

MASSIVE JOINT MULTINATIONAL EXERCISE PLANNING TO SOLVE ARMY WARFIGHTING CHALLENGES

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by

NICHOLAS L. ROWLAND, MAJOR, U.S. ARMY
B.S., Information Technology, Georgia Southern University, Statesboro, Georgia, 2005
M.B.A., University of Phoenix, Phoenix, Arizona, 2012

Fort Leavenworth, Kansas
2016

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Name of Candidate: MAJ Nicholas L. Rowland

Thesis Title: Massive Joint Multinational Exercise Planning To Solve Army
Warfighting Challenges

Approved by:

_____, Thesis Committee Chair
Allan S. Boyce, M.S.

_____, Member
Stephen D. Coats, Ph.D.

_____, Member
LTC Steven W. Holden, M.B.A.

Accepted this 10th day of June 2016 by:

_____, Director, Graduate Degree Programs
Robert F. Baumann, Ph.D.

The opinions and conclusions expressed herein are those of the student author and do not necessarily represent the views of the U.S. Army Command and General Staff College or any other governmental agency. (References to this study should include the foregoing statement.)

ABSTRACT

MASSIVE JOINT MULTINATIONAL EXERCISE PLANNING TO SOLVE ARMY WARFIGHTING CHALLENGES, by MAJ Nicholas L. Rowland, 94 pages.

A division commander can solve an Army Warfighting Challenge (AWFC) through large joint and multinational training exercises without an increased budget.

This paper offers example exercises and shows how division planners can tailor them to study AWFCs. Army and joint commanders should align the majority of their training objectives with AWFCs. This alignment would exponentially increase AWFC study, and would produce for military leadership, more proposed and implemented solutions to the challenges.

AWFCs are not Army specific. They span the entire joint force. Commanders at all levels increase their combat power by exercising AWFCs. Joint and multinational training participation is a best-case scenario for AWFC study. Additional funding is not required for AWFC study by using the pay-to-play exercise model and by using mission command to maximize logistic synergy across military support networks.

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TABLE OF CONTENTS

	Page
MASTER OF MILITARY ART AND SCIENCE THESIS APPROVAL PAGE	iii
ABSTRACT.....	iv
ACKNOWLEDGMENTS	v
TABLE OF CONTENTS.....	vi
ACRONYMS.....	viii
CHAPTER 1 INTRODUCTION	1
Research Questions.....	6
Assumptions.....	7
Limitations	7
Scope and Delimitations	8
Significance of Study.....	9
CHAPTER 2 LITERATURE REVIEW	14
Introduction.....	14
Army Warfighting Challenges.....	16
Army Warfighting Challenge Roles and Responsibilities.....	19
Army Warfighting Challenge Methodology in Detail.....	23
Capstone Doctrine.....	24
CHAPTER 3 RESEARCH METHODOLOGY	28
Introduction.....	28
Standards of Significance	29
Research Methodology	30
Evaluation Criteria.....	33
CHAPTER 4 ANALYSIS	37
Introduction.....	37
Exercise Summaries.....	40
First WAVE	41
Locked Shields.....	43
Unified Quest 2014	46
Peace Mission 2014	49
Pathways 15-01	51

Network Integration Exercise 15.1	54
Army Warfighting Assessment 16.1/Bold Quest.....	57
Massive Joint Multinational Training Exercise	60
CHAPTER 5 CONCLUSIONS AND RECOMMENDATIONS	65
Introduction.....	65
Research Questions	66
Doctrine Analysis	68
Joint Multinational Interdependence through Trust.....	68
Cyber Interdependence	72
Future Development.....	73
Recommendations.....	76
Future Research	76
Actions and Conclusion	79
GLOSSARY	82
BIBLIOGRAPHY.....	83

ACRONYMS

ADP	Army Doctrine Publication
AWA	Army Warfighting Assessment
AWFC	Army Warfighting Challenge
AWFCs	Army Warfighting Challenges
ARCIC	Army Capabilities Integration Center
BMC	Brigade Modernization Command
CASCOM	United States Army Combined Arms Support Command
DOTMLPF	Doctrine, Organization, Training, Materiel, Leadership and Education, Personnel, Facilities
EC	Evaluation Criteria
EEA	Essential Elements for Analysis
IMCOM	United States Army Installation Management Command
LRC	Logistics and Readiness Center
NATO	North Atlantic Treaty Organization
NIE	Network Integration Evaluation
OC	Observer Controller
TRADOC	United States Army Training and Doctrine Command
U.S.	United States of America

CHAPTER 1

INTRODUCTION

The majority of Army Warfighting Challenges (AWFCs) are systemic issues every division commander faces during training or combat operations. The purpose of this paper is to research exercise models, training methods, and actions a United States (U.S.) Army division commander could take to help solve some of the AWFCs within the context of a joint multinational training exercise. General (Ret.) Martin E. Dempsey, in the forward to the *Capstone Concept for Joint Operations: Joint Force 2020*, stated about 80 percent of Joint Force 2020 is already programed, but the remaining 20 percent can be significantly changed through innovation and training.¹ The ability for a division commander to solve AWFCs greatly increases the division's relative combat power in multinational operations through synchronization - the arrangement of military actions in time, space, and purpose to produce maximum combat power at a decisive time and place.² The ability to solve AWFCs also saves fiscal year funds through logistic synergies by reducing redundancy and conserving critical resources such as fuel and technology integration costs; in essence, multi-tasking exercise objectives.³ The increased threat to the U.S. and partner nations around the world demands U.S. forces are proficient across

¹ Joint Chiefs of Staff, *Capstone Concept for Joint Operations: Joint Force 2020* (Washington, DC: Joint Chiefs of Staff, 10 September 2012), iii; The Joint Force 2020 concept is the overarching guidance for the U.S. military to transition to globally integrated operations.

² Headquarters, Department of the Army, Army Doctrine Publication (ADP) 3-0, *Unified Land Operations* (Washington, DC: Government Printing Office, 2011), 9-32.

³ Joint Chiefs of Staff, Joint Publication (JP) 1, *Doctrine for the Armed Forces of the United States* (Washington, DC: Joint Chiefs of Staff, 2013), 30.

the range of military operations.⁴ The AWFCs covered in this paper directly hinder the proficiency of a division commander to execute the full range of military operations.

Not only is it in the best interest for a division commander to train on AWFCs to maximize the division's combat power and reduce costs, but also current U.S. joint and Army doctrine dictate it as a requirement for a division headquarters.⁵ The 2012 *U.S. Army Capstone Concept*, published by the U.S. Army Training and Doctrine Command (TRADOC), requires a division headquarters to be able to exercise mission command over joint and multinational forces for operational warfighting and security cooperation.⁶ A division commander could train on the following AWFCs to meet the Army Capstone Concepts' intent for a division:

1. AWFC #8-Enhance Realistic Training
2. AWFC #11-Conduct Air-Ground Reconnaissance
3. AWFC #12-Conduct Joint Expeditionary Maneuver and Entry Operations
4. AWFC #14-Ensure Interoperability and Operate in a Joint Interorganizational and Multinational Environment
5. AWFC #15-Conduct Joint Combined Arms Maneuver
6. AWFC #16-Set the Theater, Sustain Operations, and Maintain Freedom of Movement

4. Joint Chiefs of Staff, JP 1, *Doctrine for the Armed Forces of the United States*, 4.

⁵ Joint Chiefs of Staff, Joint Publication (JP) 3-16, *Multinational Operations* (Washington, DC: Joint Chiefs of Staff, 2013), I-1.

⁶ Headquarters, Department of the Army, Training and Doctrine Command Pamphlet 525-3-0, *The U.S. Army Capstone Concept* (Washington, DC: Department of the Army, 2012), 19.

7. AWFC #17-Integrate Fires

8. AWFC #19-Exercise Mission Command

Army divisions must train on these challenges, as they accept the reality of decreased training opportunities in a fiscally constrained environment. Expensive training events, such as those conducted at the National Training Center at Fort Irwin, California, are limited to only those divisions in an immediate deployment window. Home station training must start at the squad level and build through all echelons, focused on adaptive, integrated learning.⁷ Home station training allows Soldiers to experience a combat training center like event at their home base without the high financial costs of combat training center rotations.

The AWFCs listed in this paper are only those challenges that are effectively studied through training exercises. AWFCs not listed in this paper were not included because they most likely will be solved in the future as technology advances by means of a material solution, not a training solution. Division commanders are not in the best position to innovate and test material solutions to AWFCs; thus, the focus of this paper is only on those AWFCs that are best addressed through large exercise training. Other challenges such as AWFC #20-Develop Capable Formations, are not included because they target Department of the Army level challenges, well above a division's ability to address.

⁷ Headquarters, Department of the Army, Training and Doctrine Command Pamphlet 525-3-0, 19; Headquarters, Department of the Army, Field Manual (FM) 7-0, *Training for Full Spectrum Operations* (Washington, DC: Department of the Army, 2008), 4-19.

The Army Capabilities Integration Center (ARCIC), a subordinate command of TRADOC, maintains a running list of the most pressing AWFCs that face the U.S. Army now and in the future.⁸ The challenges are broad, overarching, and systemic, which encompass a wide range of warfighting functions from maneuver and intelligence, to logistics and joint interoperability. Once identified, the solutions to these problems will tremendously improve current and future force combat effectiveness.⁹ A division commander has the power to find solutions to improve the division's combat readiness and reduce costs, while at the same time provide tremendous benefit to the total force through lessons learned in AWFC training events.¹⁰

The research in this thesis sought to identify means that a division commander could use to solve or at least make a significant impact on current Army Warfighting Challenges within the context of a joint multinational training exercise. TRADOC commander General David G. Perkins stated that to achieve a position of relative advantage and win, the Army must be the foundation to synchronize efforts for the joint

⁸ Headquarters, Department of the Army, "Army Warfighting Challenges," accessed July 28, 2015, <http://www.arcic.army.mil/Initiatives/ArmyWarfightingChallenges>; ARCIC's website has the most current version of the Army Warfighting Challenges.

