1: INTRODUCTION

We are not going to nail an airplane to a specific target if we understand that the MTO is to look for movement of enemy forces from this point to this other point.

— Major General Bradley Heithold, USAF
Air Force ISR Agency Commander

By the time most military personnel involved in combat operations have been through basic and specialty qualification training, they are probably familiar with mission type orders (MTOs). Students of military history probably have an even better grasp on MTOs. Abstractly, an MTO is a tool used to direct a military unit to conduct a mission without stating how to conduct the mission, thus giving the unit the latitude to conduct the mission as they see fit, exercising initiative.¹ Most certainly it is a concept intimately familiar to those conducting ground combat operations. However, the concept and utility of using MTOs is evolving and expanding into other areas of military operations. Specifically, it is rapidly gaining traction within the world of intelligence collection. Is it a passing fad or can the joint community leverage the concept of MTOs to help operational level intelligence, surveillance, and reconnaissance (ISR) professionals extract more performance and capability from existing collection assets and thus provide better, more focused collection to subordinate units?

This chapter provides an introduction of the topic and establishes a roadmap for the rest of the thesis. It explores the context and scope of the problem, explains the uniqueness of the issue to the joint intelligence community, identifies a potential purpose

¹ This is the researcher's personal definition shaped by doctrine and experience. Chapter 2 contains a more detailed examination of the definition of MTO.

for conducting research, identifies several guiding research questions and suggests a thesis statement focusing on implementing ISR MTOs at the operational level of war.

Context of the Problem

This thesis is an embryonic attempt at framing and understanding the implementation of MTOs in the world of ISR. More specifically, it will examine the role that MTOs may play in theater-level collection management strategies. While this subject may seem irrelevant to those military personnel familiar with the concept of MTO, it is at the embryonic stage within the joint intelligence community. Only within the past year have intelligence directorates at the joint task force (JTF) level tried to apply MTOs to support operational level collection. To use a colloquial phrase, it has been a “pick-up game” without standards, training, or doctrine to support it. Thus it is critical to examine what the concept is, how it is being implemented, and how it may be done better to improve collection management processes in the future.

Problem and Uniqueness of Study to the Joint Intelligence Community

The reader will care about the findings of this thesis because it explores new ways to extract better performance and effectiveness from operational level intelligence collection assets. This is specifically an issue that the J2 (intelligence function) at the combatant commands and JTFs, to include subordinate component commands, will be interested in order to improve collection management processes within their respective areas of responsibility. The U.S. Strategic Command Joint Functional Component Command for ISR (JFCC-ISR) will have an interest in the topic as it may uncover potential flaws in existing Global Force Management Board (GFMB) methods for

allocating ISR assets among the combatant commands.² Intelligence agencies involved in collection may find utility in the findings in order to understand how national assets may impact ISR MTOs. Previous unclassified writing on the subject was purely theoretical and hypothetical. Only within the past 18 months have ISR MTOs been implemented in Afghanistan and Iraq. Thus previous research did not take execution of ISR MTOs into account. This research is an attempt at directly addressing and understanding the phenomena of ISR MTOs at the operational level of war (OLOW). It may offer future researchers a foundation on which to conduct further research and study in the area of ISR.

Research Purpose Statement

The purpose of this research is to determine if ISR MTOs are useful in support of intelligence collection at the OLOW. As little to nothing has been written on the subject of MTOs being applied to intelligence collection, this research will serve as a foundational body of research that others may choose to build upon in the future.

Scope of the Problem

The concept pertains to the OLOW and how theater-level ISR assets are tasked. Examples of these include MQ-1 Predator, MQ-9 Reaper, MC-12W Liberty, U-2 Dragon Lady, RQ-4 Global Hawk, RC-135 Rivet Joint, EP-3, and the US Navy Broad Area Maritime Surveillance (BAMS) platform. The individual military Services bring and present these assets to the joint force commander to use as he sees fit in support of JTFs

² At the time this research was conducted, JFCC-ISR was still tasked with global force management of ISR. However, the Department of Defense has since announced JFCC-ISR will be disestablished 30 September 2011. JFCC-ISR's primary tasks will likely revert to the Joint Staff. Regardless, this research may be beneficial to a successor organization.

and subordinate military operations. Implications for organic ISR assets at the tactical level may exist but they are not the intended focus of this research.

Questions Guiding the Research

An overarching research question drove the research on this topic: is an MTO an effective technique to support intelligence collection at the OLOW, defined as the JTF? It is fairly broad, so it only makes sense to have additional subordinate or supplementary questions to help support and guide the overall research question. Are ISR MTOs unsuitable for particular types or phases of conflict? Do emergent practices or procedures pertaining to ISR MTOs need to be codified to enhance future effectiveness? Are there specific intelligence assets or intelligence disciplines that are better suited for MTOs? Answers to these kinds of questions, collected via interviews, personal experience in Afghanistan, and existing literature, will help to suggest some insights into the overall value of using MTOs at the OLOW to support intelligence collection.

Thesis Statement

At the OLOW, the MTO is a valid technique to execute collection in support of intelligence requirements. This thesis statement is essentially a restatement of the research purpose statement. As this is a thesis leveraging multiple qualitative research techniques, the end conclusions of the thesis will not result in the rejection or acceptance of a hypothesis. Upon final analysis of the data collected within the applied research framework, the researcher will offer assertions on the validity of using MTOs and recommendations on improving the use of MTOs in the future.

Overview of Remaining Chapters

This thesis contains five additional chapters, for a total of six. Chapter 2 builds a conceptual foundation to explain to the reader what MTOs are and how they may be of benefit to intelligence collection at the operational level. It also offers an examination of existing literature to show what has and has not been written on the subject in order to demonstrate the uniqueness and relevance of this study. Chapter 3 presents a design for a single case study on the current use of ISR MTOs in Afghanistan. It also provides a description of how the case study was designed from a research standpoint. Chapter 4 contains the case study and its three sub-components including a background, the findings, and an analysis. As the research has shown that ISR MTOs are being implemented in an unstructured manner with little to no guidance, it is important to capture how they are being used in order to understand the benefits and limitations. Further, it provides an analysis of the suitable and unsuitable conditions for employing ISR MTOs. Chapter 5 includes a critique of the study, explores study limitations, and provides recommendations in the areas of joint intelligence collection and future research. Chapter 6 presents a conclusion to the thesis.

CHAPTER 2: LITERATURE REVIEW AND SETTING THE STAGE

As a form of narrative tasking, ISR MTOs can be effective for any intelligence collection activity.

— Captain Amanda “Woody” Figueroa, USAF
ISR Liaison Officer

Summary of the Problem and Purpose

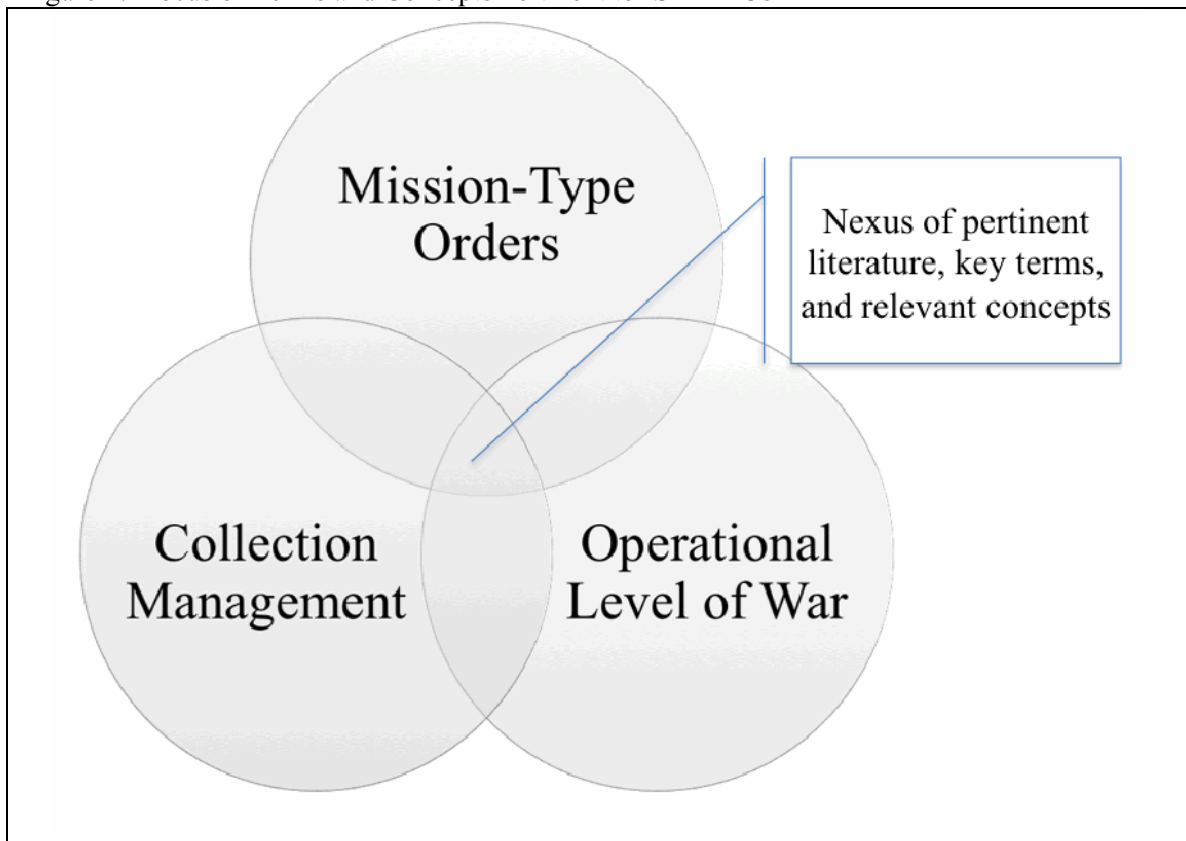
The first chapter highlighted in broad terms that mission type orders (MTOs) are now being used to support intelligence, surveillance, and reconnaissance (ISR) operations at the operational level of war (OLOW). It also explained the context and scope of the problem, underscored the uniqueness of the issue to the joint intelligence community, identified a potential purpose for conducting research, offered several guiding research questions, and finally suggested a thesis statement.

Conceptual Framework for Focusing Research

Before building and populating case study framework with research data collected from ISR experts in theater, it is important to identify and discuss some key terms and concepts related to MTOs, the OLOW, and the business of ISR. There are some conceptual boundaries that require identification and exploration. In other words, this chapter sets the stage and prepares the reader with an understanding of some key concepts that relate to the topic of implementing ISR MTOs at the operational level of war. It will also look at what has been written in the past and what gaps exist in current research.

A concept map was designed to answer the various research questions driving this research. It helped guide, bound, refine, and narrow the focus during existing literature research (Appendix A provides further information about the concept map). Relevant existing literature generally fell into at least one of three topic areas: OLOW, MTOs, and collection management (CM)/ISR. Examination of existing literature focused on relevance to those three topic areas. Figure 1 provides a visual representation of the approach to the literature review. It shows a Venn diagram with three circles, each representing one of the topic areas, and a nexus, or area of overlap. This nexus conceptually represents relevant terms and concepts uncovered during research.

Figure 1: Focus of Terms and Concepts Pertinent to ISR MTOs



Discussion of terms and concepts from the literature that fall within the nexus is worthwhile in formulating the design of a case study model.

Literature Review

A literature review served to accomplish three goals. These were to identify pertinent existing literature, ascertain any gaps that literature did not cover, and to assist in the prediction of how this research may fill those existing gaps. The major thrust of the literature review centered on the exploration of academic, print media, and doctrinal landscapes for pertinent discussion of ISR MTOs at the OLOW. The process began with a search of all available research portals, academic databases, military repositories, and the Internet for documents focusing on, or at least mentioning, one of the three conceptual focus areas detailed in Figure 1. This effort produced more than 120 initial sources.³ Content analysis helped to eliminate more than half of those documents down to a more manageable 55 pieces of relevant literature for further study and synthesis.

Relevant Existing Literature

The researcher used a three-pronged approach to uncover, explore, and examine existing relevant literature. He discovered that existing related research fell into one of three general categories. These three categories were academic research, current journals and periodicals, and joint doctrine. A total of 55 total works supported the literature review. The majority, a total of 30, fell into the academic research category. Academic periodicals and journals represented another 10. The remaining 15 were joint and Service doctrine publications. Appendix B provides additional data on the specific analysis of existing literature and the related topic areas.

³ The bibliography for this research contains all of works specifically cited and those consulted for general context and subject background.

It is also useful to explore the relationship of the existing literature to the three conceptual focus areas to assist in providing further context to the topic.⁴ To that end, content analysis of the existing literature showed that 50 of 55 sources focused on, discussed, or referenced the concepts of CM and ISR. The concept of OLOW appeared in 43 of 55. Another 19 sources addressed the general topic of MTOs; of those, 11 sources directly addressed ISR MTOs. The remaining two dealt with concepts to support development of the case study in Chapters 3 and 4. Although the majority of the literature fell into the CM and ISR focus area, documents containing discussion of the other focus areas also proved equally useful in terms of informing on the research topic.

Many of the existing literature sources addressed more than one of the focus areas. Most of the documents addressed at least two or three conceptual focus areas. Of the 55 existing literature documents consulted, 15 contained discussion on all three areas. Another 29 addressed two of the focus areas. Nine of the sources broached just one topic area. The two previously mentioned case study documents did not address any of the three topic areas. Documents dealing with more than one of the three topic areas better assisted in informing on the research topic. Additionally, sources pertaining to only one of the three topic areas often lacked overall context in support of answering the research questions.

With a general sense of the literature related to the research topic, it is useful to now delve into the specific types of sources, including academic research, journals and periodicals, and doctrine, to gain an understanding of their potential utility.

⁴ The literature review purposely discounted examination of all classified sources in order to keep the research unclassified and more accessible to future researchers and to help fill the gaps in existing literature.

Academic Research

Academic research offers much discussion on the primary subject areas. Initial academic research began with civilian databases such as EBSCOhost and LexisNexis. Because of the narrow military focus of the research, these research sources proved to be of little use. The Defense Technical Information Center's (DTIC) online portal assisted in locating a large majority of existing related literature in the academic research arena. Most of the researchers who have written on topics related to this research have been affiliated with military organizations of higher learning such as the U.S. Army War College, the U.S. Air Command and Staff College, and the U.S. Naval Postgraduate School. A total of 30 of 55 works used to support this literature review fell into this category. It is worth pointing out that only two of those 30 academic research sources were civilian in nature; both of those address how to design case studies. Of the 11 sources that directly addressed the concept of ISR MTOs, five of those fell into the academic research category.⁵

Journals and Periodicals

Journals and periodicals also provided some valuable understanding into the three key focus areas of ISR/CM, OLOW, and MTOs. Examples of journals and periodicals used include *C4ISR Journal*, *SIGNAL Magazine*, *Joint Forces Quarterly*, and *Air and Space Power Journal*. Most journal articles used in support of this research are really abridged versions of research papers to allow for ease in readability and publishing. Periodicals typically provided interviews with senior ISR leaders on topics related to the

⁵ The following five authors mentioned or addressed ISR MTOs in their academic research. They are Jason Brown, Michael Grunwald Jr., Daniel Johnson, Rachel McCaffery, and Stephen Price. Their research is referenced elsewhere in this thesis, listed in the bibliography and available on the DTIC portal.

research topic. From a characterization standpoint, they tended to offer anecdotal information and public relations sound bites vice addressing core issues. Of the 11 sources that referenced ISR MTOs, four fell into the journal and periodical category.⁶

Joint and Service Doctrine

Joint and Service doctrinal sources reflect evidence of discussion on the research topic. The literature review uncovered a total of 13 joint and Service doctrinal publications relevant to the three conceptual focus areas. Eight doctrinal publications addressed two of the three areas. The other five touched on all three areas. Specific content typically focused on the execution of ISR and collection management practices at the operational level of war. The majority of the operations-related publications included discussion on the history and utility of MTOs and the benefits to ground operations with subordinate units. While it is useful to see what existing documents can provide in terms of assisting with the research topic, it is also informative to fully understand what gaps exist. Of the 11 sources addressing ISR MTOs, two fell into the doctrine category.⁷

⁶ The following four journal and periodical articles discuss or refer to ISR MTOs. They are Rita Boland, "Data Collection Resources Expand in Afghanistan," *Signal Magazine* (December 2010); David A. Deptula and Mike Francisco, "Air Force ISR Operations: Hunting Versus Gathering," *Air & Space Power Journal* 24, no. 4 (Winter 2010): 13-17; Kevin B. Glenn, "Out of the Tactical Weeds," *C4ISR Journal* 9, No. 6 (July, 2010): 36-38; and Bradley M. Heithold, Major General, USAF, Commander, U.S. Air Force ISR Agency, interview by Barry Rosenberg, April 5, 2010, <http://defensesystems.com/Articles/2010/04/06/Interview-Maj-Gen-Bradley-Heithold-ISR-Agency.aspx> (accessed 18 February 2011).

⁷ 480th ISR Wing, *Air Force Distributed Common Ground System (DCGS) Operational Planning Process Handbook (DOPP)*, (Langley AFB, VA: 480th ISR Wing, 12 February 2010) and U.S. Air Force, *Theater ISR CONOPS* (Washington DC: Headquarters Air Force, January 2008). The 480th ISR Wing's Air Force DOPP Handbook discusses ISR MTOs. The U.S. Air Force's Theater ISR CONOP also mentions ISR MTOs in passing.

Key Gaps in Existing Literature

With the benefit of knowing what existing literature offers on the research topic, it is a fairly straightforward task to assess the gaps. The biggest gap in existing literature deals with a lack of discussion on ISR MTOs. While many sources touch on the conceptual focus areas of this research, very few deal with the nexus between those three areas. As previously mentioned, 11 sources discussed “ISR mission type order” in some fashion. The majority of those 11 documents either encourages the use of ISR MTOs or generally champions the concept. Joint and Service doctrine are specific areas warranting criticism. As earlier noted, only two doctrinal publications touch on ISR MTOs. One of those is an Air Force Wing-level tactics, techniques and procedures (TTP) handbook. The other is an Air Force theater concept of operations (CONOPS) advocating the use of MTOs to support ISR. That is insufficient, especially since the U.S. military is already using ISR MTOs in both Operations ENDURING FREEDOM (OEF) and NEW DAWN.⁸ This may be an indicator that joint and Service doctrinal publications are not keeping pace with the current conflicts. None of the doctrine reviewed discusses how the concept of MTOs could be specifically used to support ISR collection operations. One reason may be that no current joint publications specifically address the performance and conduct of CM.⁹

Additional examination of joint doctrine reveals additional limitations from a literature perspective. Of the 83 existing joint doctrinal publications, only four deal

⁸ OEF is the current conflict in Afghanistan. NEW DAWN is the operation in Iraq; it is the follow-on to Operation IRAQI FREEDOM.

⁹ As a bit of foreshadowing, Chapter 5 calls for improvements to joint and Service intelligence doctrine. Especially useful would be a joint tactics, techniques, and procedures (TTP) publication on ISR and CM, similar to *Joint Publication 2-01.1: JTTP for Intelligence Support to Targeting*. This publication no longer exists, but was extremely helpful in the practice of targeting.

directly with conducting, planning and executing intelligence operations. Of those four intelligence documents, only one provides any detailed discussion of ISR and CM; it does not discuss MTOs. Only one joint intelligence publication refers to MTOs at all and only that the joint force commander may be responsible for issuing MTOs.¹⁰ Outside the joint intelligence publications, 17 other joint publications, mostly in operations, discuss MTOs.

How Research Will Help Fill the Existing Gap in Literature

This research helps fill the existing gap of research in several ways. First, it frames the concept of ISR MTOs that other researchers can then use as a point of departure for future study. Second, it employs a case study to capture how ISR MTOs are being used in a theater of operations, specifically OEF; this is particularly beneficial for other researchers if they plan to study ISR MTOs in another operation. Finally, this research offers suggestions on how joint military doctrine should be changed to incorporate ISR MTOs. If these suggestions result in doctrinal changes, that will help grow the amount of existing literature pertaining to this topic.

Existing literature does have a great deal to offer on this topic, but key gaps exist that this research will attempt to fill. Based on the results of the research extracted from the literature review, it is useful to discuss key topics within the areas of OLOW, MTOs, and CM and weaving in relevant viewpoints from the existing literature. This discussion will set the stage for a greater understanding of ISR MTOs and what role they play in CM at the OLOW.

¹⁰ U.S. Joint Chiefs of Staff, *Joint Publication 2-03: Geospatial Intelligence Support to Joint Operations* (Washington, DC: Department of Defense, March 22, 2007), II-7.

From *Auftragstaktik* to Current Day MTOs

Establishing a working definition of what MTOs are is critical to then apply the concept to the ISR realm. This will also have a discussion of the types of command and control (centralized and decentralized) in an attempt to determine when MTOs are most suitable.

Operational and Theater Levels Defined

It is important to show where the issues are with respect to ISR MTOs. One of the best descriptions of the levels of war comes from Dr. Milan Vego. He breaks down the levels of war into three levels stretching from the strategic down to the tactical. Each level of war also has an associated echelon of command. He further divides the strategic level into two sub-levels; they are national-strategic and military/theater-strategic. He also breaks the operational level into three sub-levels. These correspond to operational-strategic, operational, and operational-tactical.¹¹ Figure 2 provides an illustration of Dr. Vego's concept of levels of war and command with examples from OEF.

¹¹ Milan N. Vego, *Joint Operational Warfare: Theory and Practice*, rev. ed. (Newport, RI: U.S. Naval War College, 2009), II-17-18.

Figure 2: OEF Levels of War and Command

Level of War	Command Echelon
National-Strategic	President/Secretary of Defense
Military-Strategic Theater-Strategic	U.S. Central Command
Operational-Strategic	International Security Assistance Force (ISAF)
Operational	ISAF Joint Command (CFLCC) Other Components (CFACC, CFMCC)
Operational-Tactical	Regional Commands (RCs)
Tactical	Tactical Units

Source: Based on figure from Milan N. Vego, *Joint Operational Warfare: Theory and Practice*, rev. ed. (Newport, RI: U.S. Naval War College, 2009), II-17.

In relation to today's conflicts, the national-strategic sub-level is where the President and Secretary of Defense make decisions. U.S. Central Command (USCENTCOM) would represent the military-strategic level. The operational-strategic sub-level focuses on the highest level of command in Afghanistan; this is the International Security Assistance Force (ISAF), commanded by General Petraeus. The next echelon down is the operational level. It correlates to the ISAF Joint Command (IJC), currently under the command of Lieutenant General David Rodriguez. The operational-tactical sub-level is the bridge to the tactical units. This would correspond to the six Regional Commands (RCs) and components.¹² The RCs are essentially sub-

¹² The six RCs are RC-South (Kandahar), RC-Southwest (Lashkar Gah), RC-East (Bagram), RC-Capital (Kabul), RC-West (Herat), and RC-North (Mazar-e-Sharif).

divided land component commanders falling under IJC. Other component commands such as the air component fall under and report to ISAF, just like IJC; therefore they would fall into the operational level.

Auftragstaktik

Auftragstaktik is a concept coined by the Germans more than 200 years ago, which serves as the basis for the U.S. concept of MTOs.¹³ Directly translated it means tactical orders.¹⁴ However, it is much more than that. It is a key command and control principle that pertains to issuing orders to subordinates and providing them the flexibility to carry it out.¹⁵ In the German military there are additional components that make *Auftragstaktik* much different than MTOs as the U.S. military exercises them. Taken to the fullest extent, *Auftragstaktik* is a leadership philosophy where the leader not only provides the objective and framework within which to accomplish the task, but also provides resources needed to conduct the mission.¹⁶

Thus, applying the concept of *Auftragstaktik* to an OEF example, IJC provides leadership and guidance for subordinate RCs. RCs provide leadership and guidance to subordinate tactical ground units. While it is a useful exercise to see how the U.S.

¹³ Almost every article, paper, or essay on mission-type orders includes a section on *Auftragstaktik*, as a nod to the Prussian military forebears.

¹⁴ Google Translate, “*Auftragstaktik*,” Google, <http://translate.google.com/#auto|en|auftragstaktik> (accessed February 15, 2011). Google actually translates the phrase as order tactics, but in English one would say tactical orders.

¹⁵ Michael E. Fischer, “Mission-Type Orders in Joint Air Operations: The Empowerment of Air Leadership” (master’s thesis, U.S. Air Force School of Advanced Airpower Studies, June 1994), 1. Fischer’s paper provides a solid history of *auftragstaktik* and MTOs.

¹⁶ Werner Widder, “*Auftragstaktik* and Innere Führung: Trademarks of German Leadership,” *Military Review* 85 (September-October 2002), 2-9.

concept of MTOs evolved, it is important to understand that forces are not employing German *Auftragstaktik* in the Afghan theater; they are executing MTOs.¹⁷

MTOs

Joint Publication 1.02, The Department of Defense Dictionary of Military and Associated Terms provides two definitions for MTO. The first definition states that an MTO is “an order issued to a lower unit that includes the accomplishment of the total mission assigned to the higher headquarters.”¹⁸ The second definition articulates that it is “an order to a unit to perform a mission without specifying how it is to be accomplished.” The first definition is useful from the standpoint that subordinate units are attempting to accomplish portions of the mission in support of the higher headquarters in a nested fashion. The second definition is much more useful and constructive to suit the purposes of this research topic. It implies that the unit is conducting the mission in accordance with the commander’s intent. The unique part of the second definition is the conjunction “how”; implicit in MTOs is the concept that higher headquarters trusts subordinate units to use their training, experience, and knowledge to get the assigned task done in an environment that provides flexibility, thereby nurturing creativity.¹⁹

¹⁷ Some authors such as Widder see *Auftragstaktik* as almost a way of life or state of being for those who practice it. This is not the case in the U.S. military.