⁹ Headquarters, Department of the Army, "Army Warfighting Challenges, Overview," accessed September 3, 2015, <http://www.arcic.army.mil/Initiatives/army-warfighting-challenges.aspx>.

¹⁰ Dottie K. White, "Army leader addresses symposium attendees on future force," U.S. Army Space and Missile Defense Command, August 13, 2015, accessed February 9, 2016, www.army.mil/article/153790.

force.¹¹ Some of the means to find solutions to AWFCs discussed in this paper are, to leverage the abilities of the division staff, to coordinate with the sustainment brigade, use of the Logistics and Readiness Center (LRC) and Installation Management Command (IMCOM), and area support roles from National Guard and U.S. Joint Reserve components. By combining the abilities and resources of these and other parties, the division command may achieve massive synergies on the scale that are needed to confront the most pressing issues which face the military.¹²

A U.S. division could reprogram significant fiscal year funds, conserved through common user logistics, for future training events by utilizing whole-of-government participation during training exercises. Training, without using the full force of U.S. government involvement, could result in a division never realizing its full combat potential, nor the full combat potential of including multinational forces supported by their own governments. Segregated training by U.S. departments, agencies, and partner nations hurts the collective ability to advance and strengthen security relationships.¹³ Top leadership in U.S. Army Forces Command and TRADOC such as the 39th U.S. Army Chief of Staff General Mark Milley, Ret. General Ray Odierno, General Robert Brown, and LTG Herbert McMaster, and asked for help from the Army force as a whole to think

¹¹ Sue Ulibarri, “Perkins outlines how and why to ‘Win in a Complex World,’” U.S. Army Training and Doctrine Command Public Affairs, April 1, 2015, accessed February 9, 2016, www.army.mil/article/145638.

¹² Joint Chiefs of Staff, JP 1, *Doctrine for the Armed Forces of the United States*, 30.

¹³ *Ibid.*, 3.

through the challenges facing the Army for the benefit of the force.¹⁴ AWFCs are enduring and complex by nature, but they are not beyond the capability of the U.S. military, along with help from partner nations, to solve.

ARCIC identifies Army Warfighting Challenges during the Army force management review process. This process identifies “gaps,” or weaknesses in capabilities that the U.S. military requires to meet its Title 10 responsibilities.¹⁵ Once the AWFC review process identifies a gap, ARCIC begins analysis to determine options available to mitigate the gap by implementing a new solution or a change to doctrine, organization, training, materiel, leadership and education, personnel, or facilities (DOTMLPF). A division commander, exercising joint and multinational forces, is in the best position to provide lessons learned and recommendations to Army leadership and recommend changes to one or more DOTMLPF domains. The ability for a division to apply recommendations to future exercises, based on the AWFCs studied, enhance overall AWFC understanding.

Research Questions

1. (Primary) How can a division commander solve an Army Warfighting Challenge by exercising a joint multinational training event?
2. (Secondary) Why is it important for a division to solve Army Warfighting Challenges?

¹⁴ Ibid., 4; Based on in-person speaking events during the guest speaker lecture series at the U.S. Army, Combined Arms Center, Command and General Staff Officer College, Fort Leavenworth, KS, from 2015 to 2016.

¹⁵ White, “Army leader addresses symposium attendees on future force.”

Assumptions

Acknowledging that the U.S. military designed Army and joint doctrine to be living documents,¹⁶ there could be future updates that change doctrine information. However, the majority of the information in this paper should be relevant through the year 2040 timeframe based on the current *Army Force 2025 and Beyond* publication by TRADOC that outlines what the future force will look like through the year 2040.

Limitations

Due to the volume of data in some of the regulations, such as U.S. Army field manual (FM) 735-5 and FM 710-2-1, when a specific logistics process was identified or recommended, detailed instructions of the process were captured in the research footnotes for reference or the applicable regulation was cited. The U.S. military was updating many regulations on a continual basis throughout the research timeframe. The research could not guarantee process and procedures in regulations would remain constant; therefore, associated citations have footnotes for the source to updated reference repositories (e.g., official website libraries). Time constraints for the completion of the research limited the amount of resources and analysis that contributed to the paper. Any additional research required of significant value to the topics addressed in this thesis is included in chapter 5 as further research.

¹⁶ Joint Chiefs of Staff, JP 1, *Doctrine for the Armed Forces of the United States*, 2; Headquarters, Department of the Army, Army Doctrine Publication (ADP) 1-01, *Doctrine Primer* (Washington, DC: Department of the Army), 2-29.

Scope and Delimitations

This study assesses the feasibility and ability of an Army division, and accompanying installation support assets, to generate the capability to plan, coordinate, resource, and execute a massive (5000+ participants) joint and multinational training exercise effectively. For research purposes, the goal of a training exercise is ultimately to solve an Army Warfighting Challenge by collecting enough data on each of the AWFC's associated learning demands. Through detailed analysis, focus groups, and further war-games, Army leadership could have enough understanding about the war-fighting challenge to either implement changes to DOTMLPF or begin acquisition of a material solution to address the challenge.¹⁷ The ability of a division commander to solve AWFCs through joint and multinational exercise training greatly increases the division's combat power in multinational operations and saves operational funds through logistic synergies and exercise participant costs sharing.¹⁸

The scope of this thesis does not focus on echelons above the Army division level such as corps level commands or theater sustainment commands. Most divisions do not have dedicated access to those commands; however, at times this paper compares and contrasts key differences in capabilities between echelons and assesses how those differences affect the ability for a division to execute a training exercise. In addition, this paper does not focus on deployed or forward deployed units with ongoing mission sets. Those units simply do not have enough available space on their training calendars to

¹⁷ White, "Army leader addresses symposium attendees on future force."

¹⁸ Joint Chiefs of Staff, Joint Publication (JP) 4-0, *Joint Logistics* (Washington, DC: Joint Chiefs of Staff, 2013), I-3; Joint Chiefs of Staff, Joint Publication (JP) 3-16, *Multinational Operations* (Washington, DC: Joint Chiefs of Staff, 2013), x.

undertake an eighteen-month train-up and execute an exercise focused on AWFC training.

Research does not focus on the maneuver warfighting function with regard to specific training tasks and mission sets (i.e., G3, G5 functions that are responsible for near and long term training plans as well as the actual training event timeline). Research heavily focuses toward the sustainment warfighting function from the perspective of G4 planners and G8 resource managers' roles and responsibilities such as logistics, budget, and resource management. In addition, research includes relevant installation support functions such as the LRC, IMCOM, and the Directorate of Plans, Training, Mobilization, and Security (DPTMS) to add scope to the research area.

By design, this paper provides recommendations and lessons learned gleaned from experience and historical exercises. This paper does focus on the larger corps level exercises such as those involving the North Atlantic Treaty Organization (NATO) or intergovernmental organization participation such as the Department of State and the U.S. Agency for International Development. Corps level exercises have many more enablers available to exercise planners such as interagency liaisons and embassy support that are normally not available to a division. Corps level exercises are included in this paper to facilitate assessment and provide context, which could provide benefit to division planners.

Significance of Study

Division commanders, supported by their staffs, have the best ability to solve Army Warfighting Challenges because they directly command the largest standing peacetime force within the Army. This thesis provides insight on the most current

guidance from Army and joint doctrine into the multi-layered benefits of AWFC study such as joint and multinational interdependence, force development for an unknown future, and effective implementation of mission command. The ability of a division commander to train on AWFC greatly increases the division's combat effectiveness in joint and multinational operations and saves fiscal year funds.¹⁹ Division leadership can apply funds conserved through logistic synergies to other valuable training opportunities for the division. By training on AWFCs, division commanders could build combat power and increase readiness for future joint and multinational mission sets, through understanding and trust, built through mission command.

The research for this thesis seeks to provide sustainment professionals with some ideas, insights, and capabilities, which could help them play a more active role in exercise planning. More often than not, sustainers sit in the back row during planning sessions while much of the focus, understandably, is on exercise scenario development within the G3's area of responsibility as the maneuver warfighting function lead planner. This disconnection between maneuver and sustainment could lead to increased confusion for sustainers and frustrated maneuver planners who are forced to make changes to the exercise scenario at the last minute. For example, the G3 did not realize a key time-distance factor during the initial planning for an exercise, and subsequently the unit did not receive a key piece of communication equipment because the sustainers were limited by transportation contract rules. A situation such as not having an important piece of equipment could cause tremendous negative consequences for the training event if the

¹⁹ Headquarters, Department of the Army, FM 7-0, *Training for Full Spectrum Operations*, 4-20.

piece of equipment were mission critical. Full integration is only achieved when commanders and logisticians synchronize, coordinate, plan, execute, and assess support to joint forces during all phases of the operation.²⁰ Not only does this thesis have relevance for military sustainers, but also civilian sustainers found the information useful.

This study is relevant for many civilian sustainment professionals within the Logistics Readiness Center and Installation Management Command such as the supply support area manager, the arrival and departure airfield control group, various organization resource managers, installation billeting managers, and transportation coordinators. The disconnection between garrison support positions and military sustainment occurs for various reasons, such as physical distance between offices, or a lack of institutional knowledge about Army sustainment and how the logistics pieces interconnect. Disconnection between the military's civilian workforce and active duty military sustainers led to redundant resource allocation in the case of over-estimating aircraft requirements or overspending budget dollars because of unexpected personnel overtime costs. One example: if an exercise ended on a weekend and pallet-banding services were needed from IMCOM to facilitate the shipment of equipment off the installation, then overtime costs would be incurred for the IMCOM workers because they would be working weekend hours. Early in the planning process, military sustainers could avoid the extra overtime costs by working with the G3 to adjust the exercise dates or by adding additional days for exercise recovery. Additional recovery days would allow the unit to conduct banding operations the following weekday and save money by not paying overtime costs.

²⁰ Joint Chiefs of Staff, JP 4-0, *Joint Logistics*, x.

Combined Arms Support Command (CASCOM) personnel also could find a benefit from this thesis because of AWFC #14, Set the Theater. This AWFC was submitted to ARCIC by CASCOM and directly related to sustainment and joint exercises. The AWFC #14 learning demands require understanding about how a military should open a new theater of operations, set up the theater, and how to sustain the theater over one or more years. If a division commander could exercise AWFC #14 and provide substantive insight through lessons learned, those lessons would be a benefit to CASCOM leadership in determining what DOTMLPF areas should be amended.

While this paper is not maneuver warfighting function specific, military and civilian members working in the G3, G5, or G7 roles, dealing with near and far term training plans, could learn from this research because many division commanders strive to make their training events as realistic as possible, and for good reason. As shown in the Department of Defense Acquisition System's second phase, technology maturation and risk reduction, experiments and demonstrations conducted in simulated environments provide a benefit; however, those performed in an operational environment are preferred.²¹ The closer maneuver planners and sustainment planners coordinate together regarding the scenario, when it comes to execution date; there are many less distractors such as unplanned shipment delays and cost overruns.²² Less distractors allow all participants of the exercise to focus on the training objectives. Due to better focus

²¹ Headquarters, Department of the Army, F104RA, *Developing Materiel Capabilities* (Command and General Staff Officer's Course, Ft Leavenworth, KS, June 2015), 10; This reading focused on material solutions but the concept cited could be applied to other DOTMLPF domains as well.

²² Joint Chiefs of Staff, JP 4-0, *Joint Logistics*, x.

throughout the exercise, the results of the exercise will yield thorough analysis, recommendations, and lessons learned for senior leadership to examine.

Chapter 1 identified the mandate from the Armed Forces of the United States and the Department of the Army that all forces must train on joint and multinational operations. Chapter 1 also listed those AWFCs that a division should train to meet the training requirement and identified the primary research question: How can a division commander solve AWFCs through joint and multinational exercise training? Further, outlined in the chapter were assumptions, limitations, scope, and significance, which provide the reason and boundaries for the research.

Chapter 2 goes into detail on what is written about AWFC study at the time the research was conducted. It also discusses how the AWFCs developed and the roles and responsibilities of organizations involved with AWFC study. Chapter 2 looks in detail at the AWFC methodology to describe how ARCIC conducts information management of the various AWFCs. Finally, chapter 2 identifies how capstone doctrine relates to AWFCs and how mission command plays a role in AWFC study.

CHAPTER 2

LITERATURE REVIEW

Introduction

The purpose of the research for this thesis is to identify the means a division commander could use to solve an Army Warfighting Challenge within the context of a joint multinational training exercise. The ability of a division commander to solve Army Warfighting Challenges greatly increases the division's combat effectiveness in joint and multinational operations and saves fiscal year funds through logistics synergies.²³ Army leadership makes it clear in Army Doctrine Publication (ADP) 1, *The Army*, that combined arms maneuver is impossible without communication and expertise to synchronize joint combat power.²⁴ U.S. Joint Publication 1, *Doctrine for the Armed Forces of the United States*, affirms that to enhance joint efficiency, all leaders must study, apply, teach, and in the end, provide insight to improve military doctrine.²⁵ The overall goal of this research is to identify ideas, insights, and recommendations for division planners, on how best to synergize efforts toward a joint multinational training exercise.

The first sub-section in this chapter, *Army Warfighting Challenges*, describes in detail why the AWFCs exist and why they are important to the Army and larger joint

²³ Joint Chiefs of Staff, JP 3-16, *Multinational Operations*, x.

²⁴ Headquarters, Department of the Army, Army Doctrine Publication (ADP) 1, *The Army* (Washington, DC: Government Printing Office, 2012), 3-20.

²⁵ Joint Chiefs of Staff, JP 1, *Doctrine for the Armed Forces of the United States*, 4.

force. In order to research the problem statements in this paper, a clear understanding of the AWFCs is imperative because without knowing the history of how the AWFCs evolved, addressing innovative solutions for future action would be impossible.

The second section within this chapter, *Army Warfighting Challenge Roles and Responsibilities*, outlines the government organization or organizations responsible for the coordination and study of individual AWFCs. Knowing the organization responsible for a given AWFC enables the research to clarify inconsistencies or questions that could arise during the study of AWFCs. In addition, this section provides division planners the point of contact for an AWFC on which they might train during a future exercise. By contacting the AWFC point of contact early in the exercise planning process, the division planner could get the most current data and analysis on a given AWFC and its learning demands. The division planner could use the information to ensure the training exercise does not duplicate efforts from previous exercises and focus on the relevant AWFC training demands.

The third sub-section of chapter 2 that deals directly with AWFCs, *Army Warfighting Challenge Methodology in Detail*, is necessary for the research to answer the “how” in the primary problem question-How can a division commander solve an AWFC through a joint multinational exercise? The section outlines the required data collection and observation methods used when studying AWFCs during training events.

The last sub-section in chapter 2, *Capstone Doctrine*, identifies U.S. Army and joint doctrine relevant to AWFC study. Capstone doctrine laid the foundation for the relevance of the research by identifying explicit and implicit requirements for the study and exercise of AWFCs. Capstone doctrine gives the division planner the latitude and

justification to engage in AFWC training and enhances the relevance of the training event.

Army Warfighting Challenges

The AFWCs provide the Army with a focused framework for study, which prioritizes efforts on first-order enduring military problems.²⁶ At the same time, the AFWCs provide a way ahead for future force development, which will greatly improve the combat potential of the future force. The AFWC process combines near-term (today to 2020), mid-term (2020 to 2030), and far-term (2030 to 2040 and beyond) innovation efforts for the Army based on the *Army 2025 and Beyond* concept outlined by TRADOC, which provides a broad foundation for future military modernization.²⁷ The AFWC concept sustains collaboration across an extensive community of practice by providing the foundation for capability development. This process ensures that every entity involved in the modernization effort sees a common picture of the issues and way ahead for what is required to solve the issues facing the military.

The future path for military modernization lies in the concepts-to-capabilities process, which establishes a foundation for developing the force, and functions to help assess requirements, identify capabilities, develop solutions, and implement decisions.²⁸ Collaboration across all steps in the AFWC process is paramount for useful solutions to

²⁶ Headquarters, Department of the Army, *Army Warfighting Challenges, Information Paper* (Washington, DC: Government Printing Office, July 2015), accessed September 3, 2015, http://www.arcic.army.mil/app_Documents/AWFC-Information-Paper-10JUL15.pdf, 1.

²⁷ Ibid.

²⁸ Ibid.

be developed. The AWFCs provide the knowledge base structure as a means to coordinate work effort and prioritize solutions.²⁹ Having a baseline set of knowledge and understanding about the AWFC problem sets ensures proper resource allocation and utilization among various participating elements.

The AWFCs along with the concepts-to-capabilities process comprise the AWFC methodology. The AWFC methodology provides a logical problem-solving approach to help understand the problem or problems that each warfighting challenge poses.³⁰ The methodology also serves to determine requirements to address the problem, use analytical learning to produce solutions, and recommend changes within DOTMLPF domains. Changing one or more of the DOTMLPF domains functions to improve the combat readiness of the current force and enhance the capabilities of the future force from the view of the AWFCs.³¹ The AWFC methodology determines capabilities based on assessment of the problems and provides recommended solutions to Army leadership.

The problem statement, unique to each AWFC, identifies the recommended capabilities needed to close the gap based on mission, threat, technology, historical knowledge, and lessons learned.³² Along with the problem definition, ARCIC keeps running estimates for each AWFC to track the status of capability development and

²⁹ For further reference, see Appendix B of Headquarters, Department of the Army, Training and Doctrine Command Pamphlet 525-3-1, *The U.S. Army Operating Concept*, 31 October 2014.

³⁰ Headquarters, Department of the Army, *Army Warfighting Challenges, Information Paper*, 1.

³¹ Ibid.

³² Ibid.

current programmed solutions. The running estimates also track major objectives and supporting tasks that strive to mitigate the capability gaps or pursue new opportunities presented during the capabilities development process.³³ An important factor in the AWFC methodology is the learning demands, which form questions about the AWFC that need further research.

Each AWFC learning demand identifies critical knowledge required to be researched or exercised based on the desired objective and outcome. In order to assist the study, the Army's *Campaign of Learning*, headed by TRADOC, describes how to take concepts and ideas and turn them into capabilities that answer AWFC learning demands.³⁴ Under each learning demand, question statements further break down the AWFC to which they belong in prioritized order. Direct question and problem statements ensure organizations studying the learning demands enforce the best use of allotted time and resources. The AWFC methodology also contains an integrated learning and analysis plan.

The AWFC analysis plan coordinates actions and activities positioned toward the learning demands in accordance with the associated Center of Excellence.³⁵ Once studied to an acceptable depth, the relevant Center of Excellence should have enough data on the AWFC learning demands to analyze trends, and develop an interim solution strategy based upon the analysis. The interim solution strategy measures options that mitigate

³³ Headquarters, Department of the Army, *Army Warfighting Challenges, Information Paper*, 1.

³⁴ White, "Army leader addresses symposium attendees on future force."

³⁵ Headquarters, Department of the Army, *Army Warfighting Challenges, Information Paper*, 1.

capability gaps or advance opportunities until a fully developed solution is achieved.³⁶ Strategies frame interim solutions into three distinct time horizons: near-term (what we can do right now), mid-term (program objective memorandum candidates), and far-term (science and technology investment decisions).³⁷ The main goal-establish enemy overmatch. Overmatch of enemy capabilities buys the U.S. time to develop new technologies or strategies to defeat adversaries while maintaining the ability to win against current enemy combat power.

Army Warfighting Challenge Roles and Responsibilities

Each AWFC has an assigned lead organization, such as a corps or combatant command to oversee the efforts toward solving the given challenge. The respective Center of Excellence along with their capability development and integration directorate maintain the day-to-day actions of each AWFC and assist with the guidance and planning for the lead organization.³⁸ The lead organization has the role to guide the knowledge management of the organization with regard to the AWFC, and facilitate collaboration between the supporting Centers of Excellence. The lead Center of Excellence develops the AWFC problem statement, creates running estimates to monitor progress of the challenge, establishes the learning demands by priority, devises an integrated analysis and learning plan, and works to develop an interim solution strategy to mitigate shortfalls

³⁶ Headquarters, Department of the Army, *Army Warfighting Challenges, Information Paper*, 2.