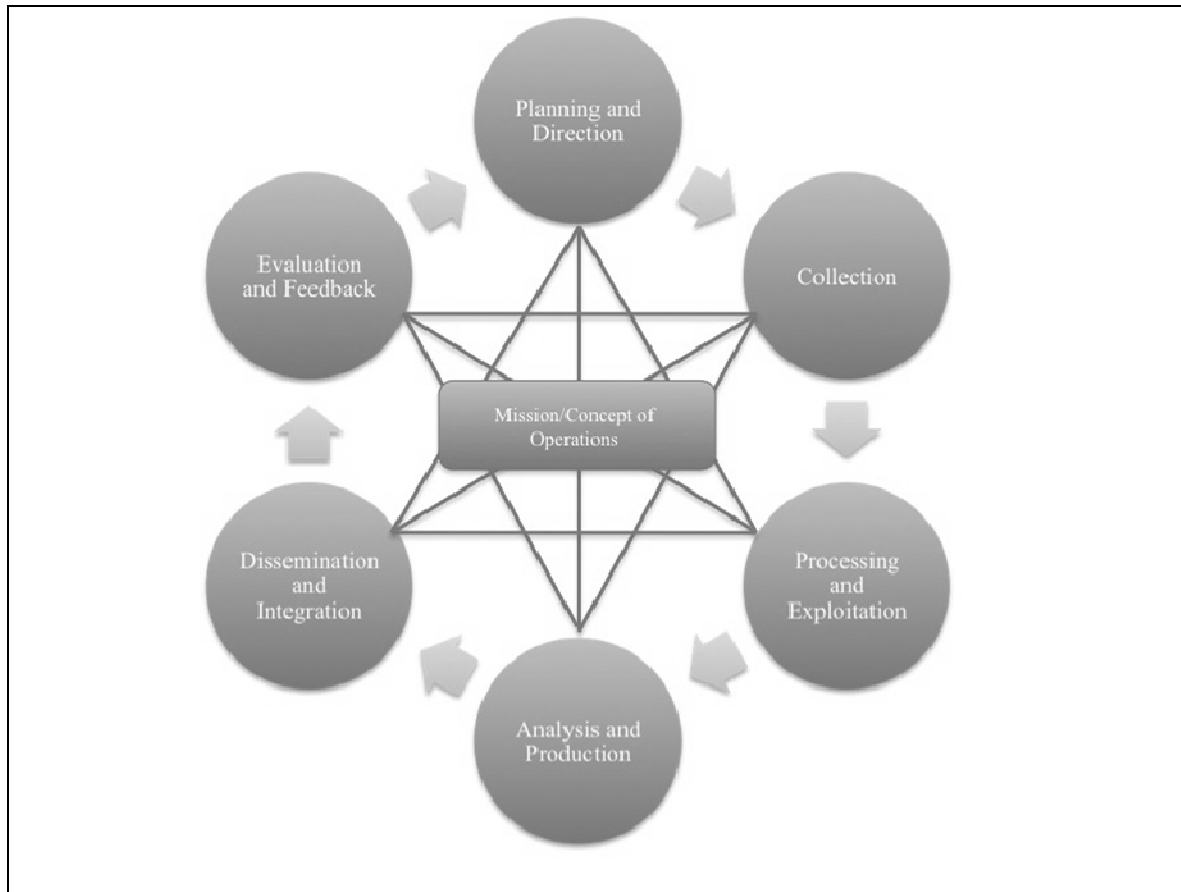
¹⁸ U.S. Joint Chiefs of Staff, *Joint Publication 1-02: Department of Defense Dictionary of Military and Associated Terms* (Washington, DC: Department of Defense, 2010), 241.

¹⁹ Stephen C. Price, Jr., “Close ISR Support: Re-organizing the Combined Forces Air Component Commander’s Intelligence, Surveillance and Reconnaissance Processes and Agencies” (master’s thesis, Naval Postgraduate School, 2009), 351.

Intelligence Collection Terms and Concepts

Having explored the concept of MTOs in a general sense, it is now time to examine the realm of ISR, and more specifically collection, in order to unite the two halves of the ISR MTO concept. The joint intelligence process is a perfect lens for understanding intelligence. It is a six-step iterative cycle. The steps are as follows: planning and direction; collection; processing and exploitation; analysis and production; dissemination and integration; and feedback and evaluation. Figure 3 depicts the joint intelligence process, showing the six steps, the relationships between those steps and the operational mission.

Figure 3: The Intelligence Process



Source: Taken from U.S. Joint Chiefs of Staff, *Joint Publication 2-01 Joint and Military Support to Military Operations* (Washington DC: Department of Defense, October 7, 2004), III-1.

Central to this process is the operational mission at hand; the process exists to support the overall operational mission, vice collecting and producing intelligence for the sake of it. Each step leads to the next. Connectivity exists between each of the six steps to ensure immediate feedback and adjustments to the system.

This process works in parallel with other processes such as the joint targeting cycle.²⁰ Relating the joint intelligence process back to the case study of OEF, it is important to emphasize that this process is continuously occurring at each level of command, from the tactical, up through the operational, to the strategic, and finally to the national level. It makes use of ISR assets from all levels as well, including the tactical organic, theater, and national.²¹

Planning and direction come from leadership to help focus and define the mission. In the case of MTOs, this can be thought of as the commander's intent that will drive collection. Several key activities that influence collection occur during this step. This is where intelligence personnel develop priority intelligence requirements (PIRs) to meet the commander's intelligence needs. To satisfy those PIRs, intelligence personnel develop an ISR collection plan using all available national, theater and tactical assets.

The next step is collection. This is where assets conduct operations to collect data about the adversary and the battlespace to satisfy the PIRs articulated in the planning and direction step. The third step, processing and exploitation goes hand-in-hand with collection. In today's world, intelligence analysts conducting processing and exploitation can work with the collection assets in real-time in order to help reposition, or adjust,

²⁰ Rhodes, Hagen, and Westergren, 5.

²¹ While this research focuses on ISR assets, these processes could apply to human intelligence (HUMINT).

assets in order to more effectively collect the required data and achieve the collection mission.

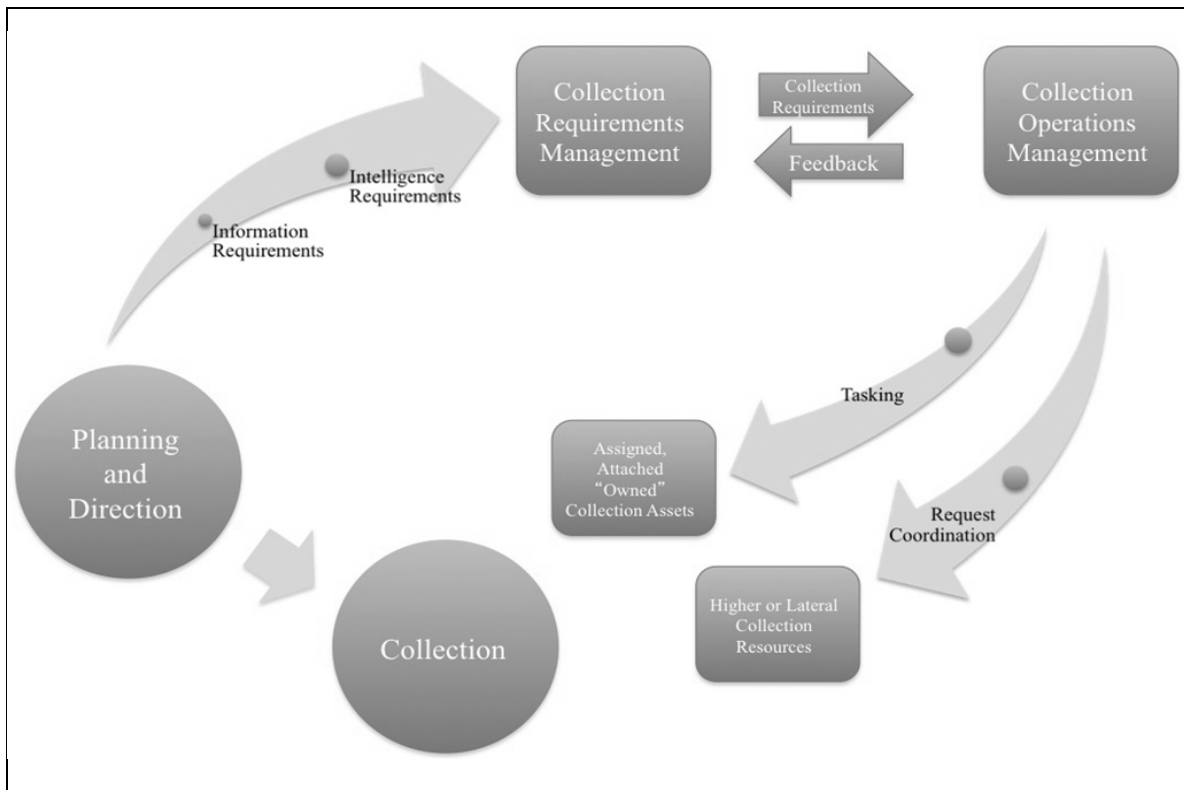
After the completion of processing and exploitation, analysis and production begins. This is where analysts provide value-added judgments and assessments on the data collected, turning it into actionable intelligence. Next, intelligence products are disseminated to customers and then used and integrated with other intelligence products. In the final step, evaluation and feedback, the customer can evaluate whether or not the intelligence product meets his needs and can provide feedback. If the requirement is not satisfied or if the intelligence collected generates additional requirements, a request for retasking or additional collection is submitted in order to better satisfy the requirement.

Collection Management Articulated

Collection management is a sub-discipline within the intelligence career field that provides structure and discipline to the joint intelligence process by prioritizing intelligence collection requirements and tasking the appropriate assets to conduct collection. It endeavors to convert intelligence requirements into collection requirements, establish priorities, task or coordinate with appropriate collection sources or agencies, monitor results, and retask as required.²² CM activities primarily occur in, but are not limited to, the first three steps of the intelligence process. CM has two primary sub-components worth examining in detail. These are collection requirements management (CRM) and collection operations management (COM). Figure 4 provides a graphic explanation of the collection process and its sub-components of CRM and COM.

²² U.S. Joint Chiefs of Staff, *Joint Publication 2-0: Joint Intelligence* (Washington, DC: Department of Defense, June 22, 2007), GL-6.

Figure 4: Collection Management Components



Source: Based on original drawing taken from U.S. Joint Chiefs of Staff, *Joint Publication 2-01: Joint and National Military Support to Military Operations* (Washington, DC: Department of Defense October 7, 2004), III-13.

The first is CRM which is “the authoritative development and control of collection, processing, exploitation, and/or reporting requirements that normally result in either the direct tasking of assets over which the collection manager has authority, or the generation of tasking requests to collection management authorities at a higher, lower, or lateral echelon to accomplish the collection mission.”²³ That is a complex way to say that CRM is prioritizing and validating intelligence and information requirements and turning them into collection requirements for tasking by intelligence assets. CRM concentrates on determining which intelligence requirements to collect in the future. It is conceptually

²³ U.S. Joint Chiefs of Staff, *Joint Publication 2-0*, GL-6.

easy to picture CRM as taking the outputs of the planning and direction step of the intelligence process and turning them into collection tasks.

The companion effort to CRM is COM. COM is the “authoritative direction, scheduling, and control of specific collection operations and associated processing, exploitation, and reporting resources.”²⁴ COM takes the collection requirements produced under the auspices of CRM and executes intelligence collection. COM matches the tasks developed in CRM to specific assets and resources thus ensuring that intelligence collection assets actually collect the assigned tasking.

Under CRM, requirements are validated and prioritized. Within COM, the validated, prioritized collection requirements are then tasked to specific collection assets in the form of a traditional preplanned collection deck. A simple way to understand CM is to visualize it as a subordinate process springing from the “planning and direction” step and reconnecting to the “collection” step. Note that subordinate units typically task their own organic ISR assets to conduct collection. They forward requirements they cannot satisfy organically to higher headquarters for theater or national intelligence collection assets to collect against and satisfy the requirements. Like the joint intelligence process, the CM process occurs at all levels of war.

ISR Defined

Having already hinted at what ISR is, it is critical to start with a few definitions in order to continue advancing the discussion. ISR is an “activity that synchronizes and integrates the planning and operation of sensors, assets, and processing, exploitation, and

²⁴ U.S. Joint Chiefs of Staff, *Joint Publication 2-0*, GL-6.

dissemination systems in direct support of current and future operations.”²⁵ It is also useful to examine the definitions of the components of ISR. Intelligence is a “product resulting from the collection, processing, integration, evaluation, analysis, and interpretation of available information concerning foreign nations, hostile or potentially hostile forces or elements, or areas of actual or potential operations.”²⁶ Surveillance “is the systematic observation of aerospace, surface, or subsurface areas, places, persons, or things, by visual, aural, electronic, photographic, or other means.”²⁷ Reconnaissance is “a mission undertaken to obtain, by visual observation or other detection methods, information about the activities and resources of an enemy or adversary.”²⁸ Looking at ISR from another perspective, surveillance and reconnaissance are activities undertaken to collect information that is analyzed, resulting in intelligence.

There is little difference between surveillance and reconnaissance. The Air Force asserts ISR is now essentially indivisible into its component elements.²⁹ ISR assets provide collection of four of the seven intelligence disciplines: signals intelligence (SIGINT), geospatial intelligence (GEOINT), measurement and signatures intelligence (MASINT), and technical intelligence (TECHINT).³⁰ Using the term ISR is another way of describing the entire end-to-end process of conducting “intelligence collection.”

²⁵ U.S. Joint Chiefs of Staff, *Joint Publication 1-02*, 233.

²⁶ U.S. Joint Chiefs of Staff, *Joint Publication 1-02*, 180.

²⁷ U.S. Joint Chiefs of Staff, *Joint Publication 1-02*, 451.

²⁸ U.S. Joint Chiefs of Staff, *Joint Publication 1-02*, 388.

²⁹ David A. Deptula and R. Greg Brown, “A House Divided: The Indivisibility of Intelligence, Surveillance, and Reconnaissance,” *Air & Space Power Journal* 22, no. 2 (Summer 2008): 5-15.

³⁰ U.S. Joint Chiefs of Staff, *Joint Publication 2-0*, I-5. JP 2-0 provides a thorough synopsis of each discipline. The other three disciplines are human intelligence (HUMINT), open source intelligence (OSINT), and counterintelligence (CI). These are human-oriented collection capabilities and are beyond the scope and focus of this research.

Applying MTOs to ISR

Joint doctrine has yet to catch up with ongoing ISR operations in the field. *Joint Publication 2.0, Intelligence* makes no mention of the term or concept. Probably the best description available today of ISR MTOs and how they work comes from Major General Bradley Heithold, Commander, U.S. Air Force ISR Agency. In an interview with *Defense Systems Magazine*, he described the benefits of using MTOs to support ISR. He said, “flexibility is one of the key benefits; by using MTOs, individual assets are not assigned to a specific target.”³¹ General Heithold added, “by using MTOs, the crews executing collection understand the commander’s intent and can react to the changing battlespace conditions in order to continue collecting intelligence that is important to the commander.”³² General Heithold and others advocate letting commander’s intent drive intelligence collection to help extract the most utility out of ISR platform and give collectors the freedom of motion to react quickly and reposition assets as needed vice retasking a sensor, or asking permission for every deviation, from the planned target deck, as long as that planned deck is not affected.³³

In *Fighting for Intelligence: The Design of Intelligence-Led Operations*, Jason Brown advocates the concept of intelligence-led operations, which can leverage MTOs, in order to defeat complex, adaptive adversaries. He makes the case for using an “intelligence logical line of operations” along which intermediate objectives serve to focus on achieving an end state; ISR MTOs would develop from the commander’s intent

³¹ Heithold, interview by Rosenberg.

³² Heithold, interview by Rosenberg.

³³ Heithold, interview by Rosenberg.

expressed to achieve the desired end state.³⁴ It makes sense to use a logical line of operation, or line of effort, around which a commander can focus collection assets to achieve objectives. Critical to this concept is the effective communication of the MTO, specifically the commander's intent, which will drive how collection managers and ISR units conduct collection operations, and underscores the utility of MTOs to support ISR operations. Stephen Price underscores that it is critical that ISR MTOs should not be separate from the overall operational plan.³⁵

The 480th ISR Wing also incorporates ISR MTO tasking into their existing operations processes. The wing operates the U.S. Air Force's Distributed Common Ground System (DCGS) enterprise charged with conducting distributed intelligence processing, exploitation, and dissemination operations for theater ISR assets operating around the globe.³⁶ The 480th ISR Wing is a supporting ISR unit (SIU) that works with ISR assets to turn tasked intelligence requirements into fused analytical products for supported units (SUs). In the 480th ISR Wing's *DCGS Operational Planning Process (DOPP) Handbook*, MTO tasking is a key emphasis item. In describing MTOs it states "inherent in an MTO is the requirement for the SIU to work with the SU to solve a collection problem, understanding at all times the SU commander's intent and maintaining the flexibility to be most effective during mission execution and in

³⁴ Jason M. Brown, "Fighting for Intelligence: The Design of Intelligence-Led Operations" (master's thesis, U.S. Marine Corps School of Advanced Warfighting, 2008), 15-17.

³⁵ Price, 125. In his paper he advocates revamping the process by which the combined air component commander conducts theater ISR. He also provides an appendix on MTOs.

³⁶ David A. Deptula and James R. Marrs, "Global Distributed ISR Operations: The Changing Face of Warfare," *Joint Force Quarterly* 54 (3rd Quarter 2009): 110-115.

accordance with the SU's intent and operational plan."³⁷ In other words, MTOs result in tailored intelligence collection for the SU, vice an inflexible, outdated collection deck-centric approach. The 480th ISR Wing *DOPP Handbook* also emphasizes that goals of MTOs include increasing flexibility, improving timeliness, meeting commander's intent, satisfying ISR requirements, and facilitating qualitative feedback.³⁸ Clearly, despite a lack of joint doctrinal guidance, the 480th ISR Wing, a high-level tactical organization, has embraced and internalized the MTO concept in support of operations in Iraq and Afghanistan. Lt Col Jason Brown, a former distributed ground station (DGS) squadron commander, asserts, "ISR operations should be guided by mission type orders rather than a time-consuming collection-requirements management process."³⁹

Preplanned and Dynamic [Ad Hoc] Theater ISR Tasking Requirements

From a CM standpoint there are two primary types of intelligence requirements for tasking. Preplanned requirements are those requirements, submitted in advance of an operation, that go through CRM and COM and onto a collection deck for tasking by a theater intelligence asset.⁴⁰ Most often it is a list of planned targets for intelligence collection using a particular sensor. A standing requirement is basically a recurring preplanned collection requirement.⁴¹ Standing requirements are submitted well in

³⁷ 480th ISR Wing, *DOPP Handbook*, 5. This paraphrases the actual wording to improve clarity and minimize use of acronyms.

³⁸ 480th ISR Wing, *DOPP Handbook*, 5.

³⁹ Jason M. Brown, "Operating the Distributed Common Ground System: A Look at the Human Factor in Net-Centric Operations," *Air and Space Power Journal* 23, no. 4 (winter 2009): 57.

⁴⁰ 480th ISR Wing, *DOPP Handbook*, 5.

⁴¹ Lisa Krizan, "Converting Customer Needs Into Intelligence Requirements," *Directions Magazine* (October 11, 2006), URL: <http://www.directionsmag.com/articles/converting-customer-needs-into-intelligence-requirements/123022>, (accessed February 1, 2011).

advance of planned intelligence collection missions through existing theater and subordinate unit requirement processes. For example, a naval component commander may have a standing requirement to image various ports to determine the location of various naval vessels to track adversary order of battle.

As the enemy is capable of thinking and not always predictable, preplanned requirements may not produce the intelligence the commander needs to keep pace with the speed of war. This is where dynamic, or ad hoc, intelligence requirements come into play. Dynamic requirements occur within the context of the unfolding operational situation, necessitating changes to the ISR plan in order to improve planning and increase flexibility.⁴² An example of a dynamic requirement might be where the enemy pinned U.S. ground forces down in a troops-in-contact situation or an aircraft is missing. If the commander deems the situation to be of a high enough priority, intelligence assets can be diverted to provide collection to support the pinned down forces or to help locate the aircraft. The emergent nature of these situations makes pre-planning for intelligence collection impossible.

Efficiency vice Effectiveness in Collection

Efficiency vice effectiveness of ISR assets conducting collection in support of operations is a source of tension between the Army and the Air Force.⁴³ Many

⁴² Headquarters Department of the Army, *Field Manual 2-0, Intelligence* (Fort Huachuca, AZ: U.S. Army Intelligence Center of Excellence, March 23, 2010), 4-12.

⁴³ Michael T. Flynn, Rich Juergens, and Thomas L. Cantrell, "Employing ISR SOF [special operations forces] Best Practices," *Joint Force Quarterly* 50 (3rd Quarter 2008): 58. LTG Flynn and coauthors assert ISR is most effective when massed. They use "effective" or "effectiveness" with respect to ISR 21 times. Massing ISR may not always be the most efficient way to support collection in support of the JTF commander's objectives. The SOF ISR paradigm suits SOF units as they have their own dedicated ISR assets.

operational commanders view theater ISR as not responsive to their needs.⁴⁴ At the operational level, collection managers have the unenviable task of trying to be both efficient with “high demand, low density” theater collection assets and effective by putting those assets on priority operations.⁴⁵

Other conceptual tenets such as economy of force and prioritization also factor into the equation, thus adding to the complexity of CM. Economy of force is “the judicious employment and distribution of forces;” it calls for a minimum of essential combat power to secondary efforts.⁴⁶ Applying that definition to theater ISR operations tends to suggest that few, if any ISR assets should be tasked to support operations that the commander has not prioritized as high. Further, as operational demands exceed intelligence collection capabilities, prioritization of requirements is critical; this ensures that finite collection assets focus on satisfying only the most important tasks.⁴⁷ One key point to reinforce here is that economy of force is a principle of joint operations, whereas efficiency and effectiveness are not.⁴⁸ Adherence to the principles of joint operations with respect to intelligence collection may help resolve struggles over lesser issues such as efficiency and effectiveness. In the end, efficiency and effectiveness are not mutually exclusive; they are both necessary and require balancing.⁴⁹

⁴⁴ Johnson, 26-27.

⁴⁵ Price, 145.

⁴⁶ U.S. Joint Chiefs of Staff, *Joint Publication 3-0: Joint Operations*, (Washington, DC: Department of Defense, March 22, 2010), A-2.

⁴⁷ U.S. Joint Chiefs of Staff, *Joint Publication 2-0*, xiv.

⁴⁸ See Figure I-1 on Page I-3 of *Joint Publication 1: Doctrine for the Armed Forces of the United States* for the principles of joint operations.

⁴⁹ Brown, “Operating the Distributed Common Ground System,” 56-57.

In summary, this chapter provided a conceptual framework for conducting a literature review, highlighted the existing literature related to the research, and set the stage for designing a case study examining the use of MTOs to leverage theater ISR assets in Afghanistan. The framework for the literature review focused in the three areas of MTOs, OLOW, and CM. Existing literature effectively touches on and informs in these three areas, but little existing literature directly addresses the thesis topic. Thus, this thesis should help contribute to the existing body of work on the subject. With a general understanding of key concepts related to MTOs, OLOW, and CM, it is now possible to construct a case study framework.

CHAPTER 3: DESIGN OF CASE STUDY TO EXAMINE ISR MTOs

MTOs allocate theater ISR to supplement a battlespace commander's organic ISR for a specific period of time.¹

— Colonel Scott “Dutch” Murray, Chief, ISR Division
ISAF Joint Command, Kabul, Afghanistan

Having explored what existing literature had to offer along with an instructive understanding of the key concepts surrounding intelligence, surveillance, and reconnaissance (ISR) mission type orders (MTOs), the operational level of war (OLOW), and collection management (CM), it is time to design a case study. This case study is in the exploratory, single case design format.² This case study offers a qualitative research approach to attempt to address the value of using ISR MTOs to support execution of intelligence collection.

Prior to conducting data collection, the researcher designed a plan for the case study. While using a multiple-case study design offers the ability to confirm and refute analysis across each case, the researcher, instead, chose a single case based on the revelatory nature of the case.³ Several other factors also influenced this decision including limited time to complete the research, previous ISR experience in Operation

¹ Rita Boland, “Data Collection Resources Expand in Afghanistan,” *Signal Magazine*, December 2010.

² Winston Tellis, “Introduction to Case Study.” *The Qualitative Report* 3, no. 2 (July 1997).

³ Robert K. Yin, *Case Study Research: Design and Methods*, 4th ed., (Thousand Oaks, CA: Sage Inc., 2009), Kindle Electronic Publication, location 1228. Yin classifies revelatory as a rationale that exists when the researcher has an opportunity to study a phenomenon previously inaccessible. The term applies to this research, as this is the first study of ISR MTOs.

ENDURING FREEDOM (OEF), and access to data via interviews. Further, the researcher did not plan to generalize the results to other cases or situations.

Protocol

This section discusses the protocol, or the set of rules that helped to guide the research, for the case study.⁴ The researcher designed the protocol, prior to the data collection phase, with four key areas. These included an overview, procedures, questions, and establishment of a guide for writing the report.

Overview of Case Study

This case study is a single case study focusing on the use and employment of ISR MTOs at the OLOW in OEF. It leverages interviews from subject matter experts who dealt with, used, or executed ISR MTOs either in theater or at home station. The purpose of this case study is to examine the use of ISR MTOs in support of theater ISR asset collection operations in Afghanistan OEF. Through analysis of findings obtained primarily through the interviews of subject matter experts who have experience dealing with ISR MTOs in OEF, the case study will attempt to answer whether or not ISR MTOs are valid tool to support intelligence collection. The primary unit of analysis for this case study is the ISR MTO itself. It is object being studied. The research questions lean toward and favor the ISR MTO as the unit of analysis.

⁴ Tellis, "Introduction to Case Study," *The Qualitative Report* 3, no. 2 (July 1997). Yin and Tellis recommend a case study protocol should have four key sections including an over view, field procedures, questions, and a guide for the report.

Objectives

The overall objective of the case study is to provide an understanding of the CM structure functioning at the OLOW of OEF and how ISR MTOs fit into that structure. Also fundamental to this objective is understanding how the various components, subordinate units, ISR assets, intelligence processing, exploitation, and dissemination (PED) nodes interact to conduct the business of ISR on a daily basis. Through these objectives, it will be possible to understand how ISR MTOs are used, and not used, in support of operations.

Issues

The researcher used a qualitative approach to collect data in support of this case study. He relied on his previous experience as Deputy Director of ISR at ISAF Joint Command (IJC) to map out a perceived framework for how operational level ISR is conducted and identify suitable potential interview subjects. The quantity of interview subjects does not represent a statistically significant number of personnel conducting ISR operations; therefore findings are not generalizable to other conflicts such as Operation NEW DAWN. The findings attempt to capture the thoughts, insights, impressions, and understandings of the interview subjects, all of whom served in key intelligence positions at U.S. Central Command (USCENTCOM) and subordinate echelons. Another issue to emphasize is that the findings do not make judgments or assessments on the effectiveness of ISR MTOs related to any specific operation.

Topics Being Investigated

The topics under investigation revolve around how intelligence requirements turn into tasking for ISR assets. Specifically, the case study concentrates on comparing and

contrasting traditional CM process with ISR MTOs. Interview subjects all had firsthand experience in observing or executing ISR operations in OEF. Responses from subjects serve to answer questions on when ISR MTOs may be effective in support of collection.

Procedures

The researcher used a variety of procedures in designing the study, collecting the data, and drafting the case study. He first developed a concept map on the topic of ISR MTOs as observed firsthand in Afghanistan from November 2009 through May 2010. The concept map helped to visualize and identify potential key research questions the researcher could use to help answer the thesis statement. The researcher validated the research questions by submitting them through the National Defense University's process for interviewing subjects. He also tested the questions on three practice subjects in order to make refinements to the questions in terms of clarity and conciseness.

Leveraging the technique of mixed purposeful sampling, the researcher selected a mix of intelligence and operations personnel who recently served, or are currently serving in a capacity related to ISR operations in OEF.⁵ All subjects had experience in one or more of the following duty locations: IJC; IJC's Regional Commands; U.S. Air Forces Central (USAFCENT) Combined Air and Space Operations Center (CAOC); USCENCOM; and distributed ground station (DGS) components of the Air Force's

⁵ Fridah W. Mugo, "Sampling in Research," Web Center for Social Research Methods, <http://www.socialresearchmethods.net/tutorial/Mugo/tutorial.htm>, (accessed November 1, 2010).

Distributed Common Ground System (DCGS).⁶ In fact, several subjects worked in a DGS at home station and deployed as DCGS liaisons to the CAOC.

Due to the wide dispersion of subjects, the researcher conducted interviews via email and telephone. After completion of each interview the researcher reviewed the response to each research question to ensure subjects understood and properly responded to each question. The researcher asked follow-up questions of several subjects in order to collect more detailed data. In some cases, individual subjects provided answers that differed substantially from what other subjects provided. This provided an opportunity to use the Delphi Method to provide additional synthesis on certain topic areas.⁷ The researcher provided subjects an opportunity to review and comment on answers that differed dramatically from their own. These iterative assessments helped to further enrich and inform on the various responses to the research questions. The researcher then wrote narrative answers for each of the research questions by synthesizing and incorporating all of the original interviews and the Delphi Method responses.

Credentials

The evaluation of credentials of personnel related to this research is important in two primary areas. These deal with the researcher and the subjects. The researcher is a 19-year U.S. Air Force intelligence officer who served at various echelons from the

⁶ USAFCENT is the air component command for USCENTCOM. The DCGS is the Air Force's enterprise, or weapons system, for conducting PED. The DGS represents a group-level component of the DCGS construct. There are five active duty DGSs. They are DGS-1 (Joint Base Langley-Eustis, VA), DGS-2 (Beale AFB, CA), DGS-3 (Osan AB, Republic of Korea), DGS-4 (Ramstein AB, Germany), and DGS-5 (Joint Base Pearl Harbor-Hickam, HI).

⁷ Harold A. Linstone and Murray Turoff, *The Delphi Method: Techniques and Applications* (Reading, MA: Addison-Wesley, 2002), 3. Per Linstone and Turoff, Delphi is "a method for structuring a group communication process so the process is effective in allowing a group of individuals, as a whole, to deal with a complex problem."

tactical to the strategic level. He has breadth and depth of experience in a variety of intelligence disciplines and skill sets. These include unit-level intelligence working with aircraft and aircrew, instruction, targeting, analysis, and CM. He deployed three times to support combat operations at the OLOW; the most recent experience was at IJC as the Deputy Director for ISR. The researcher has three graduate degrees focusing on operational and strategic matter.

The credentials of the interview subjects are also important in order to determine if they can comment authoritatively and accurately on the subject matter at hand. All 10 subjects are career intelligence or operations personnel coming from three U.S. Services and one allied military service. At the time the research was conducted, all subjects were deployed or had recently returned from deployment in support of OEF. As previously mentioned, several of the subjects have experience in more than one echelon of command or organization involved in the execution of ISR supporting OEF. Appendix D contains a table highlighting the credentials of the interview subjects.

Access to Sites

Access to sites in support of research is problematic based on the researcher's location in the United States. Since redeploying from Afghanistan, he lost direct, physical access to deployed ISR personnel supporting OEF and had access to all personnel only via telephone and email. Additionally, due to the researcher's close physical proximity to Joint Base Langley-Eustis, Virginia, he had access to DGS-1 personnel conducting ISR operations from home-station. Interview subjects who were deployed or conducting ISR operations from home station at the time the research was conducted had access to various sites related to the research at hand. Several interview

subjects were no longer deployed and no longer supported OEF ISR operations at the time of this research; they also had issues regarding access to sites.

Sources of Evidence

The researcher selected three of the six generally recognized types of evidence to use in support of this case study.⁸ They included interviews of subjects, direct observation by the researcher during the period of November 2009 through May 2010, and interview participant observation. Due to the unclassified nature of this thesis, the researcher did not have access to official documents, archival records, or physical artifacts. Examples of these would have included copies of actual ISR MTOs used in Afghanistan, collection decks, and ISR measures of performance and effectiveness developed.

The researcher chose interviews as a source of evidence for two benefits. Interviews directly target the desired subject matter and they are insightful.⁹ Interviews have drawbacks. These include bias due to poor questioning, response bias, inaccuracy due to poor recall, and interviewing providing expected information.¹⁰ Keeping these strengths and weaknesses in mind, the researcher conducted interviews of subject matter experts from 1 November 2010 through January 2011. All subjects interviewed had more current experience on the subject of ISR MTOs and CM in support of OEF than the researcher. The researcher built a concept map of the topic based on his own understanding at the time he observed it. Through the interview process, the subjects,

⁸ Yin, location 2145. Yin points suggests each type of evidence offers strengths and weaknesses. He recommends using more than one type when doing case study research.

⁹ Yin, location 2151, figure 4.1.

¹⁰ Yin, location 2151, figure 4.1.

each possessing more current and accurate data on the topic, shaped the researcher's perceptions. This allowed the researcher to correct any mistaken assumptions on the ISR processes and ask better, more relevant questions.

In Chapter 1, the researcher identified several research questions to serve as key components in conducting the interviews and building the case study framework. As the researcher gained more understanding of the OEF ISR processes by interviewing subjects and applying the Delphi Method, he refined the questions to improve their effectiveness.¹¹ Appendix D lists the nine research questions supporting the research. The first two questions attempted to establish interview subject familiarity and experience with ISR MTOs. The researcher developed Questions 3, 4, and 5 to elicit subject matter opinion on how ISR MTOs were used and strengths and weaknesses they offer in the OEF environment. Question 6 targeted possible interviewee ideas on ways ISR MTOs could be more effective. Responses to this question helped shape recommendations. Question 7 was designed to explore perceptions on the relationship between intelligence assets, intelligence disciplines, and ISR MTOs. Question 8 was open ended to allow the interview subjects to discuss related topics that the other questions may have not addressed. Finally, Question 9 attempted to get interview subjects to suggest additional interview sources through a technique called snowball sampling.¹²

¹¹ Linstone and Turoff, 3. Linstone and Turoff underscore the value of the Delphi Method as a method for structuring group communication processes to allow a group of individuals, as a whole, to deal with complex problems. In the case of this research, each individual interview used the same questions. When answers were substantially different, he provided anonymous versions of those questions to other subjects for comment and follow-on observation.

¹² Mugo, "Sampling in Research."

The researcher cataloged and archived all interview data for later review, examination, and content analysis to support writing the case study report. Appendix E contains the transcripts of the interviews supporting development of this case study. It contains interview data supporting other portions of the research, including, but not limited to, the recommendations section of Chapter 5.

As with interviews, direct observation also presents strengths and weaknesses. Direct observations generally cover events in real time and are contextual.¹³ They can be time consuming, are selective, and may influence events being observed.¹⁴ The researcher conducted direct observation while assigned to IJC in Kabul, Afghanistan, as Deputy Director of the ISR Division from November 2009 through May 2010. During this time period the researcher observed the use of ISR MTOs on a daily basis. The researcher was also involved in shaping policies governing the use of ISR MTOs. Direct observation was especially beneficial in comparing the researcher's perceptions of events and process with those of interview subjects.

Participant observation offers the same strengths and weakness that direct observation does, with a few additions. Participant observations can provide insight into interpersonal behaviors and motives, but are also vulnerable to bias because of potential manipulation of events by the observer.¹⁵ Most subjects interviewed were, or still are, active participants in the system being studied. All were assigned to various organizations within or under the operational control of USCENTCOM charged with enabling the execution of ISR operations supporting OEF. Thus, interview subjects also

¹³ Yin, location 2151, figure 4.1.

¹⁴ Yin, location 2151, figure 4.1.

¹⁵ Yin, location 2151, figure 4.1.

have the ability to provide additional perspective as participant observers. The researcher did not expressly differentiate between interviewee responses and participant observations.

Case Study Questions

The researcher developed case study questions to organize data collected from interviews and to focus the case study report. The research questions evolved from the questions guiding the research in Chapter 1. Appendix D lists the five case study questions used. The researcher specifically selected the case study questions for simplicity. The six case study questions helped frame the major sub-sections within the written case study report in Chapter 4.

Guide for Case Study Report

The case study report is a consolidated, analytical report for capturing key findings, observations, and analysis pertaining to the use of ISR MTOs in OEF. The three primary sections of the report include a background, findings, and analysis of the findings. The findings section of the report, which draws heavily from the responses of interview subjects, focuses on addressing key topics such as what ISR MTOs are, where they are used, who is involved, when they are used, and how they are used. The analysis section of the report builds upon the findings of the single-case study of ISR MTO usage in Afghanistan. It attempts to show that analysis relied on all the relevant evidence, included all major rival interpretations in the analysis, and addressed the most significant aspects of the case study. It uses the researcher's expert knowledge to further the analysis of the subject. It addresses the benefits and limitations of ISR MTOs. It also provides recommendations on using ISR MTOs. The case study report concludes with proposed

procedures for writing and executing ISR MTOs at the OLOW to facilitate theater ISR asset collection operations.

CHAPTER 4: ISR MTO USE IN OPERATION ENDURING FREEDOM: A CASE STUDY

MTOs will not replace the need for the technical aspects of formal requirements, which remain essential for exploiters and their associated systems.¹

— Colonel Kevin Glenn, Chief, ISR Division
Combined Air Operations Center, Al Udeid Air Base, Qatar

This chapter examines use of mission type orders (MTOs) to conduct intelligence, surveillance, and reconnaissance (ISR) operations in Afghanistan over the period of the last year. The focus is qualitative in nature, favoring measures of effectiveness over measures of performance. Interview subjects, all possessing substantial ISR and Operation ENDURING FREEDOM (OEF) deployment experience, provided their thoughts, perceptions, assessments, and evaluations on ISR MTOs used to execute collection with theater ISR assets. This was instructive to see how MTOs were used, to what extent they were effective, and what initial lessons have been learned so far. Particular attention was paid to the type of mission being executed, the asset being used, and the intelligence discipline being used. Another way to describe this chapter is that it is the case study report described in the last chapter. It provides the background, findings, and analysis of the single case study framework developed in Chapter 3. It may help develop a paradigm for using ISR MTOs at the operational level of war (OLOW).

¹ Glenn, 38.

Background

This report explores the topic of employing MTOs to support intelligence collection leveraging theater ISR assets at the OLOW in Afghanistan under OEF. During the researcher's time as the Deputy Director of ISR at ISAF Joint Command from November 2009 through May 2010, collection managers at the OLOW in Afghanistan began to explore ways to deviate from preplanned, inflexible collection decks, submitted days in advance. One of the ways was by applying the concept of MTOs to expedite intelligence collection and provide more flexibility to satisfy more of the commander's intelligence needs, thus keeping pace with dynamic battle conditions on the ground.

Use of MTOs to support theater intelligence collection began without any guidance, standard operating procedures (SOPs), or a concept of operations (CONOPS). This initially caused confusion for tactical units seeking to leverage theater ISR assets to supplement intelligence collection beyond what their own organic assets could provide. Through a period of trial and error, supported units (SUs) at the tactical level, supporting ISR units (SIUs), Air Force ISR liaison officers (ISRLOs), and operational collection managers began maturing processes and growing techniques for employing MTOs.²

It is helpful to provide a way ahead by offering a paradigm for using ISR MTOs that could potentially inform joint ISR doctrine, enhance Service ISR training, and serve as a benchmark for theater intelligence tactics, techniques, and procedures (TTPs). This case study provides findings collected through interviews of subject matter experts with

² Jeff Johnston, Maj, USAF, interview by author, Joint Base Langley-Eustis, VA, November 2010. Operational collection managers operate out of ISAF Joint Command (IJC) in Kabul, Afghanistan. Operational collection managers are also at each of the six Regional Commands (RCs) subordinate to IJC. Additionally, the Combined Air and Space Operations Center (CAOC), under the control of the combined air forces component commander (CFACC), at Al Udeid Air Base, Qatar, also employs operational level collection managers.

deployed and home station ISR experience; where possible, the findings use interview subjects' own answers in verbatim to provide the context and detail. It concludes with an analysis of key topics to include recommendations on how to improve MTOs, proposed procedures for MTO use, and an overall judgment on the value of MTOs to support collection at the OLOW with theater ISR assets.

Findings

The six key case study questions serve to frame and channel the findings. These questions try to answer who, what, when, where, why, and how, in the context of MTO use to conduct intelligence collection at the OLOW in Afghanistan. The nine research questions helped interview subjects provide their own unique perspective on ISR MTOs and, by design, answer the six case study questions.

What Are ISR MTOs?

The ISR MTO is a narrative type of tasking that can be effective for any intelligence collection activity, and can be tailored to achieve the commander's desired effects.³ With ISR MTOs, the theater commander can allow subordinates as much or as little flexibility in planning and integration as is deemed appropriate.⁴ It enables collection managers and SIUs to meet SU [commander's] intent with more focused, more relevant collection while still staying within the boundaries of higher headquarters tasking.⁵ It is a tool that allows the operational level to dedicate theater ISR assets to SUs (typically brigade or battalion) executing operations and establishment of direct liaison

³ Amanda Figueroa, Capt, USAF, interview by author, Fort Gordon, GA, November 29, 2010.

⁴ Figueroa, interview by author.

⁵ Johnston, interview by author.

authority (DIRLAUTH) between the SU and the collectors.⁶ Additionally, ISR MTOs are a more robust execution of collection operations management (COM) than listing assets in the reconnaissance, surveillance, and targeting acquisition (RSTA) annex and tasking via spreadsheets.⁷ They allow direct feedback between SUs and SIUs to ensure all the details associated with the tasking process are agreed upon and understood; this is especially important in an environment with numerous forms of communication between units.⁸ MTOs help the intelligence collection managers facilitate intelligence tasking and communication between SUs and SIUs in an extremely complex environment.⁹

In OEF, MTOs are generally used to enable collection for RCs through the use of theater ISR assets.¹⁰ These assets include: U.S. Air Force (USAF) MC-12W Liberty; USAF U-2S Dragon Lady; USAF RQ-4 Global Hawk; U.S. Army (USA) Medium-Altitude Reconnaissance and Surveillance System (MARSS); U.S. Navy (USN) Broad Area Maritime Surveillance Unmanned Aircraft System, USN EP-3; USAF E-8C Joint Surveillance Target Attack Radar System (JSTARS); USAF RC-135 Rivet Joint; USAF MQ-1 Predator; USAF MQ-9 Reaper; and USA Warrior Alpha. There was a wide range of views on which assets were most effective in taking advantage of MTOs. Two subjects felt that any asset could be effective, provided the MTO accurately captures and

⁶ Jeremy Ahlstrom, Maj, USAF, interview by author, Bagram AB, Afghanistan, December 12, 2010.

⁷ Johnston, interview by author.

⁸ Johnston, interview by author.

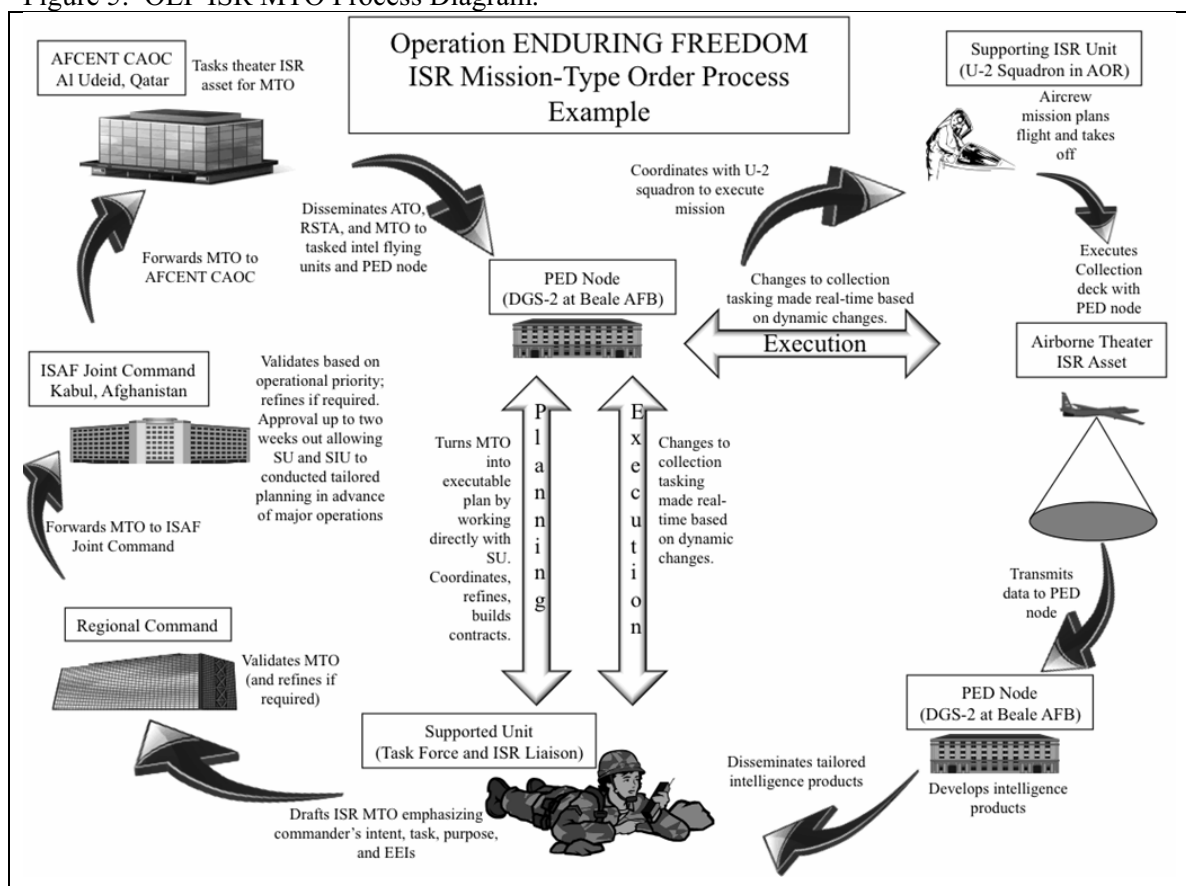
⁹ Johnston, interview by author.

¹⁰ Tactical-level units may use MTOs to conduct ISR operations with organic ISR assets, including integrating them with theater ISR assets, but this falls outside the scope of the research. The collection management process in Afghanistan requires tactical units to cover as much of their ISR requirement with organic assets first, prior to requesting theater ISR support.

conveys the desired ISR effects.¹¹ Several interview subjects thought theater assets with multi-intelligence discipline (multi-INT) capability are most ideally suited to take advantage of MTOs, as they have the ability to respond to dynamic collection opportunities through cross-cueing.¹²

The OEF ISR MTO process is cyclic in nature and has a hierarchical chain of command. Figure 5 illustrates this process, which starts and ends with the SU.

Figure 5: OEF ISR MTO Process Diagram.



¹¹ Figueroa, interview by author; Peter Salvaggio, LCDR, USN, interview by author, Naval Air Station (NAS) Whidbey Island, WA, March 7, 2011.

¹² Michael Lofts, Sqn Ldr, RAF, interview by author, Brunssum, Netherlands, March 9, 2011; Figueroa, interview by author; and Johnston, interview by author. Cross-cueing is where one intelligence discipline provides cueing for another to help refine collection. For example, signals intelligence from an RC-135 may detect enemy radar emissions. It can then cross-cue an MQ-1 to locate and identify the source with full-motion video imagery capability.

It relies heavily on the concept of DIRLAUTH to foster coordination between SU, SIU, and the processing, exploitation, and dissemination (PED) node. This coordination supports initial planning, the building of command and control (C2) contracts, and modifications to the collection plan based on dynamic changes within the operational environment.

How and Why Are ISR MTOs Used?

Units appear to be taking advantage for MTOs to compensate for flaws in existing theater collection management (CM) processes. Interview subjects provided a wide variety of perspectives on why MTOs are being used. There was a general consensus that ISR MTOs were not the normal, or standard method of planning and executing collection operations. From a content analysis perspective, they explained MTOs with positive words including “allow,” “feedback,” “flexible,” “tailorable,” “dynamic,” and “emerging.”¹³ Conversely, they described standard OEF theater collection processes with negative words like “stovepiped,” “workbench,” “assembly line,” and “traditional.”¹⁴ Interview subjects also highlighted three key thematic deficiencies with these existing processes including flexibility, synergy, and timeliness.

Existing theater CM practices may not flexible enough to be effective for SUs in a dynamic counterinsurgency (COIN) environment. Lieutenant Commander (LCDR) Peter Salvaggio, detachment Commander of an EP-3 unit supporting OEF, offered,

Standard collection is...RSTA based. If it's not in there, odds are it's not collected. The world we live in today is ever changing, and the COM process of

¹³ Lofts, interview by author; Figueroa, interview by author; Ahlstrom, interview by author; Salvaggio, interview by author.

¹⁴ Johnston, interview by author; Salvaggio, interview by author; Figueroa, interview by author.

the Cold War really doesn't allow for keeping up with the changing environment. ISR MTOs allow for...RSTA tasking as always, but also provide for additional flexibility for not only emerging / Ad Hoc tasking, but using the narrative tasking portion of the MTO, it gives the crews executing MTOs a greater understanding of the WHY. This allows for them to flex as things develop while they are executing collection. MTOs also help to streamline communications. It allows for supported units and supporting units to talk directly to each other. That is so important for effective collection.¹⁵

Major Jeff Johnston echoed LCDR Salvaggio's sentiment that MTOs are useful for "layering ISR, for massing effects and cutting the bureaucracy and red tape of an ISR tasking mechanism developed during the Cold War."¹⁶ Major Eric Jacobs, the 480th ISR Wing Chief of Weapons and Tactics, succinctly summarized the differences between MTOs and standard collection processes observing that "an MTO is asking a chef for their best soup, whereas the standard collection deck is handing the chef a recipe calling for specific ingredients."¹⁷

Theater collection lacks synergy from the perspective that it is stovepiped to a single INT, regardless of intelligence asset capabilities.¹⁸ For example, MQ-1/Predators carry both signals intelligence (SIGINT) and full-motion video imagery (FMV) sensors, however in daily tasking they are designated as either SIGINT or FMV prime missions, with no auxiliary tasking, meaning that many times SIUs are unable to task both sensors in collaborative manner.¹⁹ By contrast, an MTO provides a SIU the opportunity to work directly with an SU to identify the ISR problem set; they are able to holistically develop

¹⁵ Salvaggio, interview by author. The RSTA refers to an annex to the air tasking order (ATO). It is a document the CAOC uses to provide special instructions and amplification to theater ISR assets for execution of missions tasked in the ATO.

¹⁶ Johnston, interview by author.

¹⁷ Eric Jacobs, Maj, USAF, interview by author, Joint Base Langley-Eustis, VA, November 15, 2010.

¹⁸ Johnston, interview by author.

¹⁹ Johnston, interview by author.

collection tasking and maximize the asset's capability.²⁰ Standard theater intelligence collection processes require a preplanned collection deck per INT requested which results in a fragmented process for obtaining collection assets.²¹ MTOs allow units to avoid using a preplanned collection decks and allow for the planned, synchronized utilization of multiple assets against a common target set.²² Traditional tasking mechanisms in OEF did not provide or account for SU CONOPS, commander's intent, or status of ongoing operations. MTOs are precisely written to take those factors into consideration and account for changes due to extensive use of DIRLAUTH between the SU and SIU.²³

Timeliness of the existing CM process is another factor that is helping to foster the use of MTOs. Even tactical level units that get priority for theater ISR find the process to be lengthy and cumbersome. Capt Matt McDole, in his role as a DCGS LNO at RC-South in Kandahar, Afghanistan, provided amplification from the tactical perspective. He said,

It can take up to 8 [eight] days for the battalion (BN) to get a requirement satisfied. The BN has to fill out a CFACC [combined forces air component command] ISR Request Form (they do not use PRISM [Planning tool for Resource Integration, Synchronization and Management] because it runs too slowly at their bandwidth) and send that to the brigade (BDE). BDE approves and sends to the RC. The RC inputs into PRISM and forwards to IJC. IJC reviews, approves, and pushes to the CAOC [combined air operations center]. CAOC tasks. Tasking is done 2 days out. Then the asset flies and takes the images and the exploiters have about 24 hours to create products and send to the supported unit. If there are no hang-ups and if the requirement is never kicked back for corrections anywhere in this process, and if the CAOC tasks the requirement immediately as it pops up in the system, it usually takes about 8 days for this process to complete.²⁴

²⁰ Johnston, interview by author.

²¹ Ahlstrom, interview by author.