³⁷ *Ibid.*, 2.

³⁸ White, “Army leader addresses symposium attendees on future force.”

in Army capabilities.³⁹ U.S. Army assigns Centers of Excellence to each AWFC, but as challenges are often multifunctional, also assigned are supporting Centers of Excellence to assist in the joint planning effort. When ARCIC assigns an AWFC a primary supporting organization to assist the lead Center of Excellence, the two organizations will delineate specific responsibilities through a memorandum of agreement as necessary.⁴⁰

ARCIC has the responsibility to foster collaboration between the AWFC heads and the wider community of practice. ARCIC's team of managers, who have the responsibility to manage the AWFCs, work closely with the Centers of Excellence to develop products and plans, enhance communication, and help develop proposed solutions into ones that are eventually implemented. ARCIC leads AWFC management and integration using a number of collaborative forums.

First, the Capabilities Integration Enterprise Forum comprises ARCIC directors, Centers of Excellence/Capabilities Integration Directorates, and other AWFC-lead organizations on a quarterly basis. Before the forum, ARCIC chooses five AWFC leads based on significant updates to their respective AWFC. During the forum, the chosen AWFC directorates brief their selected AWFC to the ARCIC director and present issues or highlights, based on running estimates, for discussion.⁴¹ The ARCIC director uses the forum to update reviews and insights from seminars, studies, war-gaming, or experimentation, and captures force development recommendations. The ARCIC director

³⁹ Headquarters, Department of the Army, *Army Warfighting Challenges, Information Paper*, 2.

⁴⁰ Ibid.

⁴¹ Ibid.

considers the new information and determines dissemination through ARCIC, TRADOC, or Department of the Army levels for further analysis. The purpose of the quarterly forum is to present interim solutions for the near-, mid-, and far-term military outlooks.⁴² Each AWFC lead prepares a comprehensive information paper along with supporting charts to facilitate discussion. AWFC leads submit articles well in advance of the forum and serve as a read-ahead to drive discussion during the capabilities forum.⁴³ Each information product presented during the capability forums identifies the major collaborative partners involved such as, the Department of the Army, the Department of Defense, think tanks, academia, industry, and other subject matter experts.⁴⁴

Second, the Quarterly Futures Review functions as the commanding general TRADOC's management tool for future capability development. Based on guidance from the director, ARCIC, the five chosen AWFC updates briefed during the Capabilities Integration Enterprise Forum will be presented to the commanding general TRADOC by the AWFC leads.⁴⁵ Results presented at this forum include discussions and proposed actions that require guidance or a decision from the commander of TRADOC. *Force 2025 and Beyond* incorporation, and force development integration issues, including risks and tradeoffs, are highlighted for the TRADOC commander.⁴⁶ The commander

⁴² Ibid.

⁴³ Ibid.

⁴⁴ Ibid., 3.

⁴⁵ Ibid.

⁴⁶ Ibid.

TRADOC assesses the findings from the past quarter and decides what information TRADOC will present in the Force 2025 Update.

Third, the Force 2025 Update provides the U.S. Army Chief of Staff, information and guidance focused on issues that relate to development of the future Army. The Force 2025 Update frames discussions using outcomes of the AWFC analytical framework.⁴⁷ Discussion topics requested by the Chief of Staff and those proposed for consideration by TRADOC align with the relevant AWFCs. AWFC discussion topic alignment ensures briefing topics are relevant and related to current operational issues focused on senior level analysis.

Lastly, ARCIC maintains a number of informational and collaborative online websites as part of the overall collaborative effort. Each website balances the level of information classification against the spectrum of audience that is allowed access. At the time of publication, there were four websites in varying stages of maturity.⁴⁸ The U.S military uses each website to guide the force as a whole toward the AWFC learning demands and to provide updates on the most recent progress in practice toward those learning demands. The ARCIC websites provide an information storage capability, facilitate the knowledge management process for the military, and provide collaboration tools for users to share ongoing AFWC study and analysis.

⁴⁷ Ibid.

⁴⁸ Ibid., 4; Also see www.arcic.army.mil for the most recent links to the ARCIC collaboration sites. Appropriate security access is required. Email the site administrator for further information or question regarding security access.

Army Warfighting Challenge Methodology in Detail

The study of the AWFC methodology is important to division commanders and staff because very specific knowledge must be gained about the learning demands in order for the knowledge to be relevant to the force as a whole. AWFC lead organizations develop the related AWFC learning demands, which identify specific knowledge that needs to be gained through learning events. Many learning demands derive from the *Force 2025 Maneuvers* and *Army Campaign of Learning* senior leadership guidance initiatives that help address overall AWFCs.⁴⁹ Some learning events used to study AWFCs are seminars, experiments, war-games, and training events. Lead AWFC organizations further expand learning demands into Essential Elements for Analysis (EEAs). EEAs are specific data points and research topics that training organizations must study in detail during learning events.⁵⁰ EEAs are a valuable and easily implementable tool for division commanders to use during the planning phase of training events to focus staff and unit training objectives on those key overall training objectives that confront AWFCs. EEAs also serve to focus data collection efforts by observer controllers (OCs) whose efforts are critical to the final training evaluation. Data available for collection from the EEAs can come from a variety of sources, such as an ongoing training event, after action reviews, seminar working groups, subject matter expert forums, simulation and modeling results, and independent research from source documents, reports, and references. The essence of the Army Warfighting Challenge

⁴⁹ Headquarters, Department of the Army, *Army Warfighting Challenges, Information Paper*, 5.

⁵⁰ Ibid.

Methodology is the accurate, timely collection of data on a variety of training opportunities. Thorough analysis, interpretation, and dissemination of AWFC analysis data to appropriate partners, such as ARCIC forums and work groups, facilitates community wide analysis.⁵¹ Through detailed analysis, information collected during training events becomes understanding for the next commander ready to test AWFC learning demands.

Capstone Doctrine

Army and joint doctrine drive the need to study AWFCs based on the requirements identified for each military service. Joint doctrine serves to provide overarching constructs and principles from which to plan and execute joint, interagency, intergovernmental, and multinational operations. The U.S. military Joint Publication 3-0 *Joint Operations* is the core of joint warfighting doctrine and enables the U.S. military to provide leadership with multiple options to address security threats.⁵² Army doctrine publications describe how Army forces should operate as part of a larger joint and multinational force.⁵³ Army Doctrine Publication (ADP) 3-0 *Unified Land Operations*, the U.S. Army's basic warfighting doctrine, describes how the Army gains and maintains an advantage in sustained land operations.

Unified land operation doctrine acknowledges that strategic success requires the U.S. military to integrate fully with operations involving interagency and multinational

⁵¹ White, "Army leader addresses symposium attendees on future force."

⁵² Joint Chiefs of Staff, JP 3-0, *Joint Operations*, i.

⁵³ Headquarters, Department of the Army, ADP 3-0, *Unified Land Operations*, 1, 3.

partner efforts.⁵⁴ Researchers looking at almost any war in the last 100 years makes the case that operational success requires the synchronization of joint and multinational efforts. ADP 1 states that synergy created from the exercise of joint forces maximizes the capability of the force as a whole.⁵⁵ In order for division commanders to effectively build and execute a massive joint multinational exercise, they must be the drivers and team builders to achieve integration.⁵⁶ The commander must give staff the flexibility to build trust with joint and multinational partners and allow them to cross coordinate through every staff function.

Using the mission command tenants of building cohesive teams and creating shared understanding, the division command is exercising AWFC #14-Ensure Interoperability and Operate in a Joint Interorganizational and Multinational Environment and AWFC #15-Conduct Joint Combined Arms Maneuver, which seek to improve upon close coordination between joint forces.⁵⁷ Former U.S. Army Chief of Staff General Raymond T. Odierno stated, in the foreword to ADP 1 that “Direct engagement with people has always been, and remains, a core strength of the United States Army.”⁵⁸ Direct engagement with people to build mutual trust is a key enabler to answer the main

⁵⁴ Headquarters, Department of the Army, ADP 3-0, *Unified Land Operations*, 1, 2.

⁵⁵ Headquarters, Department of the Army, ADP 1, *The Army*, 3-1.

⁵⁶ Joint Chiefs of Staff, JP 3-16, *Multinational Operations*, III-1.

⁵⁷ The Army Capabilities Integration Center website has the most current list of the Army Warfighting Challenges available at <http://www.arcic.army.mil/Initiatives/army-warfighting-challenges.aspx>.

⁵⁸ Headquarters, Department of the Army, ADP 1, *The Army*, forward by Chief of Staff Army Raymond T. Odierno.

thesis question: How can a division commander solve an Army Warfighting Challenge within the context of a joint multinational exercise? Trust is imperative to build the synergy needed to achieve the economies of scale required to sustain massive joint and multinational training exercises.⁵⁹

This chapter covered key pieces of Army and joint doctrine that illustrate the need to study Army Warfighting Challenges and the impact doctrine research will have on the joint force with regard to securing U.S. interests in the future. The study of AWFCs is the purpose of this paper and directly drives the main thesis question: How a division commander can solve an Army Warfighting Challenge within the context of joint multinational exercises? Furthermore, in the chapter, the discussion concerning the background and methodology for AWFCs show how the AWFCs originated and the cradle-to-grave process of AWFC management. Often the joint force has difficulty employing capable Army forces within the period to affect the fight and gain cross-domain synergy.⁶⁰ The lack of readiness to enable joint synergy may be due in part to the lack of joint combined arms training opportunities available. By studying doctrine along with the current AWFCs, leaders could ensure they are fully engaging all training opportunities available to maximize combat power and training effectiveness.

In chapter 3, the study addresses how an organization could take the AWFC methodology outlined in chapter 2 and apply evaluation criteria to training events in order to facilitate the study of AWFCs. Chapter 3 also identifies the standards of

⁵⁹ Joint Chiefs of Staff, JP 3-16, *Multinational Operations*, I-4.

⁶⁰ Headquarters, Department of the Army, Training and Doctrine Command Pamphlet 525-3-0, *The U.S. Army Capstone Concept*, 20.

significance and research methodology used in this thesis to ensure validity and reliability of the research material.