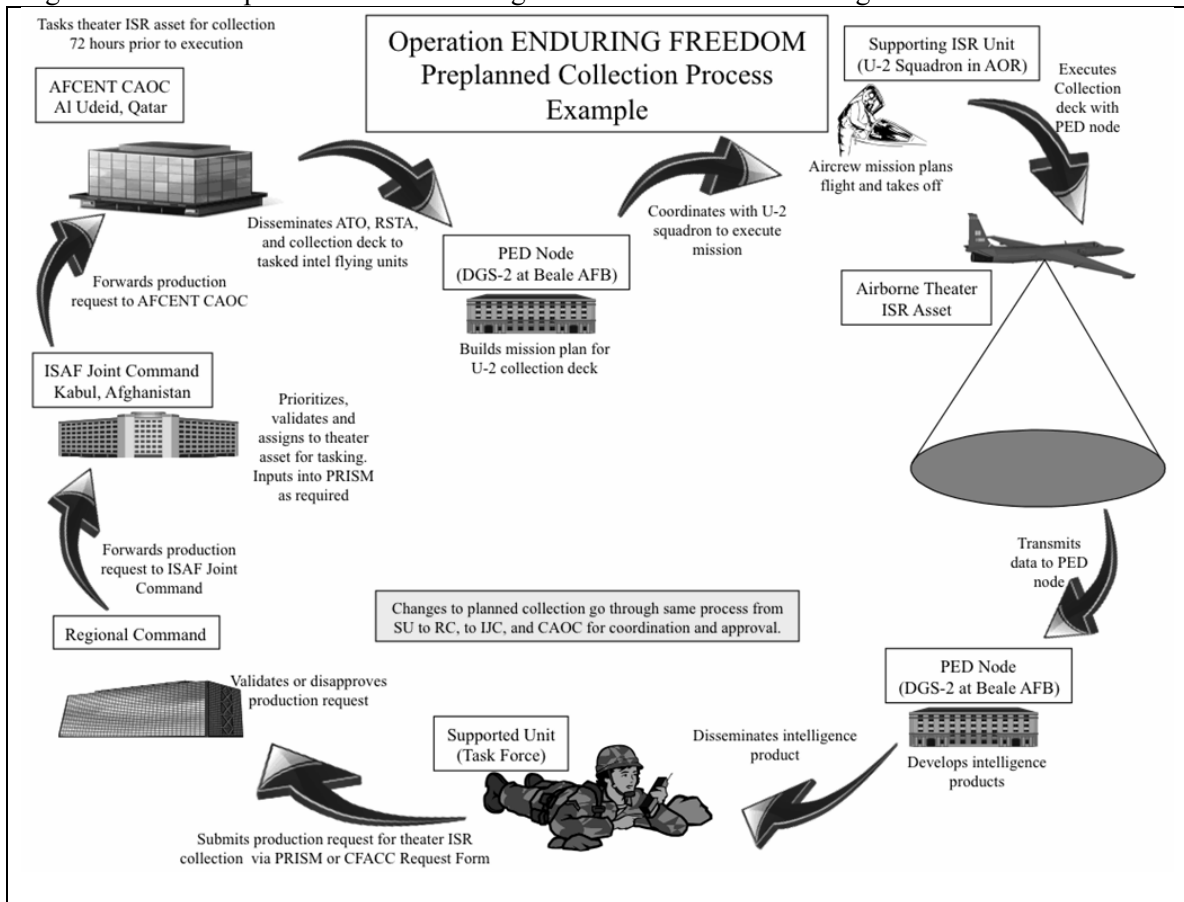
²² Ahlstrom, interview by author.

²³ Johnston, interview by author.

²⁴ Matt McDole, Capt, USAF, interview by author, October 27, 2010.

Figure 6 illustrates Capt McDole's description of preplanned collection processes in OEF, using RC-East and a U-2 as an example. It shows the process as being cyclic in nature, starting and ending with the SU. It is also hierarchical in nature. This process does not foster DIRLAUTH between the SU, SIU, and PED node.

Figure 6: OEF Preplanned Theater Intelligence Collection Process Diagram



In aggregate, interview subjects' opinions tend to suggest the development and use of MTOs may be a response to the shortcomings of standard theater CM processes by infusing a capability to adapt to the speed of war in a dynamic fashion.

Where Are ISR MTOs Used?

During the period of examination, personnel used MTOs to support ISR operations across the width and breadth of Afghanistan to support priority operations falling under the land component.²⁵ Collection operations supported combat operations at the RC and subordinate task force (TF) levels. The majority of ISR MTOs supported operations in RC-South, RC-Southwest, and RC-East.²⁶ Of note, IJC did not conduct collection missions leveraging theater level ISR assets to satisfy Commander IJC (COMIJC) critical information requirements (CCIRs) during this period. IJC collection managers, under COMIJC direction, assigned theater ISR assets to support the highest priority RC operations.

Who is Involved in the ISR MTO Process?

Three primary groups are involved in using MTOs to conduct intelligence collection with theater ISR assets in Afghanistan. They include the SU, facilitators, and the SIUs. Each group plays a role in the planning, coordination, and execution of MTOs.

The SUs are the RCs and subordinate units; they are the primary users of MTOs to support ISR operations using theater assets. Interview responses indicate that collection managers at the BDE and BN levels assigned as the main effort for high priority operations used MTOs to leverage theater ISR assets. By design, the SU should be designing and writing MTOs to provide collection supporting their unit's operations;

²⁵ In this context the land component refers to the combined land forces component command and immediate subordinate echelons. In OEF, ISAF Joint Command (IJC) is the land component. IJC divides Afghanistan into six regional commands (RC) that are essentially sub-land components.

²⁶ These three RCs are the main and supporting efforts from the perspective of IJC. They have the preponderance of forces and have the highest priority for theater ISR.

however, in practice SIUs and Air Force liaisons typically draft them.²⁷ One possible reason for this is that theater ISR assets are under Air Force control and SIUs do not understand the processes involved, therefore to accomplish the mission, SIUs and liaisons plan and write the MTOs.

Major Jeff Johnston, in his position as the chief of an MC-12W/Project Liberty squadron's ISR Exploitation Cell (ISREC), offers some insights into the process. He observes,

These experiences set the stage for my follow on deployment to Afghanistan where I wrote and executed the first ever RC-East MTO. In April of 2010 I worked with the RC-E Collection Manager...to draft an MTO for execution in TF-Bayonet. This MTO would both layer assets as well as "flatten" the collection process by directing that tasked assets work directly with TF-Bayonet and each other to develop and execute their collection plan. This MTO tied an MC-12W with a JSTARS, TF-ODIN [Task Force-Observe, Detect, Identify, and Neutralize] MARSS and TF-ODIN Warrior Alpha. The MC-12W Project Liberty was designated as the "ISR Package Commander" in charge of providing sensor direction and tasking to each asset...as a result of this MTO, we were able to effectively layer effects and leverage assets so as to characterize an IED [improvised explosive device] network in a single four-hour period.²⁸

Major Johnston's experience shows that personnel using MTOs can leverage creativity and ingenuity to create synergistic effects among several theater ISR assets to accomplish the collection mission without higher headquarters dictating how and what to collect.

Other organizations and personnel help to enable and facilitate the process. IJC ISR personnel validated and approved all requests submitted by the RCs based on

²⁷ Rustin LaFurney, Capt, USAF, interview by author, Nellis AFB, NV, March 7, 2010.

²⁸ Johnston, interview by author. TF-Bayonet is directly subordinate to RC-East. MC-12W/Project Liberty is a USAF modified Super King Air, equipped with sensors, conducting ISR support for ground forces. JSTARS is a U.S. Air Force E-8C platform conducting measurement and signatures intelligence (MASINT) through its onboard radar; it can conduct ground moving target indicator (GMTI) and synthetic aperture radar (SAR) missions. TF-ODIN (Observe, Detect, Identify, Neutralize) is a U.S. Army organization tasked with counter-improvised explosive device (C-IED) network missions using assigned theater ISR assets. MARSS is a TF-ODIN asset similar to the MC-12W. Alpha Warrior is the Army's version of the MQ-1/Predator UAS.

technical feasibility, resource availability, and sufficient operational priority.²⁹

Additionally, USAF intelligence personnel, deployed in a liaison capacity, facilitated daily theater CM processes, including MTOs, at various locations and levels of command.³⁰ Four of the interview subjects served as liaisons in support of OEF; three indicated they wrote or helped draft ISR MTOs for SUs. During execution of MTO collection operations, liaisons coordinate with PED nodes in Afghanistan and stateside to provide feedback, solve issues, and take advantage of emerging collection opportunities.³¹

Another group also plays significant role in the planning and execution of ISR MTOs. This group includes the SIUs, to include aircrew and intelligence personnel, and PED nodes. The SIU, operating theater ISR assets, execute the MTO based on C2 contracts set up during planning with the SU. If the SU requests changes to the collection plan, the SIU can dynamically adjust collection to fit the ground scheme of maneuver.³² The PED node receives intelligence data the SIU collects, exploits it, makes an intelligence product, and disseminates it back the SU. Depending on the ISR asset being employed the PED node has the ability to conduct cross-cueing with other onboard sensors or with other ISR assets.

²⁹ Lofts, interview by author.

³⁰ ISR liaisons in OEF fall into two primary categories. DCGS LNOs come from the 480th ISR Wing and serve at the CAOC or with some of the RCs. They primarily facilitate processing, exploitation, and dissemination of theater ISR assets. The Air Force also deploys intelligence officers and noncommissioned officers to RCs and large TFs to serve as ISR subject matter experts; they are known as ISRLOs.

³¹ Salvaggio, interview by author.

³² Jacobs, interview by author.

When Are ISR MTOs Used?

The research conducted with respect to Afghanistan may help identify when to use, and not use, MTOs. Interview subjects offered both positive and negative opinions on the matter. This section provides subjects' views on the appropriateness of using MTOs with various conflicts, missions, intelligence disciplines, and assets.

In terms of the general type of conflict, several subjects suggested that MTOs would work in any type of conflict as long as MTOs are properly planned, coordinated, and executed by personnel who trust each other.³³ Others mentioned that MTOs were effective for COIN operations such as OEF; COIN is a fluid and dynamic environment and MTOs provide the ability to keep pace with that environment.³⁴ Additionally, MTOs provide the mission and intent to collectors and exploiters, giving them the liberty to collaborate with supported units to build and modify the collection plan to account for changes to a dynamic environment like COIN operations.³⁵ Further, MTOs allow for revalidation of the requirement at the time of collection; if it is no longer valid then the asset can shift collection to other requirements within the spirit and intent of the MTO.³⁶

Interview subjects also provided observations on the compatibility of various missions with MTOs. Positive examples included priority named operations, such as Operations MOSHTARAK and HAMKARI, high value individual (HVI) hunting, counter-improvised explosive device (C-IED) operations, and intelligence preparation of

³³ Max Pearson, Maj, USAF, interview by author, Marine Corps Base Quantico, VA, December 1, 2010; Salvaggio, interview by author.

³⁴ LaFurney, interview by author.

³⁵ Pearson, interview by author.

³⁶ Figueroa, interview by author.

the operational environment (IPOE).³⁷ Subjects also offered instances where MTO may not be particularly effective, for example: strategic reconnaissance operations; convoy overwatch; ground force infiltration/exfiltration coverage; and complex operational level operations requiring precise timing and intelligence, such as initial rollback of an integrated air defense system (IADS).³⁸

Subjects also spoke to suitability of ISR assets with respect to MTOs. Several interview subjects indicated any asset would work well with MTOs.³⁹ Others provided specific examples of assets they saw as effective. They included: any theater asset with a multi-INT capability; UAVs such as MQ-1 and MQ-9; MC-12W; MARSS; U-2; and RQ-4 Global Hawk.⁴⁰ Subjects did not identify any examples of theater ISR assets as ineffective to use with MTOs. Many preferred to instead discuss effective and ineffective intelligence disciplines.

Subjects also offered opinions on whether specific intelligence discipline was a factor in MTO effectiveness. Again, several suggested the INT was not an issue, especially if the MTO leveraged multiple INTs by cross-cueing.⁴¹ Examples of effective INTs included: SIGINT; GEOINT and its electro-optical (EO), infrared (IR), and FMV sub-disciplines; and ground moving target indicator (GMTI).⁴² Subjects also suggested

³⁷ Pearson, interview by author; Salvaggio, interview by author; Lofts, interview by author; Ahlstrom, interview by author.

³⁸ LaFurney, interview by author; Ahlstrom, interview by author; Johnston, interview by author. Some perceive the use of ISR assets to conduct overwatch of convoys, infiltrations, and exfiltrations as wasting theater resources. Other missions such as IADS rollback are extremely complex and require precise preplanned, operational ISR synchronization in order to support strike missions.

³⁹ Figueroa, interview by author; Salvaggio, interview by author.

⁴⁰ Lofts, interview by author; Ahlstrom, interview by author; McDole, interview by author.

⁴¹ Figueroa, interview by author.

⁴² Ahlstrom, interview by author; Figueroa, interview by author

MTOs were not compatible with INTs requiring post-mission technical processing on the ground impacting timeliness and hampering the ability for dynamic collection; examples include advanced geospatial intelligence (AGI); foreign instrumentation signals intelligence (FISINT); and measurement and signatures intelligence (MASINT).⁴³

A Dissenting Opinion

One interview subject offered a diametrically opposing viewpoint to the subject of MTOs. Commander (CDR) Bob Chesser, a Navy officer assigned to USCENTCOM's Intelligence Directorate's (J2) ISR Division.⁴⁴ From a thematic standpoint, he offered that

Collection requirements will invariably exceed capacity. As such, collection managers have a responsibility to maximize the effectiveness and efficiency of each ISR sortie based on prioritized requirements and the assets capacity, range, and endurance. When collection managers dedicate an ISR sortie to a unit, they abdicate their responsibility of racking and stacking each requirement on the collection deck and simply assume that even the lowest priority unconstrained requirement of the supported unit is higher than the highest priority requirements of other units within range of the sortie. I contend that assumption is rarely accurate. In fact, if the supported unit's operation is cancelled within 24 hours of execution, what incentive does the supported unit have to inform the Collection Operations Management authority of such? None. The supported unit will always have additional requirements in support of a future operation or, if nothing else, the unwillingness to release a sortie will drive the unit to use it for overwatch regardless of actionable intelligence of impending attack. This hoarding only further diminishes the effectiveness and efficiency of the sortie.⁴⁵

He also suggested MTOs should not be used as the traditional CRM processes used in theater can accommodate ad hoc and dynamic requirements if collection managers

⁴³ Ahlstrom, interview by author; LaFurney, interview by author.

⁴⁴ It is important to reiterate all interview subjects' responses, including CDR Chesser's, are their own personal opinions and do not represent the official policies, statements, or positions of their organization, military branch of service or government. CDR Chesser's viewpoint was extremely helpful in looking at MTOs from a different vantage point and avoiding groupthink.

⁴⁵ Bob Chesser, CDR, USN, interview by author, MacDill AFB, FL, November 22, 2010.

identify those impacts and make needed adjustments.⁴⁶ Finally, he suggested that MTOs are not properly named. In his opinion, “a traditional ISR sortie collection deck” is an MTO from the perspective that “it is an order to execute a mission until it is accomplished or the unit’s mission is changed.”⁴⁷ Instead, he recommends using the term “direct support” because “ISR assets are being tasked to directly support a unit regardless of the priority of the collection requirements as compared to those of other units.”⁴⁸

ISR MTO Areas for Improvement

Subjects made recommendations on how to improve the MTO process. The responses fell into the general categories of training, personnel, and doctrine. Training was the most popular response in terms of how to make MTOs more effective. Subject suggested that MTOs could be taught at various Service schools including the USAF’s Air and Space Operations Center (AOC) course, the USAF Weapons School, and technical training courses.⁴⁹ Responses indicated that training could benefit intelligence personnel across the Services, aircrews tasked with executing MTOs, collection managers, and units submitting MTOs.⁵⁰ Interview subjects were also in favor of increasing the use of trained ISR personnel, in the form of USAF ISRLOs, at the various echelons of command in the theater.⁵¹ Doctrinal suggestions ranged from codifying the

⁴⁶ Chesser, interview by author.

⁴⁷ Chesser, interview by author.

⁴⁸ Chesser, interview by author. *Joint Publication 1-02* defines direct support as “a mission requiring a force to support another specific force and authorizing it to answer directly to the supported force’s request for assistance.”

⁴⁹ Jacobs, interview by author; Salvaggio, interview by author.

⁵⁰ Salvaggio, interview by author; LaFurney, interview by author; Lofts, interview by author.

⁵¹ Salvaggio, interview by author; Lofts, interview by author; McDole, interview by author; Figueroa, interview by author.

concept of MTOs in joint and Service ISR publications to crafting specific tactics, techniques, and procedures.⁵²

Analysis

Within the context of OEF, the aggregate responses of 10 subject matter experts, each possessing in-depth ISR knowledge and experience in relation to MTOs, suggest that the MTO is a valid technique to execute collection in support of intelligence requirements at the OLOW. It also continues to develop and mature as a process. The views they provided on MTOs appeared to be frank and honest assessments, identifying positive and negative aspects they observed. The findings tend to indicate several general emergent themes worthy of discussion: flexibility, communication, synergy, and prioritization.

With respect to COIN operations, change is the only constant within the operational environment. Existing theater CM processes do not appear to be able to keep pace with events unfolding before the eyes of tactical units. Instead of completely scrapping this process, ISR professionals have constructed a parallel process that allows them to instill flexibility and keep pace with the speed of war. By using MTOs, SUs can dynamically shift the focus of planned collection in real-time to account for changing battle conditions ensuring more effective collection. Subjects' descriptions tend to suggest frustration with existing theater intelligence processes. The MTO process is probably a mechanism that the culture within the organization is adapting to those frustrations through change to existing practices. One could characterize the advent of

⁵² Jacobs, interview by author; Pearson, interview by author.

ISR MTOs as a basic process improvement.⁵³ However, no one directed this process improvement. It is an accidental improvement that developed, grew, and morphed as shareholders in the process tried to find smarter, faster ways to conduct intelligence collection using theater ISR assets

Effective communication is of extreme importance. An MTO is a written form of communication to others explaining intelligence requirements for upcoming planned operations. Thus, SUs must write them well ensuring they reflect the commander's intent, provide a clearly defined task, insightfully explain the purpose, and include finely honed essential elements of information (EEIs). An old CM adage reminds intelligence customers to articulate to collection managers what they want to know, not what assets they need or want overhead. With a properly written MTO, collection managers at higher headquarters will be able to appropriately match intelligence assets to satisfy the EEIs. SUs need to plan MTOs well in advance of supported operations. Through the use of DIRLAUTH, SUs involve the SIU, PED nodes, deployed USAF ISRLOs, and the collection managers at the various echelons of command. In other words, MTOs can break down barriers to communication and let the supported and supporting personnel speak directly to accomplish the mission at the lowest level.

Synergy will emerge and develop through the proper planning and execution of MTOs. Use of multiple intelligence assets and INTs leverages synergy by allowing various capabilities to support one another in a compatible fashion through cross-cueing. Being able to take advantage of this requires a high degree of knowledge about the

⁵³ U.S. Navy, *Pacific Fleet Handbook for Basic Process Improvement (BPI)*, Air University Visioning and Strategic Planning website, http://www.au.af.mil/au/awc/awcgate/navy/bpi_manual/handbook.htm (accessed March 1, 2011). This handbook describes the 14 steps of BPI, provides worksheets, and offers various tools for making the process work.

various capabilities and limitations of the various ISR assets and INTs. Again, it is critical for the SUs to clearly communicate the EEIs. Collection managers can then properly match the right assets and INTs to satisfy those EEIs. Additionally, knowledge needs to emerge in planning to ensure all parties have a shared understanding of what the MTO is trying to achieve. Also MTOs help foster synergy between the SU, the SIU, and the PED node by getting everyone involved during the initial stages of planning and continuing on into execution.

The prioritization of intelligence requirements is always a must. As ISR assets are the ultimate in high-demand, low-density resources, it is impossible to satisfy all intelligence requirements. Thus, SUs prioritize their requirements accordingly. Through the validation process at each echelon of command, collection managers make decisions on whether to approve and task submitted intelligence requirements. MTOs are not exempt from prioritization. Within the context of OEF, IJC collection managers do not assign theater ISR assets to support operations not aligned with the commander's highest priority operations. Further, theater ISR assets supporting an MTO may also be able to simultaneously satisfy collection taskings for other units.

ISR MTOs are tools available to operators and collection managers for use in the joint intelligence process. They are not the only tools available. There are conditions or situations when it may make sense to use them. A U.S. Marine Corps Basic Officer Course student handout provides the following observation on the matter: "use mission-type orders whenever the situation allows, but their usage shall not excuse analysis or

relax discipline.”⁵⁴ There are also times or circumstances when it may be inappropriate to use ISR MTOs.

⁵⁴ U.S. Marine Corps, *Combat Orders Foundations: Basic Officer Course Student Handout*, B2B2377, (Camp Barrett, VA: Marine Corps Training Command, no date given), 5.

CHAPTER 5: STUDY CRITIQUE, LIMITATIONS, AND RECOMMENDATIONS

Decentralized execution lives in the ATO format. It provides mission-type orders to the units on targets or objectives, resources, timing, boundaries, support, and so on without specifying how to accomplish the mission.¹

— Lt Col Michael Straight, USAF
Former Chief, Aerospace Defense Branch
North American Aerospace Defense Command

This chapter attempts to accomplish several tasks related to the research addressed in this thesis. It deals with the overall usefulness of the study and recognizes potential criticism. It also provides recommendations to help improve the use of mission type orders (MTOs) in the future. Finally, it offers suggestions for future researchers on this topic.

Critique

This thesis was a qualitative study of convenience using qualitative techniques to get to answers to the research questions. The researcher examined a case study in which he had firsthand experience. Additionally, interviews provided answers to research questions to assist in building a single case study. As this research only explored the topic at the unclassified level, another unexplored dimension to the subject exists. Further, completion of research was limited to a short, nine-month period. Additional time, access to classified data, and additional case studies like Operation NEW DAWN (OND) would have helped to draw more generalizable conclusions. In the final analysis

¹ Michael Straight, Lt Col, USAF, “Commander’s Intent: An Aerospace Tool for Command and Control,” *Airpower Journal* (Spring 1996), 6.

this research effectively served to provide insight into a previously unstudied area within the Intelligence Community. This does not mean it is without limitations. The next section provides detailed discussion of those limitations.

Limitations

This study uses criteria William Trochim and others recommend for studying and judging limitations to qualitative research.² This research uses four criteria to evaluate limitations. They include credibility, transferability, dependability, and confirmability.³ A discussion of the major threats to these criteria follows.

Threats to Credibility (Internal Validity)

Credibility assesses whether the research results are credible or believable from the perspective of the participants.⁴ This research relied on existing literature and interviews of subject matter experts to explore the research questions. It is likely the credibility of this study could have been improved by expanding the number and type of interview subjects involved in the research. Interviews with senior intelligence personnel could have provided a more detached macro view of the utility of MTOs. Also commanders and intelligence personnel from supported units (SUs) would have provided an enriching perspective on their perceptions of the benefits and drawback of MTOs.

² William M. Trochim, "Qualitative Validity," in *Research Methods Knowledge Base*, 2nd ed. (Web Center for Social Research Methods, 2006), Online Edition, <http://www.socialresearchmethods.net/kb/contents.htm>, (accessed March 13, 2011). The researcher used the identical criteria and methodology to analysis research conducted on the mentoring of Air Force intelligence officers. Jason D. Green, "Mentoring in the Air Force Intelligence Officer Career Field" (master's thesis, Joint Military Intelligence College, 2006), 98-103.

³ Trochim, "Qualitative Validity." Trochim suggests credibility, transferability, dependability, and confirmability can be alternatives for internal validity, external validity, reliability and objectivity in qualitative research.

⁴ Trochim, "Qualitative Validity."

Further, non-intelligence personnel involved in conducting intelligence, surveillance, and reconnaissance (ISR), such pilots and sensor operators, could have provided added insight to the research.

Threats to Transferability (External Validity)

Transferability addresses the degree to which one can generalize or apply qualitative research results to other contexts or settings.⁵ This research is an attempt at examining an emergent process within the ISR community supporting Afghan operations that contrasts with existing processes for leveraging ISR assets to support intelligence collection. As this research was qualitative, the researcher did not intend to generalize the results to other situations such as OND in Iraq. The purpose of the study was to collect in-depth perceptions of intelligence and operations personnel who are subject matter experts at planning and executing ISR.

The researcher chose interview subjects for two reasons. First, interview subjects possessed experience in dealing with and using MTOs in support of theater intelligence collection in Operation ENDURING FREEDOM (OEF). Due to their intimate knowledge of the subject the subjects were able to offer insightful observations and characterizations of the collection management (CM) processes in place. Second, due to time constraints the researcher selected subjects for convenience. Interview subjects shared common characteristics: all were volunteers, had pertinent ISR experience, and were passionate about the subject matter. This may have contributed to an increased level of bias from participants who were interested in discussing ISR related issues. All

⁵ Trochim, "Qualitative Validity."

participants understood the purpose of the research was to assess the effectiveness of MTOs in OEF as a technique. Consequently, some interview subjects may have fashioned answers to skew the results toward a particular outcome.

A justified criticism focuses on of the selection of interview subjects. All subjects were either from the Air Force or Navy, possibly leading to bias. The researcher did not intentionally exclude other Services such as the U.S. Marines or U.S. Army. A large portion of the personnel assigned to the organizations conducting theater ISR operations tend to be from the Air Force and Navy. During the researcher's time at the International Security Assistance Force (ISAF) Joint Command (IJC), there were no U.S. Marine officers trained in ISR assigned to organizations at the operational level of war. There were U.S. Army officers working in the CM shop at Regional Command (RC)-East. The researcher selected the office supervisor, an Air Force officer, to participate as the officer in charge. Further, no senior operations or intelligence leaders were interviewed. They could have provided additional perspective on ISR MTOs. Finally, tactical unit commanders, had they been interviewed, could have provided insight into whether ISR MTOs made a difference at the tactical level in terms of timely, relevant, actionable intelligence.

To increase transferability the researcher used concept mapping of interview responses to tie those responses back to the original conceptual understanding of ISR MTOs.⁶ The concept map developed for this research is in Appendix A. The researcher did not share the concept map with interview subjects. Sharing the concept map would

⁶ The researcher used the identical technique when conducting research on Air Force intelligence officer mentoring. Again, see Green, 98-103.

have likely identified inaccuracies resulting in a more accurate shared understanding of the concept of MTOs.

Threats to Dependability (Reliability)

Dependability answers the question of repeatability, whether or not results can be achieved by observing the same activities twice.⁷ The primary threat to dependability impacting this study relates to the questions used during interviews to support the research. The researcher conducted all interviews initially via email for reasons of convenience, conducting follow-up discussion for clarification via telephone. Lack of face-to-face interviews adversely impacted the ability to explore the topic in an open-ended manner. While the interview questions were not leading or loaded, they may have resulted in biasing interview subjects.

Threats to Confirmability (Objectivity)

Confirmability suggests the degree that others may be able to corroborate or check the results of the research.⁸ The primary threat to the research within this context relates to the content analysis of the interview results. As there was limited time available in which to conduct the research, the researcher was the only assessor to conduct content analysis of the data collected in interviews. It is possible that using additional evaluators to assess data collected in interviews may have enhanced accuracy and reliability of this research.

⁷ Trochim, "Qualitative Validity."

⁸ Trochim, "Qualitative Validity."

Other Limitations

Two components of construct validity also warrant discussion in terms of limitations impacting this research. They are face and content validity. Face validity assesses whether or not “on its face” tools like interview questions actually measure what they are supposed to measure.⁹ The researcher attempted to establish content validity for this study by purposefully selecting ISR subject matter experts with prior experience in OEF. A possible criticism is that the researcher did not pilot test the interview questions prior to use with the interview subjects. Content validity essentially compares the concept being developed through research against the relevant content domain.¹⁰ In the case of this research, the concept is MTOs and how they are being used to conduct theater ISR. A lack of an authoritative resource document spelling out tactics, techniques, and procedures (TTPs) for conducting ISR operations prevented development of a criterion-based evaluation framework for judging MTOs in contrast to standard theater CM practices. Thus, the researcher compensated through use of a narrative description of existing processes for comparison to data collected on MTOs through interviews.

Recommendations

This research offers recommendations in two main categories: recommendations for improvements to joint intelligence collection and recommendations for future research. The first may help intelligence personnel find new ways to improve existing

⁹ Trochim, “Qualitative Validity.”

¹⁰ Trochim, “Qualitative Validity.”

intelligence processes.¹¹ The second provides insight to future researchers looking to build and improve upon this research.

Improvements to Joint Intelligence Collection

This section offers some specific recommendations using the Joint Capabilities Integration Development System (JCIDS) methodological approach. The JCIDS framework offers a standardized and commonly understood set of categories in which to present recommendations designed to help advance the understanding and implementation of ISR MTOs in support of joint CM. The study will offer recommendations in the areas of doctrine, organization, training, materiel, leadership, personnel, facilities, and interoperability (DOTMLPFI). These recommendations are not focused solely and narrowly focused on ISR MTOs. To the contrary, there are several recommendations, if implemented, could improve the ISR enterprise writ large.

It is important to acknowledge the current fiscally constrained environment coupled with two ongoing major conflicts, OND in Iraq and OEF in Afghanistan, also impacted the following recommendations. The majority of the recommendations this thesis offers are inexpensive and easy to implement. In an environment unconstrained by resources it would be easy to recommend adding additional operational-level ISR assets or doubling the number of collection managers assigned to joint forces; neither of these would be inexpensive and are therefore not included.

¹¹ Appendix G contains axioms related to good collection management practices that may be useful to intelligence personnel.

Doctrine

Doctrine is one of the biggest drawbacks to implementing and executing ISR MTOs. Doctrine can be a valuable tool. It offers a lens enabling current warfighters to learn of past successes and failures to be more successful in the future. However, it has two key drawbacks. First, doctrine must exist on the subject. Second, one has to study and learn the doctrine in order to successfully implement it. Referring back to the results of the literature review in Chapter 2, ISR doctrine is essentially non-existent. Thus it is vital to offer some doctrinal recommendations to help advance the utility of ISR MTOs.

First, joint and Service doctrine, particularly related to ISR, is not robust enough. The Joint Staff should produce a Joint Publication 2.0 Intelligence series document on ISR and collection management. As ISR falls within the J2 Intelligence and J3 Operations Directorates, such a document would require heavy J3 involvement. Air Force ISR doctrine should be modified to include concepts such as MTOs.¹² This will serve to codify and normalize the MTO concept. Second, the Department of Defense (DoD) needs to conduct a rigorous, or tenacious, effort to extract lessons learned from coalition operations, especially in places like Iraq and Afghanistan. Personnel developed, tested and executed ISR MTOs in combat without the benefit of supporting doctrine and training. These TTPs are at risk for being lost if not properly captured from a lessons learned standpoint. Once these conflicts end, if ISR MTOs have not entered the mainstream consciousness of ISR professionals, then this experience and knowledge may vanish.

¹² Jacobs, interview by author.

Organization

Potential organizational changes may help improve the execution of ISR and thus make MTOs more effective. It may make sense to combine personnel, consolidate organizations, and streamline processes. Using the specific case of OEF as an example, redundancy and duplication of effort exist between the U.S. Central Command ISR Division, the U.S. Air Forces Central ISR Division, the IJC ISR Division, and the RCs' collection management functions. Consolidation of operational-level ISR personnel at a central location with the authority to carry out the guidance and direction of the supported commander may be a viable solution.

Training

Training is an area where the Intelligence Community can make great strides in advancing the concept and implementation of MTOs with respect to CM. The researcher asserts training can be one of the highest impact areas with the lowest cost in which the joint community can improve implementation of ISR MTOs at the operational-level. The researcher surveyed the Service intelligence courses to get a sense of how much, if at all, the concept of ISR MTOs was being taught in the various schoolhouses. The U.S. Air Force is the only Service addressing the subject. The Air Force briefly references ISR MTOs in their initial intelligence office technical training course and provides instruction on ISR MTOs at several follow-on, advanced training schools.¹³ These include the ISR Liaison Officer (ISRLO) course at Joint Base Langley-Eustis, VA, the U.S. Air Force (USAF) Weapons School Intelligence Weapons Instructor Courses at Nellis Air Force Base (AFB), NV, and the DCGS Formal Training Unit (FTU) and ISR Operations

¹³ Charles S. Woods, Maj, USAF, e-mail message to author, March 10, 2011.

Courses (IROC) at Goodfellow AFB, TX.¹⁴ The other Services should consider teaching the concept of ISR MTOs in basic intelligence courses and follow-on intelligence CM courses. Training on ISR MTOs could also be readily incorporated into various flying and training exercises. Examples of potentially suitable exercises include, but are not limited to, UNIFIED ENDEAVOR, RED FLAG, GREEN FLAG, and the Naval Strike and Air Warfare Center's Carrier Air Wing training program.

Training unit leaders and personnel on ISR is vital. If they do not understand ISR tools, processes, capabilities, and limitations they will have to rely solely on their assigned intelligence personnel to understand for them. It is likely they will not be able to effectively leverage the full capabilities ISR can bring in support of planned operations. Further, it assures ISR will not be effectively integrated into operations.

The following anecdotal example provides further insight into IJC. Lieutenant General David M. Rodriguez, Commander, IJC (COMIJC) repeatedly told the researcher he was not confident his subordinate unit commanders and intelligence personnel, down to the brigade combat team-level, were knowledgeable enough on ISR assets, processes, and capabilities. Thus COMIJC directed IJC's ISR personnel to design and conduct a mobile training team to address key knowledge gaps. ISR MTOs, as they fit into the theater CM process, were included in the academics. The Services must incorporate ISR fundamentals into predeployment training for commanders and operations personnel prior to arriving in theater. MTOs can and should be included in such training.

¹⁴ Kenneth R. Uhler, Lt Col, USAF, e-mail message to author, February 28, 2011; Jacobs, interview by author; Charles S. Woods, Maj, USAF, e-mail message to author, March 10, 2011; and Daniel Reisner, Capt USAF, e-mail message to author, March 2, 2011.

Materiel

Materiel solutions to improve ISR may include additional ISR assets. As previously discussed, such assets are high-demand, low-density. Providing theater ISR assets to each and every ground unit is neither an efficient or cost-effective option. However, materiel solutions on a smaller scale may improve the execution of ISR operations. These types of improvements focus on improving connectivity between the various entities including the SUs, supporting ISR units (SIUs), and processing, exploitation and dissemination (PED) nodes, and theater collection managers. Standardized secure video teleconference equipment, secure chat tools, and secure telephones at all levels of command would help to break down barriers to communication and foster net-centric collaboration.

Leadership

Leadership goes hand-in-hand with training and doctrine. Senior leaders must understand the concept of ISR MTOs in order to make sure their priority intelligence requirements are being answered to their satisfaction. Improvements to doctrine and training will educate future senior leaders during the formative and impressionable years of their careers.

Personnel

Recognizing the Secretary of Defense recently announced an efficiencies initiative to cut personnel, spending, and equipment, it may not seem prudent to offer personnel recommendations. In an unconstrained environment, one could offer some recommendations in order to improve the implementation of ISR MTOs. At, or near, the top of the list would be to assign more trained ISR professionals across the operational

and the tactical levels. The best example of this is the Air Force's ISRLO program. This program takes intelligence personnel, who typically already possess some ISR knowledge and skills, gives them additional ISR training, and deploys them to critical positions. In these positions, the ISRLOs serve as enablers, assisting operational and tactical collection managers in better leveraging theater ISR assets. Other benefits they bring include improving integration between supported tactical army units and Air Force ISR squadrons and flattening organizational structures through reachback.¹⁵

Facilities

The research uncovered no recommendations in the area of facilities. In fact, as communications technology continues to improve, so does the ability to virtually collaborate in a net-centric environment. This reduces the requirement for constructing additional facilities for collocating PED nodes forward with SUs in combat zones. This does not mean face-to-face communication and dialog is of no value. Such communication is important to foster camaraderie and trust; as discussed in the Personnel section above, this can be accomplished through the use of ISRLOs.¹⁶

Interoperability

Execution of ISR at the operational level in support of tactical units can most certainly be improved by focusing attention on the area of interoperability. Numerous CM tools at multiple classification levels exist on different computer networks. This causes substantial problems when subordinate units attempt to submit collection

¹⁵ Rachel A. McCaffrey, *Reciprocally Embedding ISR Liaisons to Build Unity of Effort*, Strategy Research Project (Carlisle, PA: Army War College, February 4, 2010), 20. Reachback is a capability allowing personnel deployed forward to use electronic means to reach back to personnel located stateside for support. The 480th ISR Wing provides most of its PED capability to deployed units through reachback.

¹⁶ Brown, "Operating the Distributed Common Ground System," 57.

requirements at the tactical level and forward them to higher headquarters. If the requirements even arrive at higher headquarters in time to be of value, they are prioritized against other competing requirements. Only the highest priority requirements that cannot be collected and satisfied organically with unit assets are pushed forward to the next echelon higher headquarters. This problem is exacerbated at each successive level. The introduction of coalition forces into the equation makes this problem even more difficult. Thus, the U.S. military must find a secure networking solution that works in a low-bandwidth combat environment, services all echelons of command, and connects with its allies and partners.

Future Research

Based on the previously identified critiques and limitations of this research, this section highlights areas in which future researchers can concentrate their efforts to help improve joint CM at the operational level of war. These suggestions fall into three primary categories: examination of additional case studies, exploration of ways to assess ISR MTO effectiveness, and identification of other situations in which ISR MTOs may be of use.

Before providing discussion of each of these topics, it is important to emphasize an important issue future researchers will have to contend with should they choose to study ISR MTOs. This issue focuses on the classification level of the research to be conducted. As ISR MTOs are typically deal with classified capabilities, requirements, and assets, it may make sense for future researchers to consider writing at least at the SECRET level. Conducting research at the classified level would provide the researcher a new world of access to documents this research did not explore. These documents

include examples of actual ISR MTOs used to conduct operations, unit-level ISR concepts of operation documents, and completed intelligence products. The National Defense Intelligence College (NDIC) is probably the most suitable venue where researchers are authorized and encouraged to conduct classified research in the field of intelligence.

As this thesis leveraged only a single case study to examine the utility of ISR MTOs, namely OEF, it makes logical sense future researchers may want to look at other conflicts. Examples may include OND, Operation ODYSSEY DAWN (Libya), and OEF-Horn of Africa. They could allow researchers the ability to collect observations and findings allowing them to compare and contrast their results with this research. Training exercises, such as RED FLAG and the USAF Weapons School's Mission Employment Phase may also be useful as case studies researchers can study from a practical standpoint.

At the combatant command level, planners frequently complain of the challenges assessing operational success and failure. Measures of performance (MOPs) and measures of effectiveness (MOEs) are concepts for measuring success or failure. This can range from success of an operation plan (OPLAN), the conduct of battle damage assessment (BDA), or whether ISR activities were effective in answering the intelligence questions that catalyzed the collection in the first place. MOPs typically focus on quantitative results such as numbers of sorties flown, total images collected, or adversary signals intercepted. MOP does not provide any insight into effectiveness. MOEs concentrate on effectiveness, as the term itself implies. Thus, it may be useful to directly

compare ISR MTOs and traditional CM techniques via an experiment using real ISR assets.¹⁷

During the course of this research, it was clear ISR personnel developed and nurtured MTOs to streamline existing cumbersome CM practices. The business world, in particular organizational theory may help to explain and possibly refine existing ISR processes. MTOs may be akin to a new process introduced into a particular organizational culture to institute change. Researchers interested in exploring MTOs from a business practice perspective may find an uncharted world ripe for study.

¹⁷ Lofts, interview by author.

CHAPTER 6: CONCLUSION

The Air Force ISR enterprise must become proficient at implementing mission-type orders as a core function of the entire organization.¹

— Lt Gen David A. Deptula, USAF (Ret)
and Col Mike Francisco, USAF (Ret)

This thesis addresses an emergent topic critical to the conduct of intelligence, surveillance, and reconnaissance (ISR) operations at the operational level of war (OLOW). The mission type order (MTO) is a tool collection managers in Operation ENDURING FREEDOM (OEF) are using to help facilitate dynamic intelligence collection by leveraging theater airborne ISR assets. This thesis attempted to answer whether this new tool is a legitimate tool helping improve theater collection management (CM) business practices.

By leveraging the capabilities of concept mapping coupled with an examination of existing literature in the key areas of CM, MTOs, and the OLOW, the researcher created a framework to study this tool. OEF offers a lens observing and making some observations and judgments about the use of ISR MTOs in support of combat operations. Thus, through a series of interviews with subject matter experts in the disciplines of intelligence, CM, and ISR operations, the research collected data on the use of ISR MTOs in OEF and applied it to the framework.

Analysis of the case study results served to highlight some key findings related to ISR MTOs. The ISR MTO is a tool serving a valuable purpose by helping collection

¹ David A. Deptula and Mike Francisco, "Air Force ISR Operations: Hunting Versus Gathering." *Air & Space Power Journal* 24, no. 4 (Winter 2010), 15.

managers focus theater ISR collection to support OEF operations. In the context of OEF, it has proven itself to be a valid technique to execute collection in support of intelligence requirements at the OLOW. It offers many benefits over traditional preplanned collection techniques in terms of speed and flexibility. It also presents some drawbacks. These include hindering theater ISR collection efficiency and potentially adversely impacting collection on the theater commander's highest operational priorities.

On the balance, it makes logical sense to continue using and improving on the concept and execution of ISR MTOs. It is possible to normalize ISR MTOs into existing CM processes via improvements across the Department of Defense. The Joint Capabilities Integration and Development System offers a framework that could help to catalyze changes in the areas of doctrine, organization, training, materiel, leadership, personnel, facilities, and interoperability. The areas of doctrine and training offer a high probability of success with little financial cost.

In summary, ISR MTOs appear to be of value to collection managers by using theater ISR assets conducting ISR operations at the OLOW. Still open for debate and study is whether MTOs should replace existing CM practices and techniques. This thesis does offer future researchers a foundation upon which they can extend and continue the study of ISR MTOs. Conducting classified research on ISR MTOs would open doors to new data not available to this researcher. Other conflicts and types of military operations also may offer the opportunity to develop other case studies for potential comparison and synthesis.

APPENDIX A: ISR MTO CONCEPT MAP

A concept map was created during the course of this study to gain greater understanding of the topic and facilitate analysis of data collected from existing literature, and interviews. Due to size constraints, the concept map could not be effectively presented in print. If future researchers are interested in an electronic version of this concept map, please send an email request to jason.green@us.af.mil. CmapTools concept mapping software is required to view the concept map and is available at <http://cmap.ihmc.us>.

APPENDIX B: FIGURES RELATED TO EXISTING LITERATURE

This appendix provides four graphical depictions of data relating to the existing literature supporting the literature review. Figure 7 displays existing literature related to the thesis topic by general category. Figure 8 groups the existing literature by thesis focus area. Figure 9 illustrates how the existing works of literature touched on one or more of the thesis focus areas. Finally, Figure 10 provides a breakdown of the existing Joint Publications by type.

Figure 7: Existing Literature Grouped by Category

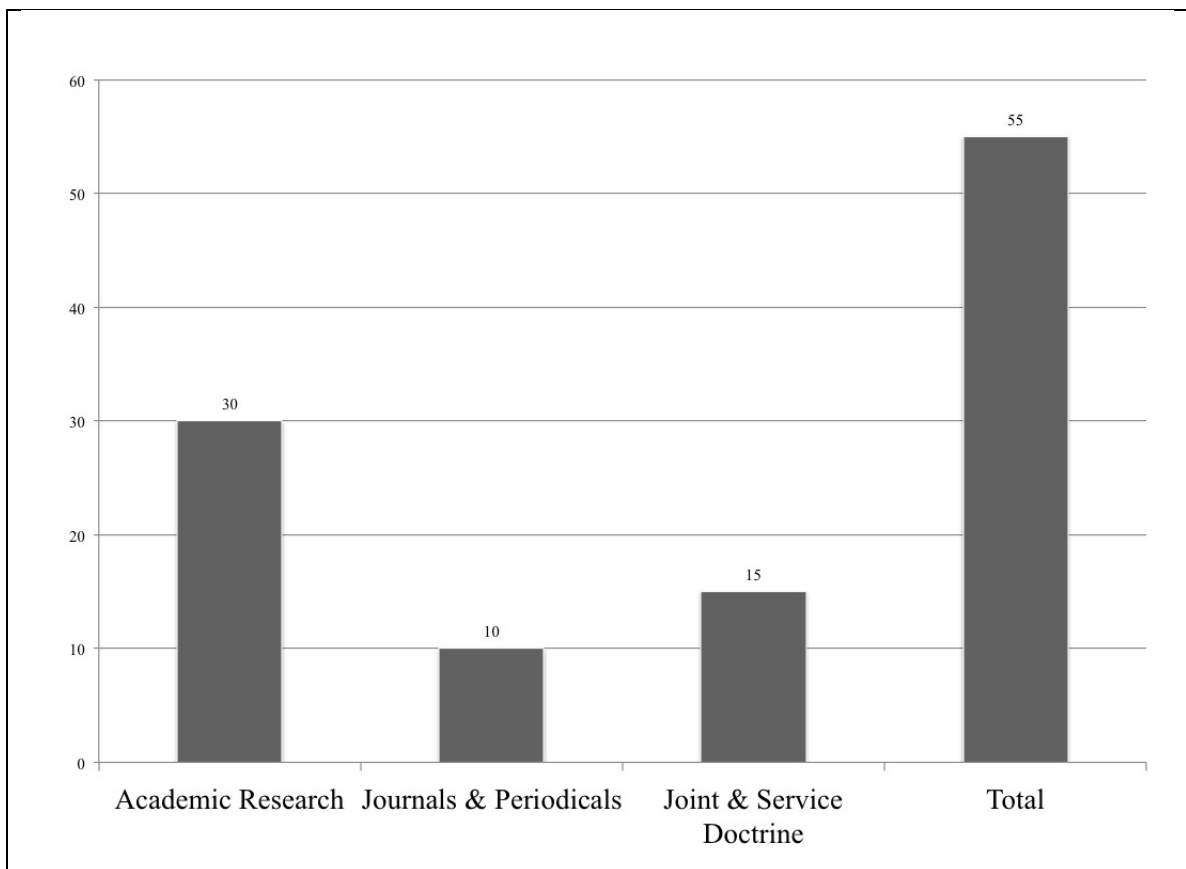


Figure 8: Existing Literature and Focus Areas

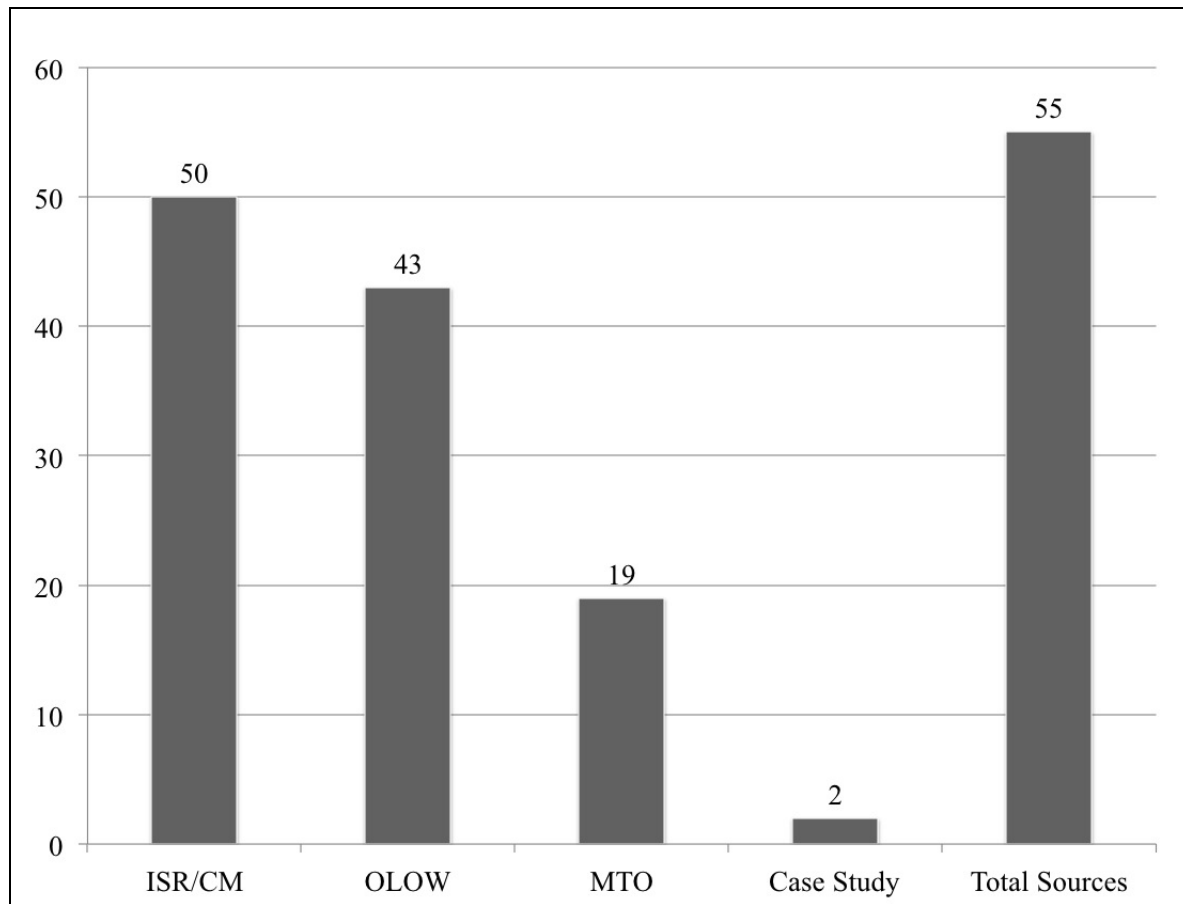


Figure 9: Triangulation of Existing Literature on Focus Areas

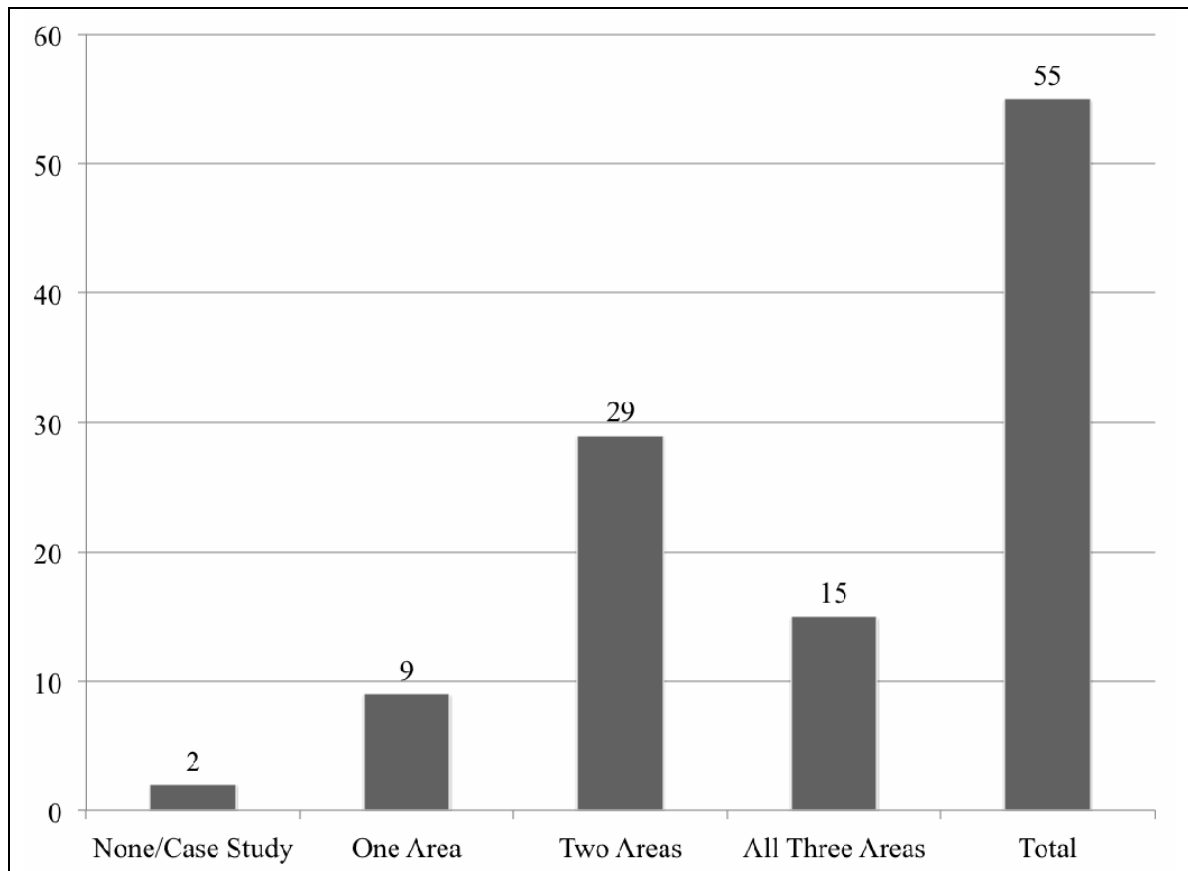
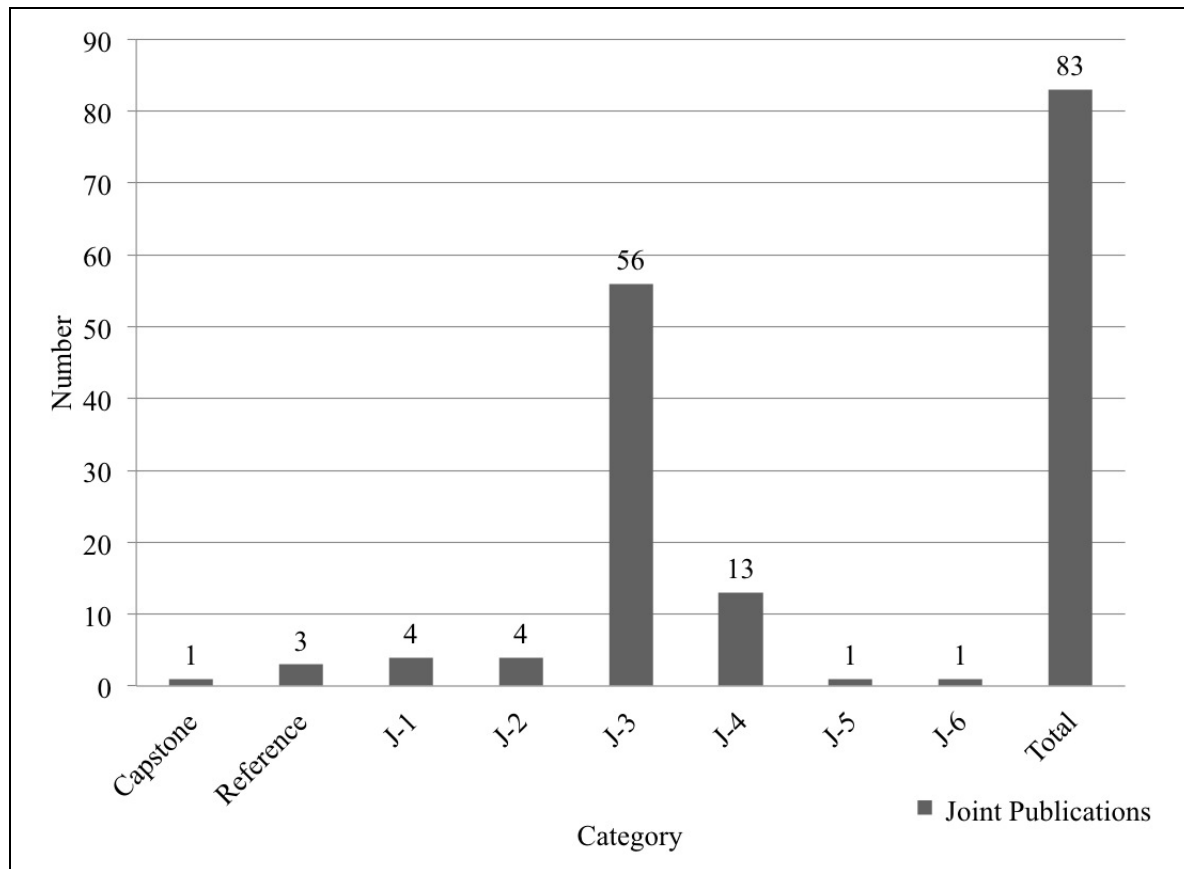


Figure 10: Graph of Current Joint Publications



Source: Data taken from The Joint Electronic Library Website, <http://www.dtic.mil/doctrine/>, accessed March 6, 2011.