CHAPTER 3

RESEARCH METHODOLOGY

Introduction

It is crucial that all members of the U.S. armed forces are able to work together to better utilize scarce resources in order to solve common issues facing the military. This research paper helps in that effort by identifying ways in which a division commander could assist in solving Army Warfighting Challenges. By conducting massive joint and multinational training exercises, a division commander increases the division's combat power through after action reviews and implementing changes. The division staff could also identify areas of weakness common to other divisions in the Army and share that knowledge for the benefit of the entire force. Readiness is the ultimate objective. The 39th Chief of Staff of the Army General Mark A. Milley stated that by putting readiness first, the Army could break itself from the cycles of history where the U.S. has often been unready at the start of new conflicts.⁶¹ For a division commander's force to train effectively, readiness must be the top priority. The Army Warfighting Challenges identified by ARCIC are those systemic issues that negatively affect readiness across Army, joint, and multinational forces. In order for a division to reach a fully mission capable state of readiness, division leadership must build trust and communicate effectively in order to synchronize joint and multinational combat power.

⁶¹ Association of the U.S. Army's Institute of Land Warfare, "Milley: Big Army Advances Are a Decade Away," January 21, 2016, accessed February 2, 2016, <http://www.ausa.org/news/2015/Pages/MilleyBigArmyAdvancesAreaDecadeAway.aspx>.

This chapter starts with the section *Standards of Significance*, which contains the research criteria for the sources that were included in this research project. The next section in this chapter, *Research Methodology*, identifies the research design methodologies employed for this thesis to gather credible data and information and show how the data relates to the proposed research question: How can a division commander solve an Army Warfighting Challenge through large exercise training? The last section in this chapter, *Evaluation Criteria*, outlines the criteria used to analyze historical joint and multinational training exercises in chapter 4. Looking at historical examples facilitates understanding of the recommendations and conclusions about why a training exercise is or is not relevant to the main thesis of this paper, using joint and multinational exercise training to solve Army Warfighting Challenges.

Standards of Significance

Sources in this paper passed a set of standards for significance in order for them to be included in the research. First, sources required publication by reputable government organizations. Research did not use sources in “draft” format or “in-progress” for this paper. Second, sources could not have any material that could identify a specific person or link ideas to an individual in order to protect the rights of individuals. This paper did not use research involving human subjects that required surveys or observations. Third, all sources were peer reviewed for completeness and accuracy in the source. Peer reviewed sources ensure the highest quality information published and minimal mistakes. Using sources that meet these standards of significance give assurance about the reliability and validity of the information in this thesis.

Organizations such as ARCIC and the Brigade Modernization Command (BMC) publish after-action review assessments that contain observations about their respective training exercises. For the purpose of this paper, any comments or observations in after-action review sources belong to the organization as a whole and not to any individual. This research limitation further protects members working within those organizations.

Research Methodology

To ensure the validity of this document, the research uses a qualitative mixed methodology approach that focuses on trusted sources rather than numerical data. The qualitative mixed methodology approach used in this paper combines descriptive research from first source textual analysis, historical research from published case studies, and autoethnography research from first source experience.

Descriptive research from first source text such as Army and joint doctrine help to answer “why” the study of AWFCs is important, and white papers from TRADOC and ARCIC help answer “how” for those who want to begin AWFC study.⁶² Historical research of training exercises provide case studies of past exercises, which are useful to analyze their suitability for AWFC study. The suitability analysis of historical case studies, based on research evaluation criteria listed in the next section; evaluates how well equipped the exercise is to address AWFC study. The autoethnography research method provides context and insight to bring the descriptive research data and historical

⁶² Innovation and Business Industry Skills Council, “Research methodologies,” 2010, accessed August 20, 2015, http://images.slideplayer.com/16/5264855/slides/slides_6.jpg.

case studies together and formed conclusions and recommendations based on the findings of the research.

Most information in this paper was gathered using the descriptive research methodology that seeks to answer the “how” question. Descriptive research in this paper consists of first source textual analysis that compares and contrasts published Army training exercise white papers, U.S. Army doctrine and joint doctrine, and published techniques to facilitate exercise planning and preparation. Descriptive research analysis provides accurate reference and understanding about massive joint multinational exercise planning and identifies ideas on how to tailor future training events to increase unit combat power through the study of AWFCs.

This paper also uses historical research methodologies. The purpose of using historical research is to consider both the past and present with regard to how training exercises and doctrine evolved over the past five to ten years. Historical analysis also provides context for possible answers to current problems or issues the division planner may encounter. Historical research provides a road map to understand how large exercises looked in the past, how they look now, and how they may provide benefit for AWFC solutions in the future.

Lastly, this paper uses the autoethnography qualitative research method. This research method uses personal experiences to address issues in a study-of-the-self approach. There is a risk of bias when using the autoethnography method because of the inherent lack of peer review. To mitigate the risk of bias, the research highlights sections where autoethnography occurs in the research paper to allow assessment of the relevance of the data or to check the data with other sources to ensure validity. While used

sparingly in this research paper, the autoethnography method provides benefit by adding depth and context to aspects of the training exercise case studies and provides ideas or options that could assist in future exercise planning.

Research does not use quantitative research methods for this paper because large training exercises are complex systems with too many variables to accurately quantify and judge success or failure and are beyond the scope of this thesis. Military leaders often judge the outcome of a training event based on prior experience and intuition along with the opinions and observations of many exercise participants.⁶³ Sources used in this paper, such as after-action review observations, are an example of the qualitative data used for analysis. After-action review comments are thoroughly reviewed assessments based on the outcome of the training event execution. Staffs compile after-action review comments during and after a training event takes place. The exercise commander and subordinate commanders, along with key staff, outside observers, and exercise participants, discuss outcomes based on what happened during the execution of the training event in order to come to a common agreement on training objectives success or failure.⁶⁴ The outcomes of the training objectives are captured as lessons-learned, which, if successful, are published and emulated across the military, or if judged as failures, the lessons-learned still serve to identify ways to improve future training activities.

⁶³ Headquarters, Department of the Army, FM 7-0, *Training for Full Spectrum Operations*, 2-2.

⁶⁴ Joint Chiefs of Staff, JP 3-0, *Joint Operations*, III-13.

Evaluation Criteria

The purpose for looking at historical training exercise case studies is to evaluate the training event based on a set of criteria to determine if the training exercise is or is not suitable for the study of AWFCs. The unprioritized list of nine evaluation criteria (EC) is as follows:

EC #1. Live opposing force.⁶⁵ Having a live opposing force is a key enabler to test unforeseen areas of weakness in joint and multinational capabilities. Often through human intuition, courage, and risk, opposing forces identify and exploit gaps in DOTMLPF domains that later contribute to AWFC solutions by way of study and analysis.

EC #2. Live observer controllers for knowledge management and safety.⁶⁶ Using imbedded observer controllers in large training exercises serves two main purposes. First, OCs know beforehand exactly what, AWFC learning demands with nested essential elements of analysis, must be collected upon. Second, the OCs act as safety officers during the exercise to help maintain a safe operating environment by intervening when they see unnecessary risk.

EC #3. Joint and multinational participation at two or more echelons.⁶⁷ A large majority of the AWFCs involve external communication and multi-echelon learning demands. Including joint and multinational forces at different levels increases the

⁶⁵ Headquarters, Department of the Army, FM 7-0, *Training for Full Spectrum Operations*, 2-1.

⁶⁶ Ibid., 2-3; *ibid.*, 3-9.

⁶⁷ Ibid., 1-4.

exercise complexity and greatly serves to identify gaps that exist in the communication platforms, information systems, and chains-of-command for exercise participants.

EC #4. Mixed training environments - live, virtual, constructive.⁶⁸ While live training is preferred, a mixed training environment offers the ability to train and test concepts that might be fiscally beyond the resources of a training exercise. Virtual and constructive training help to identify gaps that exist in many of the DOTMLPF domains, thereby furthering the study of AWFCs.

EC #5. The ability to tie scenario training objectives to AWFC learning demands. Prior to the study and knowledge management of AWFCs, many large exercises training objectives were similar to AWFCs (e.g., command control and interoperable information systems). Redundant training led to the duplication of efforts on similar training goals by separate organizations and missed opportunities for broader training within the same exercise budget. Tying training objectives directly to AWFC learning demands, and utilizing the AWFC lead organizations identified in chapter 2 for help, ensure exercise planners get the most training value for their exercise dollars. In addition, Army leadership saves money by capturing the lessons learned to reduce redundant training mission sets.

EC #6. A mission partner environment information system. Tied to EC #3, having a central information system for joint and multinational exercise participants allows for much more testing of technology and communication related learning demands.

⁶⁸ Headquarters, Department of the Army, FM 7-0, *Training for Full Spectrum Operations*, 2-5; *ibid.*, 4-19.

EC #7. Division size headquarters element with senior exercise commander.

Having a senior exercise commander with a robust staff facilitates all aspects of a successful large training event. The senior commander ensures planning, communication, sustainment, funding, and assessment are all synchronized towards the training event and minimizes disruption by outside activities, such as unresponsive planning participation by external units.

EC #8. Two or more subordinate command posts.⁶⁹ While related to EC #3 and EC #6, having multiple active command posts is a benefit to smaller exercises that may not have the funding or expertise to coordinate joint and multinational exercise participants. Even though lacking a broad range of participants, multiple command posts training still offers benefit by exercising many AWFCs such as communications and combined arms maneuver.

EC #9. Logistics support networks - a sustainment brigade, Installation Management Command, Logistics Readiness Center. Having a robust sustainment network supporting the training exercise is a critical enabler to the success of the other eight evaluation criteria. Related to EC #7, a responsive sustainment network ensures that training solely focuses on the objectives and learning demands and mitigates the risk of derailment by real world logistics or information network issues.

Chapter 3 describes the standards of significance used for this thesis in order for sources to be included as part of this study. Sources that could not meet the standards were not included because they would lessen the validity and reliability of the research.

⁶⁹ Headquarters, Department of the Army, FM 7-0, *Training for Full Spectrum Operations*, 2-10.