APPENDIX C: CREDENTIALS OF INTERVIEW SUBJECTS

This appendix provides data related to the 10 interviews conducted during the research portion of this thesis. The following table provides a summary of the credentials of the interview subjects establishing they are subject matter experts in the conduct of intelligence, surveillance, and reconnaissance (ISR) operations.

Table 1: Credentials of Interview Subjects

Interview Subject ¹³⁷	Relevant Home Station ISR Experience	ISR Position during OEF Deployment
CDR Bob Chesser, USN	USCENTCOM J2 ISR Division	USCENTCOM J2 ISR Fly-Away Team Chief
Maj Jeremy Ahlstrom, USAF	USAF Weapons School Intelligence Instructor	Regional Command-East Chief of Collection Management and Dissemination
Maj Eric Jacobs, USAF	480th ISR Wing Chief of Weapons and Tactics	DCGS LNO to AFCENT CAOC
Maj Jeff Johnston, USAF	DGS-1 Chief of Weapons and Tactics	Chief, ISR Exploitation Center (ISREC) for MC-12W Unit
Sqn Ldr Michael Lofts, RAF	None	ISAF Joint Command ISR Division Operations Officer
Maj Max Pearson, USAF	DGS-3 Squadron Operations Officer	DCGS LNO to USAFCENT CAOC
LCDR Peter Salvaggio, USN	U.S. Navy EP-3 Aviator	Detachment Commander for Deployed EP-3 Squadron
Capt Amanda Figueroa, USAF	DGS-1 Assistant Operations Officer	DCGS LNO to USAFCENT CAOC
Capt Rustin LaFurney, USAF	USAF Weapons School Intelligence Instructor	USAFCENT CAOC ISR Division Officer
Capt Matt McDole, USAF	DGS-2 Mission Operations Commander	DCGS LNO to Regional Command-South

¹³⁷ Interview subjects are listed in in this appendix first by rank and then alphabetically. LCDR, Maj, and Sqn Ldr are all considered O-4s.

APPENDIX D: RESEARCH AND CASE STUDY QUESTIONS

This appendix contains tables related to the research and case study questions supporting this research. The research questions in the first table were used as interview questions. The case study questions were used to focus the single case study report.

Table 2: Research Questions Used to Support ISR MTO Case Study

- | |
|---|
| <ol style="list-style-type: none">1) To what extent are you familiar with the concept of mission type orders (MTOs) to support intelligence collection management at the operational level of war?2) Do you have any experience in using MTOs to support intelligence, surveillance, and reconnaissance (ISR) operations? If so, to what extent? Please elaborate.3) Under what cases or circumstances would you expect ISR MTOs to be effective in supporting intelligence collection?4) How would you describe the key differences between ISR MTOs and standard collection processes?5) Under what cases or circumstances would you expect ISR MTOs to not be effective in supporting intelligence collection?6) Can you think of ways that the integration of ISR MTOs could be improved at the operational level of war?7) Are there any ISR assets or intelligence disciplines that are particularly well suited or poorly suited for ISR MTOs?8) Are there are questions I did not ask that you think are pertinent to this topic? If so, what are they and how would you answer them?9) Can you suggest anyone that you know professionally who may be of value in interviewing to support this thesis?¹³⁸ |
|---|

¹³⁸ This research question was designed to assist in expanding the research by identifying potential interview subjects. Due to operational security and privacy reasons, responses to this question are not contained in the interview subjects' transcripts in Appendix E.

Table 3: Case Study Questions

- | |
|---|
| <ol style="list-style-type: none">1) What are ISR MTOs?2) How are ISR MTOs used?¹³⁹3) Why are ISR MTOs used?4) Where are ISR MTOs used?5) Who is involved in the ISR MTO process?6) When are ISR MTOs used? |
|---|

¹³⁹ Questions 2 and 3 were designed as distinct and separate case study questions. During the writing of the case study report it became clear that much of the answers to these two questions overlapped. Thus, in Chapter 4 of the case study report, these two questions are consolidated under a single sub-heading to improve readability and eliminate duplication.

APPENDIX E: DATA FROM INTERVIEW SUBJECTS

This appendix contains the verbatim transcripts from each of the 10 interview subjects.¹⁴⁰ Responses to questions are the individual's own answers to the questions and do not in any way represent their organizations, military Services, or governments. All interviews were conducted in accordance with National Defense University guidelines and requirements pertaining to the interview of subjects for research purposes.

Interview Questions	CDR Bob Chesser, USN, USCENTCOM J2 ISR Division, MacDill AFB, FL Interviewed 22 November 2010
To what extent are you familiar with the concept of mission type orders (MTO) to support intelligence collection management at the operational level of war?	I am very familiar with the concept. MTO sorties are flown daily in this AOR [area of responsibility].
Do you have any experience in using MTOs to support intelligence, surveillance, and reconnaissance (ISR) operations? If so, to what extent? Please elaborate.	I do not currently have any sorties allocated to me. As such, I do not execute CRM [collection requirements management] of any sorties.

¹⁴⁰ For operational security and privacy reasons responses to Question 9 have been omitted for each interview subject. Transcripts are sequenced in the order found in Table 1 of Appendix C.

Under what cases or circumstances would you expect ISR MTOs to be effective in supporting intelligence collection?	Determining effectiveness depends on ones perspective. Dedicating an ISR MTO sortie to a BCT [brigade combat team] or lower echelon unit, by definition, is expected to be effective at satisfying many or all of that unit's requirements or the ISR MTO should not be approved. Dedicating an ISR asset with single or multiple intelligence collection capabilities to a unit allows that unit to utilize an assets entire capacity against their unconstrained requirements. As such, from the unit's perspective, ISR MTOs will always be effective. If higher echelon collection managers are unable (not enough manning, inadequate knowledge and/or skills, not empowered, etc.), unwilling, or indifferent to maximizing effectiveness AND efficiency, ISR MTOs are a means of maximizing effectiveness for at least one unit. If ISR capacity exceeds the unconstrained requirements within range of the sortie, MTOs would be a means of dissipating that capacity.
How would you describe the key differences between ISR MTOs and standard collection processes?	No response provided.
Under what cases or circumstances would you expect ISR MTOs to not be effective in supporting intelligence collection?	Collection requirements will invariably exceed capacity. As such, collection managers have a responsibility to maximize the effectiveness and efficiency of each ISR sortie based on prioritized requirements and the assets capacity, range, and endurance. When collection managers dedicate an ISR sortie to a unit, they abdicate their responsibility of racking and stacking each requirement on the collection deck and simply assume that even the lowest priority unconstrained requirement of the supported unit is higher than the highest priority requirements of other units within range of the sortie. I contend that assumption is rarely accurate. In fact, if the supported unit's operation is cancelled within 24 hours of execution, what incentive does the supported unit have to inform the Collection Operations Management authority of such? None. The supported unit will always have additional requirements in support of a future operation or, if nothing else, the unwillingness to release a sortie will drive the unit to use it for overwatch regardless of actionable intelligence of impending attack. This hoarding only further diminishes the effectiveness and efficiency of the sortie.
Can you think of ways that the integration of ISR MTOs could be improved at the operational level of war?	Don't use them. MTO CONOPS [concept of operations] require units to submit requests for MTOs as far in advance as the Collection Requirements Management (CRM) process requires pre-planned collection requirements to be submitted. Since MTOs require originating units to justify MTO requests with valid collection needs, originating units should be able to submit individual collection requirements based on their current understanding of the need in accordance with the established process. As often occurs during combat operations, units change operational plans. As those plans change, collection managers are responsible for identifying the impacts to collection and adjusting their collection requirements accordingly. The traditional CRM process allows for these changes through ad hoc and dynamic requirements processes. Since, at this point, the collection deck has been planned, as each collection requirement is changed/updated, the entity exercising Collection Operations Management of the ISR sortie will rack and stack the new requirement against the established collection deck based on standing guidance and modify the sortie accordingly. This method ensures the limited ISR capacity is consistently focused against the JFC's joint force commander's] highest priority requirements.

Are there any ISR assets or intelligence disciplines that are particularly well suited or poorly suited for ISR MTOs?	Theater ISR assets with large intelligence collection capacity and long range are poor choices for MTO given the inefficiency of using these assets to support a unit whose unconstrained requirements do not exceed said capacity.
Are there questions I did not ask that you think are pertinent to this topic? If so, what are they and how would you answer them?	Are MTOs properly named? No. Traditionally, a mission type order is an order to a subordinate unit to execute a mission until that mission is accomplished or the unit's mission is changed. That is, by definition, a traditional ISR sortie collection deck. The COM tasks the sortie with a mission (clearly defined collection deck) and expects the asset to accomplish that deck unless tasking is changed. A better name for the subject process is Direct Support. ISR assets are being tasked to Directly Support a unit regardless of the priority of the collection requirements as compared to those of other units within range. Which is more important to evaluating the impact of an ISR sortie, efficiency or effectiveness? I believe a combination of both determines if the ISR sortie provided the greatest impact. Ultimately, the Commander must determine the threshold for both. There may be times when the priority of a specific collection is more important than the fact that less than ten percent of the ISR capacity was reached. Other times, the impact of collection dozens of lower priority requirements is greater than the trade off of collecting just a few high priority requirements. This guidance is essential to providing the COM the boundaries under which to plan the collection decks of the ISR sorties. Services and even units within a service can have significantly different cultures. Especially in a joint environment, it is essential to understand the commander's philosophy.

Interview Questions	Maj Jeremy Ahlstrom, USAF RC-East Chief of Collection Management, Bagram AB, Afghanistan Interviewed 12 Dec 2010
To what extent are you familiar with the concept of mission type orders (MTOs) to support intelligence collection management at the operational level of war?	I am very familiar with the MTO concept. As CJTF-101 [combined joint task force]/RC-E Collection Manager, I have submitted and utilized MTOs in support of OEF combat operations.
Do you have any experience in using MTOs to support intelligence, surveillance, and reconnaissance (ISR) operations? If so, to what extent? Please elaborate.	Yes. I have written MTOs and used them to support BCT [brigade combat team] operations within RC-E utilizing theater ISR assets. I have written and utilized MTOs in support of C-IED [counter-improved explosive device], COIN [counterinsurgency] and HVI [high value individual] targeting operations.
Under what cases or circumstances would you expect ISR MTOs to be effective in supporting intelligence collection?	ISR MTOs are most effective when applied to an enduring operation where layered ISR effects are desired. This allows flexibility in tasking as ISR assets have DIRLAUTH [direct liaison authority] with supported units, therefore allowing the dynamic nature of combat operations to be accounted for. This also allows for the planned layering of ISR assets, better facilitating multi-INT collection and cross cue opportunities.
How would you describe the key differences between ISR MTOs and standard collection processes?	Standard collection processes require a pre-planned collection deck per INT requested, resulting in a fragmented process for obtaining assets. MTOs allow units to mitigate both of these issues but 1) allowing for collection deck changes less than 48 hours before mission execution and 2) allowing for the planned, synchronized utilization of multiple assets against a common target set.
Under what cases or circumstances would you expect ISR MTOs to not be effective in supporting intelligence collection?	Short duration operations entailing a specified task. Examples include convoy overwatch infil[tration]/exfil[tration] operations.
Can you think of ways that the integration of ISR MTOs could be improved at the operational level of war?	ISR MTOs could be improved by including organic assets not under CFACC [combined force air component commander] control. Examples include TF-ODIN [Task Force-Observe, Detect, Identify, and Neutralize] and organic Brigade assets.

Are there any ISR assets or intelligence disciplines that are particularly well suited or poorly suited for ISR MTOs?	UAVs [unmanned aerial vehicles] and MC-12s are best-suited assets for MTOs. EO [electro-optical] /IR [infrared] IMINT [imagery intelligence], SIGINT and FMV [full motion video] are best-suited disciplines. AGI [advanced geospatial intelligence] assets with MASINT [measurement and signature intelligence] disciplines are poorly suited.
Are there questions I did not ask that you think are pertinent to this topic? If so, what are they and how would you answer them?	Not at this time.

Interview Questions	Maj Eric Jacobs, USAF 480 ISRW, deployed as DCGS LNO to USAFCENT CAOC, Al Udeid AB, Qatar Interviewed 15 November 2010
To what extent are you familiar with the concept of mission type orders (MTO) to support intelligence collection management at the operational level of war?	As the 480 ISR WG Weapons Officer and a recently deployed CAOC [combined air and space operations center] Liaison Officer, I have become very intimate with the creation, execution, and assessment of ISR MTOs.
Do you have any experience in using MTOs to support intelligence, surveillance, and reconnaissance (ISR) operations? If so, to what extent? Please elaborate.	I am a qualified U-2 Mission Operations Commander [MOC]. On almost every mission I MOC, my crew is executing an MTO.
Under what cases or circumstances would you expect ISR MTOs to be effective in supporting intelligence collection?	In situations where direct communication between a supported unit/entity and the collection unit would improve ISR effects.
How would you describe the key differences between ISR MTOs and standard collection processes?	ISR MTOs are merely different tasking vehicles using the same doctrinal collection management structure. A key difference in the MTO tasking vehicle is the inclusion of implied orders to meet the supported commanders purpose and intent. The standard collection process is very specific and does not allow for collection creativity to best meet the mission objectives. An MTO is asking a chef for their best soup, whereas the standard collection deck is handing the chef a recipe calling for specific ingredients.
Under what cases or circumstances would you expect ISR MTOs to not be effective in supporting intelligence collection?	Application during long-term COIN [counterinsurgency] conflicts already has data to support this. Any situation that involves a specified JOA [joint operations area] task force also begs application due to the very focused nature of requested effects, and the often-flattened command structure during execution.
Can you think of ways that the integration of ISR MTOs could be improved at the operational level of war?	Teach MTOs in the AOC [air and space operations center] courses, weapons school, and include in AFDD [Air Force Doctrine Document] 2-9 rewrite. [I'm model manager for next DCGS 3-1...it will be in there extensively]. I often have to point out that MTOs do not make mission planning easier. When applied correctly, it actually forces ISR participants and supported units to work harder to synchronize. Recent MTOs have proven how MTOs must live and breathe, and be prepared to adjust to the ground scheme of maneuver. This fact debunks the myth that supported units are merely asking

	for MTOs because they're lazy and don't want to do collection management.
Are there any ISR assets or intelligence disciplines that are particularly well suited or poorly suited for ISR MTOs?	Any asset or intel discipline that leadership/C2 [command and control] is unwilling to enable with DIRLAUTH [direct liaison authority] to the supported unit is a poor selection.
Are there questions I did not ask that you think are pertinent to this topic? If so, what are they and how would you answer them?	No response provided.

Interview Questions	Maj Jeff Johnston, USAF, MC-12W ISREC Chief, Bagram AB, Afghanistan, Interviewed 22 November 10
To what extent are you familiar with the concept of mission type orders (MTO) to support intelligence collection management at the operational level of war?	My first interaction with the concept of an MTO was with a deployment to Al Udeid [Air Base] in the spring of 2007 as a member of a small tiger team of individuals to deploy to the CAOC [combined air and space operations center] in order to revise the CAOC ISR processes. Harpo [Pearson] was part of this team, and as we worked through the issues it became clear that first we needed to establish a Strategy-to-Task (STT). Prior to this, it was very difficult to tie any single collect to a commander's intent, despite supposed PIR [priority intelligence requirement] affiliation. Although we didn't push for MTOs at that specific time, our efforts were specifically to lay the groundwork for them. Following this deployment, Harpo and Jobu [Brown] drafted the Theater ISR CONOPS [concept of operations], which I provided editorial and very limited content support to. Over the next two years the ISR CONOPS went through the vetting process, though it took some time to be implemented. In March 2009, I deployed for the initial fielding of the MC-12W Project Liberty. As a tactical asset tasked by theater (operational) command and control, I used this as an opportunity to employ an MTO-type execution within the boundaries of existing tasking relationships. Similarly, in February 2010 I deployed to Bagram, AFG to help finalize the fielding of the MC-12W in Afghanistan. While there I wrote and executed the first ever MTO in RC-E as well as the first-ever non-DGS [distributed ground station] MTO. Working with RC-E and its subordinated units, I provided training and consultation until eventually the Army was writing their own MTOs for ISR collection.
Do you have any experience in using MTOs to support intelligence, surveillance, and reconnaissance (ISR) operations? If so, to what extent? Please elaborate.	Many people have assumed that MTOs are useful only for layering ISR, for massing effects and cutting the bureaucracy and red tape of an ISR tasking mechanism developed during the Cold War. Although definitely useful for those reasons, MTOs are "bigger" than that. By employing an <i>auftragstaktik</i> concept to Project Liberty execution in Iraq, we were able to meet supported unit intent with more focused, more relevant collection while still staying within the boundaries of higher headquarters tasking. Although these weren't formally tasked MTOs, they nonetheless carried all the appearances of one, allowing the MC-12 to be dynamically responsive to supported unit intent. The catalyst that provided for the success of the MC-12W was the intimate supported unit coordination completed by the MC-12W squadron prior to every single mission. Traditional tasking mechanisms did not provide for supported unit CONOPS, commander intent, or status of operations. Prior to the MC-12W's MTO-like execution, collection assets would receive a spreadsheet of MGRS [military grid reference system coordinates] and generic EEIs, and collection would be executed in a vacuum of context with no ability to validate the utility of the collection tasked. Through the close coordination of the MC-12 and supported units, we were able to identify that tasked collection was often erroneous or obsolete. These experiences set the stage for my follow on deployment to Afghanistan where I wrote and executed the first ever RC-E MTO. In April of 2010 I worked with the RC-E Collection Manager, Lt Col Doug Smith, to draft an MTO for execution in TF-Bayonet. This MTO would both layer assets as well as "flatten" the collection process by directing that tasked assets work directly with TF-Bayonet and each other to develop and execute their collection plan. This MTO tied an MC-12W with a JSTARS [Joint Surveillance Target Attack Radar System], TF-ODIN [Task Force-Observe, Detect, Identify, and Neutralize] MARSS [Medium-Altitude Reconnaissance and Surveillance System] and TF-ODIN Warrior Alpha. The MC-12W Project Liberty was designated as the "ISR Package Commander" in charge of providing sensor direction and tasking to each asset. [Let me know if

	you would like more details on the challenges we faced, specifically with TF-ODIN, to execute this MTO...this was a new concept to them as well.] As a result of this MTO, we were able to effectively layer effects and leverage assets so as to characterize an IED [improvised explosive device] network in a single four-hour period. During the course of my deployment we executed a number of MTOs, each one growing and maturing the concept. Prior to redeployment I ran an MTO of nine sensors and saw the first-ever MTO conceived and written exclusively by Army forces.
Under what cases or circumstances would you expect ISR MTOs to be effective in supporting intelligence collection?	I think that MTOs are most effective against target sets with multiple signatures and/or dynamic environments. They are ideal for counter-insurgency (and anti-insurgency) environments as well as TST [time-sensitive targeting] environments in conventional MCO [major combat operations] (aka “SCUD hunt”).
How would you describe the key differences between ISR MTOs and standard collection processes?	Traditional (aka “standard”) collection is stovepiped to a single intelligence discipline, regardless of the capabilities of the intelligence collector. Predators, for example, carry both a SIGINT [signals intelligence] and FMV [full-motion video] collector, however their daily tasking will designate them as either FMV or SIGINT prime with no auxiliary tasking. This means that many times collection units miss collaborative sensor tasking. An MTO, however, provides an intelligence unit the opportunity to work directly with the supported unit to identify the ISR problem set. From this, the collection unit is able to develop taskings holistically, maximizing asset—not just sensor—capability. I have multiple examples of when FMV observables contributed to either supporting or discounting SIGINT collection off Project Liberty [MC-12W). By having the full target characteristics, we were able to provide much higher quality reporting than traditional ISR tasking would have provided for. In addition to providing for higher confidence holistic collection against a target, MTOs provide for a level of dynamic response that standard ISR tasking mechanisms are unable to provide. By “flattening” the tasking mechanism, ISR assets are afforded the opportunity to work directly with each other and their respective supported unit to ensure they are providing the most immediate response to fleeting collection opportunities. In many ways this is merely a “cross cue”, however in an asset-constrained environment where the efficiency of a sensor requires hawk-like oversight, the checks and balances of higher headquarters often slowed this process down.
Under what cases or circumstances would you expect ISR MTOs to not be effective in supporting intelligence collection?	MTOs aren’t needed when the operational level [of war] has specific, articulated requirements against fixed objectives. In the case of MCO [major combat operations], I would expect MTOs to be sparse at the beginning of operations when we have known, fixed target sets with very specific, finite collection requirements. Put in the context of the historical sense of MTOs, there were times when a division commander would give his subordinate troops broad taskings of intent (“Take that hill and hold it for 36 hours”), but there were other times where the operational art required specific headquarters direction. In the sense of collection from an air platform, ISR MTOs are not needed—and in fact could be counterproductive—in the setting of a highly complex attack against an IADS [integrated air defense system] requiring precision to the second on very discrete collection targets in order to meet green light criteria. Leaving that coordination to supporting intelligence units to work out the timing of each bomb across multiple squadrons and wings would prove impossible under standard AOC timelines.
Can you think of ways that the integration of ISR	Currently, ISR MTOs are exclusive to ISR assets. When fully realized, taskings shouldn’t be “ISR MTOs”, but rather simply MTOs, packaging strike, ISR and enabling aircraft. In order to fully realize this, common planning

MTOs could be improved at the operational level of war?	processes at the Wing level are required, however at this time mission planning is widely diverse across MDS [mission-design series/weapons platforms] and discipline.
Are there any ISR assets or intelligence disciplines that are particularly well suited or poorly suited for ISR MTOs?	I think that ISR assets with either a short planning timeline and/or dynamic response are best suited to mission type orders. Inherent to a dynamic response capability is a robust communication capability across all levels of effect. For example, when supporting ground-based units, assets with an ability to communicate directly to tactically deployed ground units (MQ-1) are better suited than those reliant on multiple levels of relay (RQ-4). Conversely, when supporting a major theater war, assets with SATCOM [satellite communications] capability and the ability to communicate beyond line of sight in order to synchronize effects real time (RC-135) are better suited than those without (RC-12). The majority of intelligence disciplines can easily be applied to MTOs, as it's the asset performance that is usually more impacting than the discipline itself in establishing the suitability for an MTO. The only disciplines that are not well suited for an MTO are those that cannot meet the intent of the MTO. For example, hyperspectral imaging is poorly suited for time critical collection.
Are there questions I did not ask that you think are pertinent to this topic? If so, what are they and how would you answer them?	I'm having a difficult time thinking of what additionally to cover. If I think of something, I'll send it as well.