Sources such as draft regulations, personal opinions, and third party documents were not used because they could not meet the selection criteria. This chapter also outlines the mixed methodology research approach used in this thesis, which provides a good balance of sources to give strength to the analysis. This study uses a combination of descriptive research first source textual analysis, historical case studies, and autoethnography that add context and depth to the analysis. Finally, this chapter outlines the evaluation criteria used in chapter 4 for historical exercise analysis. Research selected evaluation criteria based on best practices used during past exercise evaluations conducted by ARCIC and BMC who each hold semi-annual exercises to train on AWFCs.

Chapter 4 shows the results of analysis conducted in this study as it relates to historical training exercises. By studying historical exercises, the research evaluates whether or not those exercises are good candidates for the study of AWFCs and ultimately assists in answering the primary research question: How can a division commander solve an AWFC through a joint or multinational training exercise? With a good understanding of what exercises are most useful to AWFC study, division commanders and exercise planners could decide early on in the planning process about what training objectives they should seek to achieve with the resources available.

CHAPTER 4

ANALYSIS

Introduction

Army Warfighting Challenges exist as part of almost every training event from the eight-person squad level to the 10,000-person division level. Unit training objectives can often be categorized under one of the overarching AWFCs. Chapter 4 reviews historical large joint and multinational training exercises and analyzes the ability of those exercises, either knowingly or unknowingly, to train on AWFCs, based on what Army and joint doctrine dictates. The result of the analysis in chapter 4 helps answer the primary thesis question: How can a division commander solve AWFC through joint and multinational exercise training? The Army's *Vision for 2025 and Beyond* states that the Army must be able to leverage cross-cultural and regional experts, and be interoperable with other services, U.S. government agencies, and partner and allied nations.⁷⁰ Just as the study of AWFCs provides strategic advantages for the U.S., so too does the study of AWFCs provides operational and tactical advantages for division commanders.

Chapter 4 starts with the section *Exercise Summaries*, which provides examples of historical training events and analysis based on the evaluation criteria outlined in chapter 3. Some of the training events in this chapter directly relate to AWFCs by design, while other training events were pure training events that inadvertently addressed AFWCs and were conducted before AWFCs were really brought to the forefront of Army training.

⁷⁰ Joint Chiefs of Staff, JP 1, *Doctrine for the Armed Forces of the United States*, 4; Headquarters, Department of the Army, "Pre-Command Course Introduction," PowerPoint Brief, 24 June 2015.

The purpose of including exercise summaries is to illustrate how live, joint, and multinational training events contribute to the study of AWFCs. In addition, the exercise summaries provide examples as a proof-of-concept for similar training events that a division could conduct in order to help answer the main research question: How can a division commander solve AWFCs through joint and multinational exercises? Chapter 4 ends with the section *Massive Joint Multinational Training Exercise*, which outlines common features of large exercises, and shows how those features play a role in successful training events.

Six assumptions about a division and the surrounding training environment are necessary prior to analyzing large training exercises:

1. A division has the staff and force structure available based on its table of organization and equipment documentation. Without a robust staff, exercise planning and competing priorities could significantly distract exercise commanders and planners.
2. External support units such as the sustainment brigade, Logistics Readiness Center, and the Installation Management Command are at their standard operational support strengths. External support units are instrumental for large exercise execution concerning support activities, such as reception, staging, onward movement, and integration, as well as airfield deployment redeployment activities.
3. The division has one dedicated brigade combat team sized training element, approximately 3000 participants, available to receive, plan, and execute the training event, along with one battalion within that brigade to execute the

opposing force role. Live exercise participants greatly enhance AWFC study due to the massive amount of additional variables they add to the training. Additional training variables provide a better chance for OCs to identify issues during the training exercise for later AWFC analysis.

4. The division has enough space on its long-range training calendar with limited competing requirements, to accomplish planning milestones and execute the training event. A large joint multinational training event should be the priority event in a unit's 18-month training cycle to adequately plan and execute training objectives.
5. Standard annual division funds are available. The division should not have to request additional funds from a higher command to execute joint and multinational training, as long as cost sharing is discussed in preplanning exercise work groups.
6. The division commander oversees garrison command and the Logistics Readiness Center specific to the division's installation as this was the common relationship as of the year 2015. Division command over garrison operations increases synergy and ensures focus necessary for large exercise execution by setting priorities and issuing guidance.

To ensure a division commander gets the best results and lessons learned, it is imperative for them to dedicate a brigade combat team sized element to the training mission. The statistical probability is much larger that observations and issues will surface during the

training event due to the large number of actors in the training event.⁷¹ It is necessary for the division to coordinate either internal or external OCs to provide an independent assessment of the training event and to monitor the safety of the exercise. OC's observations and feedback are key to give the exercise results depth and legitimacy.⁷² The focus of the funding assumption, assumption number 5 above, is not on the actual dollar amount. The important point of the assumption is that a division commander could solve an Army Warfighting Challenge within the unit's fiscal budget and that the division had priority over training resources like ranges and ammunition, which are tied to external organization budgets such as the installation command.

Exercise Summaries

Based on the determination of professional military experience, research deems an exercise that meets eight or nine evaluation criteria as a highly suitable example for the study of AWFCs. An exercise that meets six or seven of the nine criteria is moderately suitable for AWFC study and an exercise that meets five or less of the nine criteria is considered a poorly suitable example for AWFC study. Regardless of the label, an exercise commander could re-engineer almost any large exercise to make it better suited for AWFC study within the bounds of various resource constraints. For example, if a certain exercise is not able to get multiple command post participation this will severely hamper AWFC study because the study is heavily reliant on communication testing. To

⁷¹ John Walker, "Introduction to Probability and Statistics," Fourmilab, March 21, 2015, accessed September 3, 2015, <http://www.fourmilab.ch/rpkp/experiments/statistics.html>.

⁷² Headquarters, Department of the Army, FM 7-0, *Training for Full Spectrum Operations*, 4-19.

mitigate command post participation shortfall, an exercise could use virtual command posts created at a local Battle Command Training Program location if available.⁷³ Virtual command posts could allow people to simulate military command posts and exercise the necessary communication training objectives, thereby achieving a good deal of AWFC study on related communication learning demands.

Research organizes the historical exercises in this chapter chronologically.

First WAVE

Exercise First WAVE represents a poorly suitable historical example for AWFC study. This exercise meets only four of the nine evaluation criteria.

Evaluation criteria positively met:

EC #2. Live observer controllers for knowledge management and safety

EC #6. A mission partner environment information system

EC #7. Division size headquarters element with senior exercise commander

EC #8. Two or more subordinate command posts

Evaluation criteria negatively met:

EC #1. Live opposing force

EC #3. Joint and multinational participation at two or more echelons

EC #4. Mixed training environments - live, virtual, constructive

EC #5. The ability to tie scenario training objectives to AWFC learning demands

EC #9. Logistics support networks - a sustainment brigade, Installation

Management Command, Logistics Readiness Center

⁷³ Headquarters, Department of the Army, FM 7-0, *Training for Full Spectrum Operations*, 4-19.

First WAVE, as an AWFC study example, could be useful for a few, very specific, AWFCs such as AWFC #14, Ensure Interoperability and Operate in a Joint, Interorganizational and Multinational Environment. Exercise First WAVE does not meet EC #1 and EC #4- live opposing force and a mixed training environment. This exercise lacked a live opposing force and was entirely virtual through flight simulators. Without live training, real world effects such as weather and temperature variables cannot be measured, which could lead to missed gaps in electronic platforms. First WAVE did not tie exercise objectives to AWFC learning demands directly. This exercise did have a robust mission partner environment information system and a breadth of multinational participation; however, it lacks EC #3-joint participation that would test a broader set of communication platforms for connectivity issues. First WAVE also fails to meet EC #9-logistic support network integration. If the exercise used live aircraft, the installation networks would be far more stressed and the additional stress could identify potential gaps in logistic integration capability. In the future, First WAVE exercise planners could tailor the exercise to broader AWFC study by the inclusion of live ground forces and more joint participation. This adjustment would give ground and air forces the chance to conduct joint maneuvers and test more AWFCs, such as AWFC #7-conduct space and cyber electromagnetic operations and maintain communications.

Exercise First WAVE was a composite air operation mission NATO training exercise conducted in 2003. The exercise involved, British, Canadian, Dutch, French, German, Italian, and U.S. aircrews.⁷⁴ The purpose of the exercise was to address the

⁷⁴ David A. Greschke and Dr. Stefano Cerutti, *Aircrew Mission Training via Distributed Simulations (MTDS) - Development of the Multi-Country Complex Synthetic*

challenge of air training over large distances and the communication networks needed to simulate the environment. Exercise controllers used a Distributed Mission Training system to monitor exercise execution. The exercise required respective countries air personnel to plan, brief, execute, replay, and debrief various air missions with real-time simulators.⁷⁵ Each country participated in the exercise from each home country through a simulator interconnected via secure data links. Objectives of the exercise were to expand distributed simulation to intercontinental distances, mitigate difficulties in long distance connections, implement systems for distributed mission planning, and assess the effectiveness of simulations for enhancing Warfighter skills in coalition force operations.⁷⁶

Locked Shields

The exercise Locked Shields presents a poorly suitable exercise for AWFC study. The exercise meets only five of the nine evaluation criteria.

Evaluation criteria positively met:

EC #1. Live opposing force

EC #2. Live observer controllers for knowledge management and safety

EC #5. The ability to tie scenario training objectives to AWFC learning demands

EC #6. A mission partner environment information system

EC #7. Division size headquarters element with senior exercise commander

Environment. (Wright-Patterson Air Force Base, OH: Simulation Technologies, Air Force Research Laboratory, 2004), 1.

⁷⁵ Ibid.

⁷⁶ Ibid.

Evaluation criteria negatively met:

EC #3. Joint and multinational participation at two or more echelons

EC #4. Mixed training environments - live, virtual, constructive

EC #8. Two or more subordinate command posts

EC #9. Logistics support networks - a sustainment brigade, Installation

Management Command, Logistics Readiness Center

Locked Shields, similar to the First WAVE exercise, is useful for specific AWFC study such as AWFC #7, Conduct Space and Cyber Electromagnetic Operations and Maintain Communications. Exercise Locked Shields does not meet EC #3-joint and multinational participation at two or more echelons. The cyber warfare branch was the main focus for this exercise. While Locked Shields had robust multinational participation, it lacked joint participation, which could have presented many more dilemmas for AWFC study by the larger number of information systems involved. Exercise Locked Shields does not meet EC #4, EC #8 and EC #9-mixed training environments - live, virtual, constructive; multiple command posts; support network integration. If exercise Locked Shields included live opposing forces, live joint forces, and support networks, it could suit a wider range of AWFC study. Having command posts participate at different levels in the exercise could test cyber defense and offense capability with more variables and opportunities to identify gaps. In addition, integrating support network information systems could test information systems not normally related to cyber warfare. The more variables and training opportunities an exercise includes, the more chance there is to identify gaps in capabilities for the military to study.

The training exercise Locked Shields was a NATO cyber defense exercise conducted in 2012. NATO's Cyber Defense Centre of Excellence organized this exercise with the goal of bringing different countries together to improve global cooperation in cyber defense.⁷⁷ The exercise involved red teams attacking blue team networks, while green and white teams tried to maintain situational awareness of the combat theater. A NATO facility in Tallinn, Estonia, hosted the exercise. The underlying issues that the exercise tested are similar to AWFC #1-developing situational understanding, AWFC #7-conduct cyber operations and maintain communications, and AWFC #14-ensure interoperability in a joint, interorganizational, and multinational environment. The exercise tested the ability to detect cyber threats, identify the source, coordinate defenses, and counter-attack the threat thereby developing a situational awareness of the cyber battle space.⁷⁸

The Locked Shields exercise was heavily reliant on an artificial intelligence system developed called the Tranalyzer. This system processed billions of pieces of data and attempted to give the exercise commander cyber situational awareness of the battle space.⁷⁹ Tranalyzer competed against two other intrusion detection systems. While highly effective at detecting malicious network activity, Tranalyzer also attempted to provide a real-time "map" of the cyber battle space to facilitate the commander's situational

⁷⁷ Florian Shultz and Stefan Burschka, "Exercise Report, Locked Shields: NATO Cyber Defense Exercise 2012" (Bern, Switzerland, RUAG Holding AG, November 12, 2012), accessed March 3, 2016, <http://www.dtic.mil/cgi-bin/GetTRDoc?Location=U2&doc=GetTRDoc.pdf&AD=ADA587810>, 1.

⁷⁸ Ibid., 2.

⁷⁹ Ibid., 3.

understanding and decision-making. The outcome of the exercise identified that sharing information led to better situational awareness. In addition, Locked Shields showed that information-sharing agreements are mandatory, and that trust was a critical enabler to information sharing between partner nations.⁸⁰

Unified Quest 2014

The Unified Quest 2014 exercise provides a highly suitable historical example for AWFC study. It meets eight of the nine evaluation criteria required.

Evaluation criteria positively met:

EC #1. Live opposing force

EC #2. Live observer controllers for knowledge management and safety

EC #3. Joint and multinational participation at two or more echelons

EC #5. The ability to tie scenario training objectives to AWFC learning demands

EC #6. A mission partner environment information system

EC #7. Division size headquarters element with senior exercise commander

EC #8. Two or more subordinate command posts

EC #9. Logistics support networks - a sustainment brigade, Installation

Management Command, Logistics Readiness Center

Evaluation criteria negatively met:

EC #4. Mixed training environments - live, virtual, constructive

⁸⁰ Joint Chiefs of Staff, *Multinational Experiment 7 Cyber Domain Outcome 3 Cyber Situational Awareness Limited Objective Experiment Report Version 1.0* (Washington, DC: Government Printing Office, 2013), 2.

Unified Quest 2014 does not meet EC #4-mixed training environments - live, virtual, constructive. While this exercise was not a large field exercise, it did replicate a large exercise through virtual and constructive means. Lacking a large training environment meant the training exercise could miss gaps, which a live training exercise could identify, such as equipment failure due to weather or failure due to harsh transportation conditions. This exercise made up for the lack of live training in the breadth of participating organizations and its global mission partner environment information system, which are both highly useful to study AWFCs. In addition, Unified Quest 2014 had tremendous senior level oversight, which drove all parties involved to focus on the training objectives. Overall, the Unified Quest 2014 exercise provides a highly suitable example for AWFC study.

ARCIC, at the forefront of capability and concept development for the military, conducts training exercises each year to research challenges and identify opportunities for the future force.⁸¹ One such exercise was Unified Quest 2014. This training event's goal was to identify areas for the Army to practice and shape joint operations, quickly, with proper scale, and with ample time to enhance security, prevent conflict, and win wars.⁸² This concept of quickly exercising joint operations could be indispensable for a division commander deploying to an unknown theater in an austere environment. A training event similar to Unified Quest 2014 could be useful if the division did not have the budget or

⁸¹ Headquarters, Department of the Army, *Unified Quest 2014 Executive Report* (Fort Eustis, VA: Printing Office, 2014), 2, accessed November 16, 2015, http://www.arcic.army.mil/app_Documents/ARCIC_Executive-Report_Unified-Quest-2014_Win-In-A-Complex-World_12Mar15.pdf.

⁸² Ibid.

time for a National Training Center rotation. Based on an understanding of the operational environment and security threat, a commander could train likely scenarios and greatly increase understanding of the threat environment before deploying to the physical location.

The framework for Unified Quest 2014 was the Army Operating Concept (AOC). The AOC is contained in TRADOC pamphlet 525-3-1, *The U.S. Army Operating Concept (AOC): Win in a Complex World*. The concept describes ways in which the Army must operate in the future within a constrained resource environment and describes the Army's contribution to global integrated operations.⁸³ A constrained resource environment is one of the toughest challenges for a division commander. The availability of training dollars limits the amount of flexibility in planning and requires the division staff to negotiate all costs up front with training exercise participants. The main objective of Unified Quest 2014 was to provide multiple options to national leaders and to synergize the efforts of multiple partners across broad geographic areas, in order to present multiple dilemmas for our adversaries.⁸⁴ All Army leaders have the responsibility to identify and train multiple combat options, within their resources, in order to give military leaders insight into what works and what does not.

While the *Army Operating Concept* provided the overall framework for Unified Quest 2014, the AWFCs were the analytical framework and tailored the study's

⁸³ Headquarters, Department of the Army, Training and Doctrine Command Pamphlet 525-3-1, *The U.S. Army Operating Concept*.

⁸⁴ Headquarters, Department of the Army, *Unified Quest 2014 Executive Report*, 2.

recommendations for the Army.⁸⁵ The analytical framework helped the military understand what issues need researching. Results of the research allowed military leadership to prioritize challenges because OCs were able to identify over 2000 observations from post-game analysis with defense partners, academia, seminars, and national security agencies.⁸⁶ As much as possible, a division commander should try to tie in as many relevant AWFCs to a training exercise, while still achieving the division training objectives, because of the common themes inherent to both division training events and AWFCs, such as mission command and joint communications.

Within the exercise model of Unified Quest 2014, working groups consisted of subject matter experts and Army planners who worked to develop the scenario framework, timeline for milestones, and culminating events.⁸⁷ As a logistics planner, sustainment personnel representation at early exercise events is important in order to receive information and manage expectations based on available resources. Informed sustainers enable future logistics success and reduce unexpected requirements at the last minute.⁸⁸

Peace Mission 2014

Peace Mission 2014 represents a highly suitable historical example for AWFC study. This exercise meets nine of the nine evaluation criteria.

⁸⁵ Headquarters, Department of the Army, *Unified Quest 2014 Executive Report*, 2.

⁸⁶ Ibid.

⁸⁷ Ibid., 3.

⁸⁸ Joint Chiefs of Staff, JP 4-0, *Joint Logistics*, I-9.

Evaluation criteria positively met:

EC #1. Live opposing force

EC #2. Live observer controllers for knowledge management and safety

EC #3. Joint and multinational participation at two or more echelons

EC #4. Mixed training environments - live, virtual, constructive

EC #5. The ability to tie scenario training objectives to AWFC learning demands

EC #6. A mission partner environment information system

EC #7. Division size headquarters element with senior exercise commander

EC #8. Two or more subordinate command posts

EC #9. Logistics support networks - a sustainment brigade, Installation

Management Command, Logistics Readiness Center

Evaluation criteria negatively met:

-none-

While not AWFC targeted, Peace Mission 2014 is similar in scope to the Army Warfighting Assessment 16.1/Bold Quest exercise. The Peace Mission 2014 exercise example is a massive exercise that encompasses all nine of the evaluation criteria. Of note for this exercise, were the more than 8,000 live participants involved. The number of participants, along with the harsh training environment in northern China, allowed for a very large probability of gaps to be identified during various training objectives. Peace Mission 2014 had five participating nations involved with similar equipment sets mostly purchased from China and Russia. Having a greater number of nations participate with different equipment sets could offer better AWFC communication testing. Different communication sets could reveal gaps in the communication architecture's hardware or

software. Overall, this exercise represents a highly suitable historical example for AWFC study.

From 24 to 29 August 2014, the Shanghai Cooperation Organization held Peace Mission 2014 at China's Zhurihe Training Base located in Inner Mongolia, Northern China. The exercise involved China, Russia, Kazakhstan, Tajikistan, and Kyrgyzstan with the goal of demonstrating to adversaries their united commitment to fighting terrorism, separatism, and extremism.⁸⁹ The exercise involved over 8000 Soldiers, 70 aircraft, and a combination of tanks and precision munitions. The red force was a constructed force of 2000 fighters with tanks, missiles, and light aircraft. The exercise trained on joint precision strikes, integrated air-ground assaults, aerial reconnaissance, joint hostage rescue, and urban assault missions.⁹⁰ The exercise had a joint command center and multinational command post that oversaw the operation. The exercise resulted in a proof-of-concept for forces stationed in the central Asian region of China.

Pathways 15-01

Pathways 15-01 represents a highly suitable historical example for AWFC study. This exercise meets all nine of the evaluation criteria.