Interview Questions	Sqn Ldr Michael Lofts, RAF IJC/CJ2 ISR Operations Officer, North Kabul International Airport, Kabul, Afghanistan Interviewed March 9, 2011
To what extent are you familiar with the concept of mission type orders (MTO) to support intelligence collection management at the operational level of war?	From January to July 2010, I was deployed to the ISAF Joint Command (IJC) in Kabul in the role of CJ2 ISR Operations Officer. During this period I was responsible for validating and approving all MTO requested/submitted by the Regional Commands.
Do you have any experience in using MTOs to support intelligence, surveillance, and reconnaissance (ISR) operations? If so, to what extent? Please elaborate.	My experience/ involvement with the MTO process was confined to the conceptual review as to whether a request was technically feasible, able to be resourced and of sufficient operational priority to receive the required assets.
Under what cases or circumstances would you expect ISR MTOs to be effective in supporting intelligence collection?	During my time in theatre I saw a number of extremely well executed and successful MTO, unfortunately I also observed a number of attempts to use the concept to cover 'slack process' and poor SOP (standard operating procedure). The effective MTO shared the following characteristics: 1. Focus: They were based upon known intelligence e.g. an HVI [high value individual] was known to bed down in a particular village. MTO work well when they are targeted against a focused target within a known operating area, as opposed to being used as a 'fishing net' in a previously unexploited area of interest. 2. Planning: They were thoroughly planned: Planning was conducted early and ISR specialists were involved from the outset. The aim was realistic and achievable with the sensor optimized for the target set. 3. Communication: The supported commander's intent for the mission and its projected impact on the battlespace/next echelon's plan was clearly articulated to the command responsible for allocating assets. In some instances this allowed/led to ISR collection assets being allocated to particular missions outside of the normal 48hr planning window. During my time in theatre MTO were discussed at the daily VTC [video teleconference] between the RC [regional command] Collection Managers, IJC ISR and the CAOC [combined air and space operations center], this enabled all the key players to pool knowledge and share ideas. 4. DIRLAUTH [direct liaison authority]: Used. Once an MTO has been approved the supported unit is able to speak directly to the collecting unit and establish the most appropriate sortie profile to achieve the desired effect. Extensive use of DIRLAUTH does not guarantee mission success, however failure to engage/utilize DIRLAUTH does guarantee mission failure. 5. Assessment: The ISR collection cycle must be completed and include contributions from all participants e.g. supported unit, collector, tactical and operational ISR shops.
How would you describe the key	The key difference between a collection asset operating under MTO and one operating under standard collection process is the level command required to

differences between ISR MTOs and standard collection processes?	move the platform or change primacy of sensor. Equipped with an approved MTO the ground supported unit can dynamically change the collection profile of 'its' asset without recourse to the higher echelon, this confers speed and flexibility. Multiple assets can be controlled under a single ISR MTO, in this way an 'ISR COMAO' [composite air operation] can be created and focused. Standard collection processes promote sensor efficiency whilst this is sacrificed by the ISR MTO in lieu of a very specific end state i.e. the capture of an HVI.
Under what cases or circumstances would you expect ISR MTOs to not be effective in supporting intelligence collection?	If the criteria outlined above are not adhered to the ISR MTO is unlikely to be effective.
Can you think of ways that the integration of ISR MTOs could be improved at the operational level of war?	ISR MTO integration could be improved at all levels of war by the application of education; results would be exponential at the operational level. Most people 'think' they know how to plan an MTO but the reality is that very few can. From my recent experience the 'uneducated' tend to view the tactical freedom conferred by MTO as an excuse to avoid detailed collection planning. Integration of ISR MTO is also improved by access to CAOC and platform specialists. The arrival of MARSS [Medium-Altitude Reconnaissance and Surveillance System] and CAOC liaison officers at the IJC in the summer of 2010 marked a step change in the headquarters ability to integrate and facilitate collection.
Are there any ISR assets or intelligence disciplines that are particularly well suited or poorly suited for ISR MTOs?	Multi-INT platforms such as the Liberty and MARSS are ideally suited to MTO. The combination of sensors aboard these platforms allow the supported unit to quickly respond to dynamic collection opportunities, the mix also lends itself to the fix, finish and exploit processes which are phases of operation ideally suited to the flexibility conferred by MTO. Strategic collection assets and platforms are less suited to MTO and are harder to integrate for the following reasons: 1. Their collection under an MTO will be inefficient i.e. supporting one task that may require multiple changes of location as opposed to having an optimized target deck planned to satisfy a large number of IRs. 2. Communication is more challenging, crews are often located outside of the theatre of operation and unavailable for DIRLAUTH due to crew duty issues. The platform may not be optimized for communicating directly with the ground unit. 3. Classification of collect.
Are there questions I did not ask that you think are pertinent to this topic? If so, what are they and how would you answer them?	How successful are MTO in a non-5-eyes coalition environment? or What are the challenges associated with employing ISR MTO in support of a coalition operation? My answer to these questions would focus upon education, releasability of product/dissemination of collect, communication (pre-flight, during and wash up) and national ROE [rules of engagement]. The questions could be packaged for almost every element of warfare today, however they are particularly pertinent to our recent experience of operating with the varied national collection platforms in Afghanistan.

Interview Questions	Maj Max Pearson, USAF DCGS LNO to USAFCENT CAOC, Al Udeid AB, Qatar, Interviewed 1 December 2010
To what extent are you familiar with the concept of mission type orders (MTO) to support intelligence collection management at the operational level of war?	I am very familiar with applying MTOs ISO collection management at the OLOW [operational level of war].
Do you have any experience in using mission type orders to support intelligence, surveillance, and reconnaissance (ISR) operations? If so, to what extent? Please elaborate.	In 2008, I advocated for using MTOs as an ISR tasking mechanism in Korea. I was the DO [operations officer] for imagery operations at the DGS there, so I was essentially asking to receive ISR tasking for U-2 missions in the form of MTOs vice a very rigid and detailed list of targets (the traditional collection deck). After a few months of constant collegial discussion with the senior AOC [air and space operations center] ISRD [ISR division] collection managers, and some valuable instances when I brought ISRD personnel on the DGS [distributed ground station] ops floor to show them first-hand how their collection deck was being handled, the AOC ISRD decided to start using MTOs. Instead of using them exclusively for U-2 imagery tasking, the AOC provided a traditional collection deck, but also issued multiple MTOs for situations during which the DGS could take the initiative to drop pre-planned collection deck targets IOT dynamically retask the imagery sensor, and subsequently move the U-2 if required. Soon after MTOs were first issued, instances started to arise that fit the MTO descriptions. DGS-3 worked with the U-2 to dynamically retask the sensor, and we had some successes in rapidly responding to adversary activity. As a result, from approximately November 2008 until I left Korea in July of 2010, the 7AF [Air Force] AOC ISRD included MTOs in their daily RSTA [reconnaissance, surveillance, and target acquisition] tasking, with the understanding that DGS-3 would only exercise the authority to drop preplanned targets for dynamic retasks if circumstances met those defined in the RSTA. During my tenure, DGS-3 never violated that trust, and MTO tasking was very effective in facilitating dynamic and responsive ISR. From Jan - April 2010, I served as the Senior DCGS [distributed common ground system] LNO [liaison officer] at the [US] CENTAF CAOC at AUAB [Al Udeid Air Base]. During this time, I worked with a multitude of collection management and ISR personnel throughout Afghanistan, as well as DCGS personnel back in the CONUS and elsewhere, to use MTOs ISO [in support of] operations in southern Afghanistan. In the final stages for planning ISR in Operation MOSHTARAK, I proposed MTOs as an ISR tasking mechanism for U-2 and Global Hawk operations. Working initially with the CFACC ISR LNO to RC-South, Capt Cole Bray, who was forward deployed to TF Leatherneck, I explained the success that MTOs had in Korea, and explained how they could be used in MOSHTARAK. Capt Bray explained the concept to TF Leatherneck CMs [collection managers] (who were going to get a lot of ISR priority and support during the operations), and then RC-South CMs, who all liked the idea. After a lot of discussion about the operation (purpose, intent, scheme of maneuver, anticipated ISR requirements, threats, etc), I helped Capt Bray draft MTOs that we both thought would best support the main effort in Op MOSHTARAK. Capt Bray shared the drafts with RC-S and IJC CMs, who approved. During the

	first two weeks of Op MOSHTARAK, the AOC did not supply a collection deck whatsoever to the DGSs working U-2 and GH missions ISO of the operation; DGS mission planners worked with CMs from multiple task forces involved in Op MOSHTARAK, interfacing mostly with Capt Bray, sometimes with me personally, and sometimes with task force CMs directly, to identify collection targets day by day. DGS mission planners also discussed new and innovative exploitation techniques that would best satisfy the requirements of the TFs involved in the operation. These techniques involved building products that could not be explained in a traditional EEI, things like imagery packs including imagery of a specific area (city block, for example) taken with alternating sensors types day after day, manipulated in a way to identify change with one sensor, then best characterize that change with another sensor. On multiple occasions during the operation, the supported TFs would request significant changes to the collection plan they had helped build hours prior, based on dynamic changes in the battlespace. DGS personnel were able to work with the U-2 and GH [Global Hawk] to quickly respond given the pre-approved flexibility the MTOs granted.
Under what cases or circumstances would you expect ISR MTOs to be effective in supporting intelligence collection?	MTOs have proven very successful in supporting dynamic combat operations (Op MOSHTARAK). They have also been effective when tailored to an I&W environment such as in Korea. The key to making MTOs effective is not just simply tasking a collection asset with a lot of flexibility. The key is explaining the purpose and intent to collectors and exploiters, and giving them the liberty to collaborate with their supported units to modify (and even build) the collection plan based on changes in the battlespace. In the case of Korea, DGS-3 did not work directly with anybody because the MTO tasking didn't require it. In these cases DGS-3 made quick decisions to respond to target activity, then explained the situation to 7AF AOC ISR personnel who could then start to consider other sensor solutions, and determine if they wanted DGS-3 & the U-2 to continue with dynamic retasking, or return to the traditional collection deck. In this sense, MTOs worked as well in the I&W environment as they did in the live combat operations environment.
How would you describe the key differences between ISR MTOs and standard collection processes?	The key about MTOs is providing collectors and exploiters with the purpose and intent behind their tasking, and authorizing collaboration on not just analytical conclusions, but on real-time collection plans. Due to their success in Afghanistan, I saw many who understood MTOs to simply mean the collector didn't get a traditional list of collection targets (collection deck) from the CAOC CMs, but was told to work with a supported units directly to build their collection plan. This represents how MTOs were used for a specific period in time in a specific scenario. As I've explained, in Korea AOC CMs tailored MTOs to fit the problem set.
Under what cases or circumstances would you expect ISR MTOs to not be effective in supporting intelligence collection?	Some have suggested that MTOs would not work in major combat operations when the AOC has collection targets they know they need collected for pre and post-strike assessment. My response is this: in this case, the AOC should write an MTO that clearly explains why the targets are being tasked, but provide coordinating instructions for collectors to work with AOC combat plans and combat operations personnel to (1) ensure the timing of their collection satisfied the intent (i.e. pre-strike and post-strike), (2) make sure they drop collection targets if the corresponding kinetic or non-kinetic action is cancelled for some reason, and (3) give collection and exploitation personnel the context of their work so they are motivated to do good research and provide the best products possible. To answer your question directly, I would expect ISR MTOs would not be effective if the CMs at the AOC and the JTF [joint task force] did not trust the collectors to remain true to their intent, or if the collectors were not being honest brokers of their sensor capabilities IOT to best satisfy the purpose

	and intent of their MTO tasking. MTOs won't work if collectors and CMs don't trust each other.
Can you think of ways that the integration of ISR MTOs could be improved at the operational level of war?	MTOs need to be explained to all involved in the process. From my experience, I saw that intel and ops personnel were just starting to understand what MTOs were all about, and often their understanding was limited by short-lived exposure to MTOs. Secondly, and more importantly, once people understand how to use MTOs, planners and CMs in the supported units, and at joint echelons such as the RCs and IJC in Afghanistan, need to start developing ISR MTOs as they conduct their initial planning for operations. ISR MTO planning needs to be integrated early in the process.
Are there any ISR assets or intelligence disciplines that are particularly well suited or poorly suited for ISR MTOs?	In the SIGINT [signals intelligence] business, current tasking mechanisms already provide general purpose and intent, and in the FMV [full-motion video] business most collection is done at the specific and dynamic request of the supported unit already. But in the IMINT [imagery intelligence] business, traditional tasking involves very specific look-at coordinates. The difference between IMINT and SIGINT is that in the IMINT business, collection of one requirement is mutually exclusive with another. This is not the case with SIGINT (details are probably classified). So MTOs have been most helpful in the IMINT business based on my experience. I suspect they would be useful in the GMTI [ground moving target indicator] business as well, where ISR operators see changes in the battlespace (i.e. moving targets) and often need to redirect their sensors to track moving targets.
Are there questions I did not ask that you think are pertinent to this topic? If so, what are they and how would you answer them?	Not for now Twitch [reference to researcher], but I am happy to answer follow-on questions or clarify anything I've poorly explained.

Interview Questions	LCDR Peter Salvaggio, USN Officer-in-Charge, EP-3 Unit deployed to the USCENTCOM AOR Interviewed 7 March 2011
To what extent are you familiar with the concept of mission type orders (MTO) to support intelligence collection management at the operational level of war?	I would say I am very familiar with ISR MTOs. As the Navy lead to integrating the EP-3 into MTOs, I have read several sources mentioned in your reference list along with the experience gained from April to November 2010 while deployed to [US]CENTCOM.
Do you have any experience in using mission type orders to support intelligence, surveillance, and reconnaissance (ISR) operations? If so, to what extent? Please elaborate.	As the Officer-In-Charge (OIC) of Combined Task Group Fifty Seven Point One (CTG 57.1), the EP-3 unit in the USCENTCOM AOR [area of responsibility], from Jul-Nov 2010, I was lead for integrating, writing, executing and assessing the EP-3 portion of ISR MTOs for operations in three distinct USCENTCOM mission sets (COIN [counterinsurgency], MCO [major combat operations, and MDA [Maritime Domain Awareness]). I worked closely on these MTOs with Captains Amanda Figueroa and Ryan Skaggs. Each of the MTOs written that included the EP-3 required different types of coordination based on the mission sets and desired objectives in which they were to be executed. a) COIN: executed 2 overall MTOs in support of RC-S and SW. The goals ranged from: • IPOE [intelligence preparation of the operational environment] • Counter-IED operations b) Major combat operations (OP [operation] HAMKARI) In the case of OP HAMKARI, the MTO was on a review cycle that ranged from a few weeks during the IPOE phase to ultimately a 7-day review cycle when combat operations began. (I'm counting this as a single MTO for the purpose of discussion here.) c) MDA: executed 3 MTOs in support of the Combined Forces Maritime Component Commander (CFMCC) and Combined Forces Air Component Commander (CFACC). The desired goal here was to layer available assets to provide multi-INT [multi-intelligence discipline] I&W [indications and warning], develop an operational baseline for the region, and provide a proof of concept of joint MTO integration in a maritime environment. The MTOs employed between the EP-3, Global Hawk, and U2 aided ISR operations planners and mission aircrews to develop a working model and flush out initial TTPs [tactics, techniques, and procedures] for integration of Joint ISR MTO application (See Joint EP-3 / Global Hawk AAR [after action report] written by Capt Figueroa and myself for additional reference). The goal was to have a SIGINT [signals intelligence] to IMINT [imagery intelligence] cross cue occur between platforms during MTO based missions, which didn't necessarily occur all the time due to either a lack of target availability or SIGINT emissions. Bottom line, sometimes no one was either out of port, or if they were their equipment was not on. Under the second condition, there several IMINT to IMINT cross-cues did occur. These IMINT to IMINT cross-cues ultimately aid in collection and overall exploitation of the target. Between the multi-INT (IMINT, ELINT [electronic intelligence], COMINT [communications intelligence]) capabilities of the EP-3 and the IMINT capabilities of the Global Hawk and multi-INT U2 capabilities it became clear that operations under an MTO were far more effective against a target nation than without an MTO, regardless of whether the cross cue was SIGINT to

	IMINT or IMINT to IMINT. No matter which type occurred, the level of situational awareness (SA) among all aircrews / mission crews was significantly increased in comparison to non-MTO missions. Lessons learned and TTPs developed during these 3 MTO missions allow for future joint maritime operations in any AOR.
Under what cases or circumstances would you expect ISR MTOs to be effective in supporting intelligence collection?	To be quite honest, just about any ISR mission can effectively employ MTOs to increase collection. ISR MTOs can and should be employed as much as possible in accordance with MTO guidance and doctrine, especially when multiple ISR assets are flying together. By using the narrative tasking portion of the MTO all players understand clearly the commander's desired intent. While the commander's guidance can be found in other documents, putting it at the beginning of the MTO cages the mission from the start and helps to ensure it's not overlooked as the rest of the mission is planned and executed. Plain and simple, it allows for one stop shopping and ensures the specifics that apply to ISR assets are clearly accessible. This alone provides a level of understanding that otherwise is typically lost by the time it reaches ISR aircrew(s) going to execute the mission(s). Now, under MTOs, mission planners and aircrews have a greater understanding of the desired end state, allowing for clearer and more precise planning and coordination between allocated assets. This in turn has ultimately resulted in greater achievement of the commander's desired ISR objective. While it is clear that every ISR mission does not necessarily meet the level of effort that is needed for MTO generation or that the assets required to effectively employ an MTO are not always available or allocated, when ISR assets are allocated and flying in support of an objective or desired goal, the effectiveness of ISR collection increases exponentially. Specific ISR missions or scenarios that should have MTO employment are: a) Major operations: • IPOE • Combat operations, such as area clearing b) Exercises (friendly or target nations): • Target nation air or naval exercise(s). Could be a day, week, or month long event. • COMPTUEX / JTFEX (U.S. Naval exercises employing multiple ISR assets at once) • USAFWS [U.S. Air Force Weapons School] ME [Mission Employment phase] / [Exercise] RED FLAG c) Specific events that require multiple ISR assets to effect success: • Carrier Strike Group (CSG) / Expeditionary Strike Group (ESG) straights transits (i.e. – Straights of Hormuz) • OLYMPIC TITAN (OT) missions [Exercise OLYMPIC TITAN is a homeland security exercise]. From a naval standpoint, CSG/ESG straights transits and OT missions, which always include multiple SIGINT and IMINT collection platforms both in the air as well as on the surface would greatly benefit from the increased coordination and ISR effectiveness under an MTO. Layered ISR is the name of the game during these operations, with the CCSG (Commander, Carrier Strike Group – the Admiral) looking for constant updates on the environment around him. In this effect, an MTO can provide focused intel that is both intent and effects based for critical decision-making that is required of the CCSG. MTOs increase the level of overall understanding of the desired goal for why everyone is flying / collecting. Many assume that every crew / collection entity was aware of what not only they were doing and why, but also what the other assets assigned were doing. The reality is that is not

	the case. By using MTOs, interaction, mission planning, and ultimately mission execution is increased to a level that is hard to quantify. For whatever reason, it seems to naturally push assets to start coordinating with each other from the very start of mission planning. This level of cooperation only grows as time goes on. For example, under MTO tasking in OEF, information sharing between the EP-3, DGS-2, and ground units almost immediately reached a level that I have never seen in 11 years doing ISR missions. It was as if we were all one unit working completely together. Since then (OP HAMKARI) MTO tasking has significantly dropped off, and so has the level of coordination and cross-cues.
How would you describe the key differences between ISR MTOs and standard collection processes?	Standard collection is ITDB [intercept tasking database] and RSTA [reconnaissance, surveillance, and target acquisition] based. If it's not in there, odds are it's not collected. The world we live in today is ever changing, and the COM [collection operations management] process of the Cold War really doesn't allow for keeping up with the changing environment. ISR MTOs allow for ITDB and RSTA tasking as always, but also provide for additional flexibility for not only emerging / Ad Hoc tasking, but using the narrative tasking portion of the MTO, it gives the crews executing MTOs a greater understanding of the WHY. This allows for them to flex as things develop while they are executing collection. MTOs also help to streamline communications. It allows for supported units and supporting units to talk directly to each other. That is so important for effective collection. Having lived with "middle man" tasking for so long, it seems like nearly always the intent / goal of the tasking is lost as it transitions down to the collecting unit. And the sad part is that you typically find out months later at a conference over a cup of coffee during a BS [bullshit] session. Only then do you find out what was really being requested, the level of importance to it, and maybe even some other concerns / interests that were either not clearly stated in the ITDB / RSTA or came about after the IN [information need] was submitted, but prior to the mission being executed. Let's face it, in current COIN ops, for example, on a good timeline, it takes at least 10 days from the initial IN [request to when a mission crew is tasked to collect on the target]. Do we really think that insurgents are going to sit still for 10 days? Likewise, in a naval environment, ships move and comm. plans change. The day-to-day tasking of naval units adjusts based upon everything from sea state to what other naval and merchant vessels are doing. Did a sub leave port last night? Is a vessel missing from imagery all of a sudden? Has a merchant ship been suddenly identified as carrying arms? It's a dynamic environment, and the collection process needs to be able to adjust to that environment. MTOs support the normal collection process; PRISM [Planning tool for Resource Integration, Synchronization and Management], ITDB, RSTA, etc. but also allows for the dynamic nature of ISR collection.
Under what cases or circumstances would you expect ISR MTOs to not be effective in supporting intelligence collection?	Having flown with and without MTOs, the difference is day and night. I cannot honestly think of a scenario in which an MTO, in theory, could not be used successfully. Of course the argument of weight of effort must be taken into consideration, as just putting an MTO together requires a larger degree of heavy lifting during mission planning than is otherwise required for many ISR missions around the world. Even if it is a single asset on a single mission, which, lets face it, is really never the case anymore, just the narrative of the commander's intent, the desired effect for collection, and the supported unit's info for coordination is valuable enough to fly under an MTO. In the case of SRO [sensitive reconnaissance operations] missions, where say the U-2 flies one day the EP-3 the next, while not layered, having say a month long MTO again, puts us all on the same sheet of music, lets us know who's up when, and for what ever reason, naturally seems to cause us to interact more with

	each other from day to day.
Can you think of ways that the integration of ISR MTOs could be improved at the operational level of war?	Yes, two specific issues exist right now: - Training. Both for those who write / approve MTOs and for those who execute them. There are organizations that use the letters MTO but do not even know what they mean, let alone how to write them, yet ISR platforms have received these type of “MTOs” as tasking and even flown missions. The worst case of it has been when three ISR aircraft have flown at the same time, in the same area, each with their own “MTO”, while supporting the same unit. Each of these “MTOs” did not list the other units flying, but only what their specific tasking was. Clearly, a lack of understanding what an MTO is, how to develop one and how to task using an MTO was the case here. Likewise, it’s important that crews flying under an MTO have a clear understanding of what a good MTO looks like, what it needs to contain, and how to effectively execute a mission under an MTO. Additionally, INTEL officers and enlisted personnel should be trained on ISR MTOs. From a Navy ISR standpoint, our INTEL folks are critical in the successful execution of ISR MTOs as they do a fair amount of the pre-mission coordination, and usually receive the all important post mission feedback. - ISR LNO. The use of the ISRLO is a critical link to the successful execution of an ISR MTO. Having an ISRLO with the supported unit or at a level just above that unit can make all the difference in the world during the final planning stages and while ISR operational execution is occurring. Not to mention this would support the critical feedback loop that is necessary post mission. Additionally, having a trained ISR individual can be essential when conflict arises with collection conflict between standing tasking and emerging collection opportunity.
Are there any ISR assets or intelligence disciplines that are particularly well-suited or poorly suited for ISR MTOs?	I honestly think all ISR assets are well suited for MTOs. From a naval standpoint I’d say it’s critical to not just think in terms of airborne assets. Most naval ships have an intel collection cell that can easily add to collection success if they are tied together in an overall ISR package or otherwise labeled ISR MTO. Likewise, many USCG [U.S. Coast Guard] cutters have collection cells as well. For example, an ISR MTO for USSOUTHCOM (U.S. Southern Command) could include both airborne, USN and USCG assets to accomplish a mission. Right now though the focus seems to be very airborne platform heavy.
Are there questions I did not ask that you think are pertinent to this topic? If so, what are they and how would you answer them?	None that I can think of at this moment.

Interview Questions	Capt Amanda Figueroa, USAF 3 IS, deployed DCGS LNO to USAFCENT CAOC, Al Udeid AB, Qatar Interviewed 29 November 2010
To what extent are you familiar with the concept of mission type orders (MTOs) to support intelligence collection management at the operational level of war?	I am very familiar with the ISR MTO concept, having read several of the sources mentioned in your source list and this deployment.
Do you have any experience in using MTOs to support intelligence, surveillance, and reconnaissance (ISR) operations? If so, to what extent? Please elaborate.	As the Senior AF DCGS LNO to the CAOC from Jul-Oct 10, I was heavily involved with writing, executing and assessing ISR MTOs for two distinct [US] CENTCOM mission sets. I worked on a variety of MTOs that required a different type of coordination based on the JOA [joint operations area] in which they were executed. COIN [counterinsurgency]: executed 5 MTOs in support of RC-S, SW and E. The goals ranged from IPOE [intelligence preparation of the operational environment] to build a baseline of adversary activity in order to aid in operational mission planning for kinetic operations. NRT [near real-time] ISR in support of kinetic clear/hold operations. Counter IED [improvised explosive device] operations, specifically multi-INT tipping/cueing in order to find IEDs on pre-identified routes of interest. MCO [major combat operations]: executed 3 MTOs in support of Navy and Air Component Commanders. The main goal was to layer available assets to provide multi-INT I&W [indications and warning], develop an operational baseline for the region. As an additional benefit, working MTOs between components aided both sets of ISR operations leadership to develop a working model for integration of Joint ISR application. We didn't necessarily get to the 100% solution, but the circumstances at least provided an opportunity for deeper dialogue and understanding of what is/will be required to integrate ISR assets when the JOA's command structure (specifically for ISR tasking) is not as streamlined as it is in OEF.
Under what cases or circumstances would you expect ISR MTOs to be effective in supporting intelligence collection?	As a form of narrative tasking, ISR MTOs can be effective for any intelligence collection activity. The key is that the ISR MTO specifically is tailorable to the command's desired effect. The theater commander can allow subordinates as much or as little flexibility in planning and integration as is deemed appropriate...so even a single SRO [sensitive reconnaissance operations] mission could be tasked under an MTO and that tasking would still be appropriate. One of the things we started doing towards the end of my time at the CAOC [combined air and space operations center] was being including baseline PRISM [Planning tool for Resource Integration, Synchronization, and Management] decks in the MTOs themselves. These could be as big or as small as the supported unit saw fit... the goal was to get any KNOWN recurring collection baseline documented in the traditional CM [collection management] process. From there, the MTO narrative dictated the level of DIRLAUTH [direct liaison authority] the ISR units had to re-validate the initial baseline collection deck and take new collection requirements. This process really puts the theater CRM [collection requirements management]/COM [collection operations management] authorities in charge because they authorize the interaction and they can set the decision cycle. If the situation is expected to be extremely dynamic, they can authorize lower

	and lower levels of DIRLAUTH to flatten out the network (say BN [battalion] S-2 straight to DGS-2). If the situation is NOT particularly dynamic, they can hold DIRLAUTH up to a higher level (say RC CM to ISR Ops at the CAOC). Or, for an MCO example, in a dynamic situation DGS-1 may work directly with the EP-3 while airborne...non-dynamic might require the DGS to cross cue any activity through the [US]NAVCENT [U.S. Naval Forces Central Command] watch, who then divvies it out to an available platform. The key is to get the desired level of integration and decentralization of execution into the narrative. While MTOs can always be effective, there are times in today's environment where I don't recommend using them. For example, if the tactical problem requires layering multiple assets to create an effect, but the assets required are not going to be allocated to the problem because it doesn't meet commander's priorities, then I wouldn't go through the trouble of writing an MTO. It's not that the MTO wouldn't work; it's more that it's a lot of work to craft an MTO that wouldn't be executed as designed due to lack of assets. In other words, MTOs are better utilized for PRIORITY operations that will be supported with assets required to achieve the desired effects.
How would you describe the key differences between ISR MTOs and standard collection processes?	The key difference is really in the COM [collection operations management] process. ISR MTOs are a more robust execution of COM than simply listing assets in a RSTA [reconnaissance, surveillance, and target acquisition annex] and tasking via spreadsheets. MTOs allow direct feedback between supported and supporting units to ensure all the details associated with TCPED [tasking, collection, processing, exploitation, and dissemination] are agreed upon and understood...especially important in an environment when any soldier has no less than 6-10 possible forms of communication. MTOs enable the COM to not just task the WHAT to collect, but the HOW to communicate in an extremely complex environment. As soon as we all stopped communicating via AMHS [Automated Message Handling System] message traffic only, we opened ourselves up talking past each other... none of what we do matters if we can't make sure the person who needs it gets it in a format that is timely and useable to them. The other key difference is that MTOs can (assuming they're written to include this) allow the supported unit to RE-VALIDATE collection requirements just prior to collection. This is key in the COIN/dynamic environment. There's no way PRISM and the "workbench / assembly line" methodology can keep up with requirements that, either partially or in total, change rapidly. The best requirement is one that you know, just prior to collection, is still valid. Maybe this requirement was put into the system a month ago, or 10 days ago, and was validated by all echelons of the CM process, but if you can RE-VALIDATE it at the time of execution, you KNOW you putting resources towards what is needed today. PRISM and associated processes don't allow for any of this, which is why PRISM is a collection management tool, not the entirety of collection management that some make it out to be. The best part of what we did with MTOs this summer is to find a way to make MTOs and PRISM compatible...PRISM and associated spreadsheets are simply one compartment under the MTO umbrella...sometimes necessary and sometimes not, but used IAW [in accordance with] theater CM intent.

Under what cases or circumstances would you expect ISR MTOs to not be effective in supporting intelligence collection?	I don't think the MTO would be ineffective by itself because it is what you make it to be...but they are potentially superfluous when you're talking about a single asset / INT with limited "customer base" or you're supporting a lower priority operation that will not get enough / the right mix of assets to solve the tactical problem.
Can you think of ways that the integration of ISR MTOs could be improved at the operational level of war?	There are a couple big issues right now...How do you train ISR MTOs, which are essentially a creative / free thinking approach to problem solving, in a military training environment that focuses on processes and checklists? The beauty of ISR MTOs is that they are different / customized to each and every situation. Therefore while you may repeat certain elements of an MTO at times, you DON'T want to fall into formulaic process. The answer is that the training needs to include exercises where students write MTOs to solve a problem (potentially an operation that's already been executed), then get feedback on how what they wrote did / didn't work for the problem at hand. This takes creative teaching and role-playing, but is the only way to effectively train such a flexible concept. Integrating USAF ISR at the point of impact. MTOs are awesome and allow us to work directly with supported units, but benefit significantly from having a USAF ISR smart person at/with the supported unit to help translate. I saw this both in OEF and, to a certain degree, with [US]NAVCENT. Particularly because these organizations have to help WRITE the tasking, they (the CRM and affected supported unit) have to have someone to help translate Air Force / ISR speak into their Service / operational speak. The ISRLO program is going a long way towards enhancing ISR MTO effectiveness, and it needs to continue whenever MTOs are going to be used to support a) Joint or another Service or b) anyone outside the intel community as the supported unit.
Are there any ISR assets or intelligence disciplines that are particularly well suited or poorly suited for ISR MTOs?	They can all work well when their particular effect is appropriately captured in the narrative tasking. MTOs are particularly suited for times when you need an effect integrated across the INTs. For example, a good way to task various (even multi-INT) platforms is to say: platforms with broad area capabilities will tip assets with smaller collection focus in order to provide multi-INT information on adversary activity and refined locational data. SIGINT: RJ [Rivet Joint] and U-2 will tip MQ-1 and EP-3 to provide refined locational data. GMTI [ground moving target indicator] and refined SIGINT [signals intelligence] locations will be used to tip FMV [full-motion video] for verification of activity. The key is to make sure each asset understands the desired effect and how their INT [intelligence discipline] fits into the desired outcome. They'll know when to execute the task based on the contract you establish in the MTO.
Are there questions I did not ask that you think are pertinent to this topic? If so, what are they and how would you answer them?	It might be worth looking at what type of assessment methodology is required to evaluate MTOs. We can't assess them based on the standard bean metrics...especially if you don't know ahead of time how many beans you're expecting to measure. The key, we found, is to get feedback from the execution arm on how well the intel we provided supported them and whether it achieved what we set out to achieve...only the young folks in the battalion on the ground can answer that. Depending on the effects listed in the MTO, you can measure things like numbers of cross cues or time it took for units to communicate back and forth, or how well the dissemination contracts worked, but none of these are incorporated into the standard operational measures that the theater looks at.

Interview Questions	Capt Rustin LaFurney, USAF ISR Division, CAOC, Al Udeid AB, Qatar Interviewed 7 March 2011
To what extent are you familiar with the concept of mission type orders (MTO) to support intelligence collection management at the operational level of war?	I wrote the CONOP[S] [concept of operation] on them for [US]AFCENT.
Do you have any experience in using MTOs to support intelligence, surveillance, and reconnaissance (ISR) operations? If so, to what extent? Please elaborate.	As an ISRMC [ISR Mission Commander...synonymous with MOC] at DGS-5 and advising ISR Ops at the CAOC [combined air and space operations center], I've worked with MTO from initial conceptual planning (i.e., is this a good operation for an MTO?), follow-on official planning and development, and execution. I have yet to write the narrative portion of an MTO, primarily because this portion of should be written by a Supported Unit [SU], NOT by the COM [collection operations management] or supporting ISR unit (e.g., DCGS LNO).
Under what cases or circumstances would you expect ISR MTOs to be effective in supporting intelligence collection?	MTO can be effectively implemented in almost all circumstances from MTW [major theater war] to COIN [counterinsurgency]. ISR in support of COIN ops, due to its very dynamic and fluid environment, is probably the area most likely to benefit from MTO.
How would you describe the key differences between ISR MTOs and standard collection processes?	MTO provide the "why" of intelligence collection that is generally absent in standard collection tasking, while also providing boundaries of behavior to supporting ISR units (SIU) in which they can flex as SU and execution requirements dictate. Standard tasking expects SIU to follow a 1 to N list of supposedly prioritized collection, even though in most circumstances all the requirements/targets have little to no difference in priority (which hampers flexibility in dynamic situations).
Under what cases or circumstances would you expect ISR MTOs to not be effective in supporting intelligence collection?	MTO are not required in SRO [sensitive reconnaissance]. In these circumstances, the "why" of collection isn't nearly as important as the "how" and "what" in support of national- and COCOM [sic...combatant command]-level strategic customers. The potential strategic and diplomatic impact of execution errors in SRO [sensitive reconnaissance operations] is too great to not dictate specific tracks and collection priorities.
Can you think of ways that the integration of ISR MTOs could be improved at the operational level of war?	Education at the SU and CRM [collection requirements management] level is critical for the integration of ISR MTO. Current standards are for well-meaning (but myopic) SIU to write the MTO narratives through their liaison officer at the BDE [brigade] or RC [regional command] level, who then presents it as the SU requirements to IJC [ISAF Joint Command] and the CAOC. This process is allowed and encouraged because most Army and Marine SU don't understand AF processes and let LNOs [liason officers] do the work as long as they receive dedicated support from a U-2, GH [Global Hawk], or Predator, etc.

Are there questions I did not ask that you think are pertinent to this topic? If so, what are they and how would you answer them?	How do you assess the effectiveness of any particular MTO? The area in which most MTO fall flat is in the Assessment arena. Most SIU love to be issued MTO so they have freedom of movement with a SU, but these same SIU refuse to provide valid metrics or feedback on what they've accomplished while working with a unit. If no mechanism for assessing MTO effectiveness is established, there's little way for COCOMs [sic...combatant commands] and the national level agencies to assure the appropriate use of assets.
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Interview Questions	Capt Matt McDole, USAF DCGS LNO deployed to RC-South, Kandahar AB, Afghanistan Interviewed 27 October 2010
To what extent are you familiar with the concept of mission type orders (MTO) to support intelligence collection management at the operational level of war?	Very familiar. Not sure where the BN [battalion], BDE [brigade], and DIV [division] fall into the strategic/operational/tactical levels of war, but I'm familiar with how ISR MTO execution affects each of these echelons.
Do you have any experience in using MTOs to support intelligence, surveillance, and reconnaissance (ISR) operations? If so, to what extent? Please elaborate.	Absolutely. MTOs have been a key part of ISR support to every major operation in southern Afghanistan during the 2010 summer campaign. We usually write an MTO to support a major operation that is COM RC-S's top priority. The MTO serves as a tool to dedicate theater ISR assets to the supported BDE or BN executing the operation and establish DIRLAUTH [direct liaison authority] between the supported unit and the collectors. I'm the RC-S deputy collection manager and I've been here at the division since early May. We've executed major combat operations with MTO support first in central Helmand, and then in Kandahar City and its environs throughout the summer and into the fall.
Under what cases or circumstances would you expect ISR MTOs to be effective in supporting intelligence collection?	For major combat operations where we want to dedicate ISR to a specific supported unit.
How would you describe the key differences between ISR MTOs and standard collection processes?	No response provided.
Under what cases or circumstances would you expect ISR MTOs to not be effective in supporting intelligence collection?	In a situation where there are many intelligence requirements submitted by many supported units without any unit having overwhelming priority over the others. AKA in a situation where we do not want to mass ISR.
Can you think of ways that the integration of ISR MTOs could be improved at the operational level of war?	The most successful MTOs I've seen have incorporated a few key elements. One is a daily synch meeting. We held this on MIRC [Mardam-Bey Internet Relay Chat] due to the fact that most of the BNs do not have the connectivity for a VTC [video-teleconference] or Tandberg [desktop video teleconference device]. This meeting brought together the BNs, BDE, Division, Corps (IJC), CAOC, DGSs [distributed ground stations], and collection platforms once a day and it was invaluable in getting everyone on the same page. We usually began with a quick update on the last 24/next 24 hours from the ISR LNO at the BN. That pushed valuable SA [situational awareness] up to the higher echelons and collectors. It also included feedback from the SUs on the ISR support they were getting. Another element we found vital to MTO execution was having an AF [Air Force] ISRLO [ISR liaison officer] in-place at the supported unit; preferably at the BN level. We found that in COIN warfare, SA on what's actually happening

	on the ground exists only at the lowest echelons. Relevant ISR support to tactical operations requires both tactical SA and ISR expertise. However, those two things are rarely if ever combined. Most of the ISR expertise resides at the CAOC and the Division (RC) CM&D [collection management and dissemination] shops. Both of those organizations are too many echelons above reality to have sufficient tactical SA [situational awareness] to put their ISR expertise to use. Conversely, at the lower echelons (BN and below) where tactical SA resides, there is little to no ISR expertise. The U.S. Army does not have an MOS [military occupation specialty] for ISR Operations or Collection Management. They do not seem to have any formal training for it, and very few MI [military intelligence] personnel understand ISR. Compounding this problem, at the BN, the norm is that there are not enough MI personnel to dedicate one person to the collection manager position. Usually, collection management is an additional duty. At one of our battalions, for example, the collection manager was the officer in charge of the analytical shop, and his secondary duty was lead targeteer. Collection Management was his tertiary duty. This officer was the sole collection management POC [point of contact] at the battalion; there is not an "ISR shop" down there filled with NCOs [noncommissioned officers] and enlisted working collection management. To make matters worse, the Air Force has not made collection management user-friendly. Most of the processes and systems used for collection management and ISR are extremely cumbersome and difficult to understand and use. PRISM [Planning tool for Resource Integration, Synchronization and Management] and UNICORN [Unified Collection Operation Reporting Network] are good examples. When requests for imagery collection are submitted, there is no feedback back to the battalion on whether the request was resourced or if it wasn't, why it wasn't. In short, there is no easy way to tell what the status of your collection request is. In this situation, you can see how having an ISR LNO at the BN level can vastly improve utilization of ISR. If we're going to dedicate ISR assets to a supported unit we should also dedicate the required expertise to utilize the assets correctly. The BN is the right place for this LNO because it is the lowest echelon with the necessary command and control functions (in the BN TOC [tactical operation center]) to C2 [command and control] ISR properly. Company command posts, especially those not collocated on the FOB [forward operating base] with the BN TOC, usually lack the necessary C2 infrastructure to make the ISRLO useful.
Are there any ISR assets or intelligence disciplines that are particularly well suited or poorly suited for ISR MTOs?	High-altitude IMINT (U-2 and GH [Global Hawk]) are the assets most positively affected by the MTO. This is because the conventional process for getting requirements satisfied is extremely cumbersome and lengthy. It can take up to 8 days for the BTN to get a requirement satisfied. The BN has to fill out a CFACC ISR Request Form (they do not use PRISM because it runs too slowly at their bandwidth) and send that to BDE. BDE approves and sends to Division (reference to Regional Command). The Division inputs into PRISM and forwards to Corps [reference to ISAF Joint Command]. Corps reviews, approves, and pushes to CAOC. CAOC tasks. Tasking is done 2 days out. Then the asset flies and takes the images and the exploiters have about 24 hours to create products and send to the supported unit. If there are no hang-ups and if the requirement is never kicked back for corrections anywhere in this process, and if the CAOC tasks the requirement immediately as it pops up in the system, it usually takes about 8 days for this process to complete. This huge lag makes HA [high altitude] IMINT [imagery intelligence] tactically irrelevant in the dynamic battlespace of COIN warfare. IMINT can only be used for IPB [intelligence preparation of the battlespace...now referred to as IPOE]. An MTO, which puts the SU directly in touch with the asset or DGS, allows them to push

	requests to the assets that are tactically relevant. An example was an infil[tration] we had this summer that was originally planned as an air assault, but then turned into a ground infil[tration] 12 hours before it was supposed to start. The ISRLO forward at the battalion was able to task the U-2 to take imagery of the infil [tration] route and get the results to the company doing the infil before they left the FOB. There is no way this would have been possible under the normal system. It is often stated that GMTI and SIGINT assets do not benefit from an MTO. This is partially true in that there is not usually an increase in collection from the theater-level assets like JSTARS [Joint Surveillance Target Attack Radar System] and RJ [Rivet Joint], but there is a coordination benefit. The combination of the MTO, the ISRLO at the BN, and the daily meeting in mIRC (notes were sent out to all collectors, along with a current ground scheme of maneuver) allowed these assets to increase their tactical SA and get more involved in what was going on in the battlespace.
Are there questions I did not ask that you think are pertinent to this topic? If so, what are they and how would you answer them?	No response provided.

APPENDIX F: WRITING ISR MTOs

This appendix offers some observations on how to best write intelligence, surveillance, and reconnaissance mission type orders (ISR MTOs); this specifically addresses tips for writing one and offers an ISR MTO template for use in supporting intelligence collection. It reflects a synthesis of existing practices in Operation ENDURING FREEDOM, recommendations from interview subjects, joint doctrine, and the researcher's own work.

Compared to a static, detailed, exhaustive collection deck, usually submitted via an EXCEL spreadsheet, Planning Tool for Resource Integration, Synchronization, and Management (PRISM), or another theater-developed tool, submitting and executing an ISR MTO is much different.¹⁴¹ It is a narrative with a task and purpose aligned under a higher headquarters' mission, including commander's intent. Thus, it is critical that ISR MTOs be written with clarity and accuracy to improve the chances of being successfully executed.

Writing an effective ISR MTO starts and ends with the mission at hand. An ISR MTO must be aligned with the supported operational mission. Thus, one must have the concept of operations for the mission to be supported, including the written commander's intent, when drafting the MTO. It also may be a good idea to ask several questions in order to help frame the problem. Answering the following questions may help a drafter focus on what is important and produce a better MTO. What are the key intelligence

¹⁴¹ PRISM is one of several online tools the intelligence community uses for the submission, tracking, and execution of intelligence collection. At lower levels, some units submit collection requirements via Excel spreadsheets or via other locally developed database tools.

questions to be answered? What intelligence products are needed? What is the time frame for the intelligence requirement? This is usually expressed in terms of the last time the intelligence is of value. Other information may also come to mind. If in doubt, include the information.

The supported unit needs to write the MTO. The MTO drafting processing can help ensure coordination between the supported units, supporting ISR units, and processing, exploitation, and dissemination (PED) nodes by forcing them to communicate. It may be a good idea to have Air Force ISR liaison officers assist as well. Higher echelon collection management shops are also good sounding boards to discuss MTO feasibility. After drafting the MTO, review it for clarity, succinctness, and completeness. Practice makes perfect. The following is a proposed MTO shell based on one provided by Major Jeremy Ahlstrom, USAF, Chief of Collection Management and Dissemination for Regional Command-East. All fields should be in narrative format.

OP XXXXX
DD MMM YY – DD MMM YY

Requested Effect	Asset Callsign	Total On Station Time	Critical MTO Time	Supported Command/ Unit	Operation	Effective dates	Remarks
IMINT							
HSI							
MSI							
COMINT							
FMV							

NOTE: MTO will be reviewed at ISR MTO execution+7 days and subsequently at 7-day intervals to ensure relevance to operational objectives. IJC must inform CAOC 48 hours prior to end of the MTO on whether the MTO will be extended or will expire.

NOTE: RC-E CJTF-101 is a division-level organization; TF Bastogne, TF Currahee, TF Lafayette, TF Patriot, TF Rakkasan, TF Red Bull, and TF White Eagle are subordinate brigade-level organizations to RC-E CJTF-101.

PURPOSE/OBJECTIVES:

OBJECTIVES:

IMAGERY INTELLIGENCE (IMINT):

HYPERSPECTRAL IMAGERY (HSI):

MULTISPECTRAL IMAGERY (MSI):

COMMUNICATIONS INTELLIGENCE (COMINT):

EMPLOYMENT:

NAMED AREA OF INTEREST (NAI) PRIORITY:

PHASE I:

PHASE II:

ISR TASKING:

HSI/MSI/HA IMINT:

ASSETS:

EFFECT: The priorities of all IMINT collection are:

- 1.
- 2.
- 3.

SPECIFIC INSTRUCTIONS/DETAILS:

- 1.
- 2.
- 3.

FMV:

ASSETS: TBD

EFFECT: Dynamic support to drive actionable intelligence on NAIs.

Reserve Asset is to provide dynamic support to NAIs as defined by the RC-E ISR TC/Fusion Lead.

FUSION & CROSS-CUE:

Fusion Lead: Include names of organization, with individual contact information, secure voice phone numbers, classified email addresses, and mIRC chat handles.

Roles:

1. Work directly with RC-E and supported units (SUs) to coordinate near-real-time CFACC analytical support as well as exploitation and dissemination.
2. Work with RC-E to refine/nominate NAIs.
3. Perform Intelligence Preparation of the Operational Environment (IPOE) analysis for RC-E. Create products to drive follow-on targeting and assessments of insurgent activity.
4. Create a weekly roll-up of key intelligence gathered, collection highlights and assessments.

ISR Tactical Coordinator: RC-E ISR Liaison Officer

- **Name; classified email address; secure voice number; mIRC handle**

Role: Work directly with ISR MTO Fusion Lead and SUs to conduct cross-cues using all available ISR assets.

Cross-cue emphasis:

1. Direct support to engaged SUs
2. Threatening COMINT
3. Improvised explosive device (IED) emplacement activity
4. Suspicious movement in pre-planned named areas of interest (NAIs)

If cross-cue requires an existing task to be dropped, only CM&D may authorize the platform to change tasking. All ISR assets are encouraged to cross-cue among themselves on a non-interference basis (NIB).

All assets are provided DIRLAUTH with RC-E for mission planning and to assess real-time value of all collect, and when supported units deem appropriate, CM&D can move a platform for collection of higher priority targets.

DISSEMINATION:

Required classification of products:

NOTE:

At a minimum all products will be emailed to the following:

- **RC-E CM&D: Name; classified email address; secure voice number; mIRC handle**

And the applicable BSO listed below:

Supported Unit Points of Contact:

- **TF BDE A Name; classified email address; secure voice number; mIRC handle**
- **TF BN A Name; classified email address; secure voice number; mIRC handle**
- **TF BN B Name; classified email address; secure voice number; mIRC handle**
- **TF BN C Name; classified email address; secure voice number; mIRC handle**
- **TF BN D Name; classified email address; secure voice number; mIRC handle**
- **TF BN E Name; classified email address; secure voice number; mIRC handle**

COMMUNICATIONS PLAN AND CONTRACTS: All IMINT/SIGINT derived threat tippers must be passed via SIPRnet mIRC Chat (Server: XXXXXX/ Room: #YYYYYY) as well as the appropriate –INT reporting rooms. Threat tippers will be acknowledged by SU. If unacknowledged for more than 5 mins, DGS or on-board exploiters will follow-up with a phone call or mIRC message to battlespace owners (see above contacts) or RC-E ISR Liaison (VOSIP) as a backup. For IMINT threat tippers meeting EYELID criteria, please post in mIRC Chat #XXXXXX and in #YYYYYYY IAW established EYELID reporting procedures.¹⁴²

¹⁴² EYELID is a possible indication of activity related to an IED.

APPENDIX G: AXIOMS IN PURSUIT OF GOOD COLLECTION MANAGEMENT PRACTICES

The following are a collection of truisms, thoughts, ideas, and concepts that focus on basic tenets of good collection management collected over the course of a career in the U.S. Air Force intelligence career field. They do not strictly relate to intelligence, surveillance, and reconnaissance (ISR) mission type orders, but if taken into account they can serve as useful instruments in the collection manager's toolkit. They are not all the author's; peers, joint doctrine and common sense also contributed in large measure.

- 1) Multi-discipline intelligence collection strategies generally work best in answering intelligence questions.
- 2) Collection managers should strive to strike a balance between efficiency and effectiveness with respect intelligence collection.
- 3) Intelligence collection should focus on what the customer wants to know...not which ISR assets they think they want or need overhead.
- 4) Intelligence requirements, or demands, will always outstrip the capacity for intelligence collection.
- 5) Collection strategies should also strive to leverage and optimize national, theater and organic ISR capabilities.
- 6) It is critical to identify intelligence collection requirements as early as possible.
- 7) Intelligence requirements must always be prioritized, preferably by phase of the operation, to ensure the most urgent questions get answered first.
- 8) Solve intelligence collection needs at the lowest possible level of command using organic ISR assets...then push unfilled requirements to higher echelons for tasking.
- 9) Intelligence collection should drive and lead operations; it should be woven throughout all phases of the operation vice being an activity bolted onto the front of an operation.

10) Reinforce operational success by layering, or massing, the majority of your ISR assets on the commander's highest priority operations...and assume risk on the lower priority operations.

11) Training is vital; never pass on opportunities to train on Service, joint, and national-level ISR processes and capabilities. The more a collection manager knows, the better he can increase confidence in the intelligence collected.

12) Communication is the vital link in the collection management process. As an ISR operator, it is a must to communicate with the supported unit at a minimum and preferably all the stakeholders related to the collection request. Voice communication is preferred over email.

13) Supported units should provide as much context as possible to the processing, exploitation, and dissemination node and supporting ISR unit. The better they are able to understand the context of the request, the more predictive and comprehensive the end product will be.

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VITA

Lieutenant Colonel (Lt Col) Jay "Twitch" Green is a career U.S. Air Force (USAF) intelligence officer who has served in a variety of assignments within the USAF and joint communities. He attended the USAF Academy in Colorado Springs, Colorado, graduating with a Bachelor of Science degree in political science in 1992. He completed intelligence officer technical training at Goodfellow AFB, Texas, in 1993.

From 1993 through 1994, Jay was a unit-level intelligence officer at Naval Air Station Keflavik, Iceland where he supported F-15, HH-60 and air defense controller operations. Following that assignment, he was a B-52H Squadron Intelligence Officer at Barksdale AFB, Louisiana from 1994 through 1996. In 1996, he deployed to Vicenza, Italy as an intelligence analyst at the North Atlantic Treaty Organization combined air operations center supporting Operation DELIBERATE ENDEAVOUR. Jay attended the USAF Weapons School (USAFWS) Intelligence Weapons Instructor Course at Nellis AFB, Nevada, graduating in December 1996. From 1997 through 1999, he was the Intelligence Weapons Officer for the 354th Fighter Wing at Eielson AFB, Alaska, overseeing training and readiness for 35 intelligence personnel and 75 A-10 and F-16 pilots.

From 1999 through 2000, he was an Intelligence Weapons Instructor at the USAFWS. In 2001, Lt Col Green deployed to the Joint Task Force-Southwest Asia as the Chief of the Intelligence Weapons and Tactics Branch supporting Operation SOUTHERN WATCH. In 2001, he then served as the USAFWS Chief of Academics and officer-in-charge, *USAF Weapons Review* magazine. In 2002, he coauthored an article for *USAF Weapons Review* titled "Debunking MiG-29 FULCRUM Myths" which was also published by the National Air and Space Intelligence Center. From 2002 through 2005 he served on the Joint Staff in the Intelligence Directorate as a Targets Officer providing national intelligence support to combatant command targeting branches.

He attended the Joint Military Intelligence College from 2005 through 2006, where he earned a Master of Science Degree in strategic intelligence studies. From 2006 through 2007, he attended the U.S. Marine Corps' School of Advanced Warfighting SAW where he completed a Master's Degree in operational art and science. He served as the Commander of the 19th Weapons Squadron at Nellis AFB, Nevada from 2007 through 2009. He deployed in 2009 to Kabul, Afghanistan, as Deputy Director for ISR at ISAF Joint Command supporting Operation ENDURING FREEDOM.

Lt Col Green attended the Joint Advanced Warfighting School in Norfolk, Virginia, from July 2010 through June 2011, where he completed a Master's Degree in joint campaign planning.