Evaluation criteria positively met:

EC #1. Live opposing force

EC #2. Live observer controllers for knowledge management and safety

⁸⁹ Richard Weitz, "Analyzing Peace Mission 2014: China and Russia Exercise with the Central Asian States," Second Line of Defense, October 8, 2014, accessed March 3, 2016, <http://www.sldinfo.com/analyzing-peace-mission-2014-china-and-russia-exercise-with-the-central-asian-states>, 1.

⁹⁰ Ibid., 2.

EC #3. Joint and multinational participation at two or more echelons

EC #4. Mixed training environments - live, virtual, constructive

EC #5. The ability to tie scenario training objectives to AWFC learning demands

EC #6. A mission partner environment information system

EC #7. Division size headquarters element with senior exercise commander

EC #8. Two or more subordinate command posts

EC #9. Logistics support networks - a sustainment brigade, Installation

Management Command, Logistics Readiness Center

Evaluation criteria negatively met:

-none-

While this exercise had higher-level support from U.S. Army Pacific Command for planning and execution, many principles are applicable to division planners. Pathways 15-01 had robust joint and multinational involvement including U.S. Army, Navy, and Air Force participation. The U.S. conducted the exercise over a longer time-span than the Army Warfighting Assessment 16.1/Bold Quest, which allowed for a greater number of AWFC observations to be collected. In addition, the exercise utilized operational and strategic logistics support networks that heavily tested their capability to operate over vast expanses in the Pacific Ocean. Operating over longer distances enhanced the stress and chance for real-world issues to arise, which helped to identify capability gaps in network systems. Pathway 15-01 also exercised repetition of training objectives like

deployment and redeployment, which further stressed systems due to changes in environment, climate, intel variables, protection, and dynamic transitions.⁹¹

Exercise planners designed Pathways 15-01 around the Army's roles in the joint force as outlined in the Department of Defense Quadrennial Defense Review 2014.⁹² The goal of the exercise was to build a broader set of readiness outcomes beyond National Training Center activities in the U.S. that mainly focus on brigade size units and below. Pathways 15-01 was an innovation experiment involving deployment and operation.⁹³ The result of Pathways 15-01 innovation was an operation which deployed forces from multiple locations to exercise mission command and integrate joint, interorganizational, and multinational enablers. The exercise also trained on 18 of the 20 current AWFCs and demonstrated part of the Army Operating Concept by responding globally and conducting joint operations.⁹⁴ Continued Pathways operations will serve to preserve joint freedom of movement and action in the Pacific Ocean.

The Pathways 15-01 concept consisted of one operation executed over five phases and supported three security cooperation exercises. Phase I, Preparation, entailed joint exercise lifecycle events such as a National Training Center rotation, pre-deployment activities, and combined arms rehearsal.⁹⁵ Phase II, Deployment, involved deployment to

⁹¹ Headquarters, Department of the Army, "Army Lessons Learned Forum," General Officer Steering Committee, July 1, 2015, 79.

⁹² Ibid., 77.

⁹³ Ibid., 73.

⁹⁴ Ibid., 77.

⁹⁵ Ibid., 75.

Thailand for the Cobra Gold exercise and joint reception, staging, onward movement, and integration (JRSO&I) activities. Phase III, Exercise and Onward Movements, saw the Cobra Gold exercise execution, additional JRSO&I, and the completion of the Balikatan exercise executed between the U.S. and Philippines. Phase IV, Redeployment, involved point-of-embarkation and point-of-debarkation activities and movement back to home station in Hawaii. Phase V consisted of recovery and after-action review activities along with equipment recovery.⁹⁶ Pacific Pathway 15-01 provides a highly suitable historical example for AWFC study.

Network Integration Exercise 15.1

The Network Integration Exercise (NIE) 15.1 exercise provides a moderately suitable historical example for AWFC study. This exercise meets six of the nine evaluation criteria.

Evaluation criteria positively met:

EC #1. Live opposing force

EC #2. Live observer controllers for knowledge management and safety

EC #4. Mixed training environments - live, virtual, constructive

EC #6. A mission partner environment information system

EC #8. Two or more subordinate command posts

EC #9. Logistics support networks - a sustainment brigade, Installation

Management Command, Logistics Readiness Center

⁹⁶ Headquarters, Department of the Army, "Army Lessons Learned Forum," 76.

Evaluation criteria negatively met:

EC #3. Joint and multinational participation at two or more echelons

EC #5. The ability to tie scenario training objectives to AWFC learning demands

EC #7. Division size headquarters element with senior exercise commander

NIE 15.1 does not meet EC #3-joint and multinational participation at two or more echelons. Joint and multinational involvement is critical for AWFC study to identify interoperability gaps caused by differing information systems, languages, and cultures. Lacking joint and multinational involvement hampers NIE 15.1's ability to identify significant gaps in DOTMLPF domains. NIE 15.1 does not meet EC #5- the ability to tie scenario training objectives to AWFC learning demands. The exercise tied training objectives to material equipment test and evaluation rather than AWFC learning demands. Tying training objectives to test and evaluation activities rather than AWFCs could force exercise participants to work around or ignore capability gaps that would otherwise be included in OC observations for future study. NIE 15.1 does not meet EC #7-a division size headquarters element with senior exercise commander. This criterion is necessary because it affects the overall command and control of training exercises. Having a division headquarters element allows better focus on training objectives and helps to minimize external distractors from interfering in the AWFC study. A senior exercise commander could ensure exercise priorities remained the focus. It is important to point out that exercise planners did not design the NIE 15.1 exercise directly for AWFC study. Lacking those evaluation criteria should not be looked at negatively but simply as how the exercise was designed.

Unlike the Army Warfighting Assessment exercise series, the U.S. Army designed the Network Integration Exercise series to test rapid acquisition and deliberate solutions as well as upgrade and integrate the Army's tactical network.⁹⁷ Like the AWA, the Brigade Modernization Command was the lead agent for the NIE along with two other organizations, the U.S. Army Test and Evaluation Command (ATEC) and the System of System, Engineering and Integration Directorate (SoSEI). These three organizations, collectively called the "TRIAD," fall under the Assistant Secretary of the Army for Acquisition, Logistics, and Technology (ASALT). Similar to the AWA, the NIE assessed non-networked and networked solutions to AWFCs to determine their applicability across DOTMLPF domains.

ARCIC executed the NIE 15.1 over four weeks in October 2014 with the primary purpose of conducting Defense Acquisition System required evaluations, which drive Program of Record milestones and funding decisions.⁹⁸ The exercise completed a Network Baseline Assessment designed to set conditions for network development in the future in support of Army mission command Force 2025 objectives, such as establishing the enhanced Network 2.0 baseline that the Army will use for future mission command networks.⁹⁹ The Army gauged the success of the NIE exercise through lessons learned after the participating Soldiers took the networked equipment and tactics into a live training environment for evaluation. Live training for operational environment testing is

⁹⁷ Headquarters, Department of the Army, "Key Initiatives," accessed April 5, 2016, <http://www.arcic.army.mil/Directorates/brigade-modernization.aspx>.

⁹⁸ Headquarters, Department of the Army, F104RA, *Developing Materiel Capabilities*, 11.

⁹⁹ Headquarters, Department of the Army, "Key Initiatives."

preferable to static or simulated tests¹⁰⁰ because many more variables, such as weather and terrain, can produce quality observations.

The NIE series is a key enabler to the Defense Acquisition System; however, research does not support using the NIE as a model for the thesis of this paper. While an exceptionally important exercise for the Department of Defense and joint force management, division planners should not use the Network Integration Exercise as a model for divisions to follow in order to develop solutions to AWFCs. The NIE model does have lessons learned for division staff such as how to prepare accurate and detailed findings and how to implement and coordinate observer controllers for the best data collection effort.¹⁰¹ However, the NIE model is not suitable for divisions because most divisions do not have requisite enablers to conduct test and evaluation exercises such as Secretary of Defense authorization, Department of Defense (DoD) oversight, Research Development Test & Evaluation (RDT&E) funds, and access to the latest Programs of Record.

Army Warfighting Assessment 16.1/Bold Quest

The Army Warfighting Assessment (AWA) 16.1/Bold Quest (BQ) exercise provides a highly suitable historical example for AWFC study. It meets all nine of the evaluation criteria.

¹⁰⁰ Headquarters, Department of the Army, “F104RA, *Developing Materiel Capabilities*, 10.

¹⁰¹ For more information, refer to the BMC SharePoint portal library; Researcher must have a Department of Defense issued common access card to access.

Evaluation criteria positively met:

EC #1. Live opposing force

EC #2. Live observer controllers for knowledge management and safety

EC #3. Joint and multinational participation at two or more echelons

EC #4. Mixed training environments - live, virtual, constructive

EC #5. The ability to tie scenario training objectives to AWFC learning demands

EC #6. A mission partner environment information system

EC #7. Division size headquarters element with senior exercise commander

EC #8. Two or more subordinate command posts

EC #9. Logistics support networks - a sustainment brigade, Installation

Management Command, Logistics Readiness Center

Evaluation criteria negatively met:

-None-

Although meeting all nine evaluation criteria, this exercise was a proof of concept, and more could have been done to improve the mission partner network information system. Based on after-action review assessment, earlier communication between all partners involved would have improved the integration of exercise participants.¹⁰² One outstanding aspect of this exercise was the harsh training environment at Fort Bliss, Texas, which taxed the training objectives and provided multiple dilemmas for exercise participants. In addition, the large size of the Fort Bliss training area allowed for brigade

¹⁰² Headquarters, Department of the Army, "Network Integration Evaluation 16.1-Army Warfighting Assessment-After Action Review" (PowerPoint Brief, October 8, 2015).

size movements that further stressed communication and synchronization between ground and air elements.

The Brigade Modernization Command in conjunction with the Joint Staff J7 and the 1st Armored Division, planned and executed AWA 16.1/BQ at Fort Bliss, Texas, in October 2015. The exercise mission was to conduct evaluation and integration of network, non-network, and evolving capabilities to provide DOTMLPF recommendations to ARCIC and Army leadership.¹⁰³

The goal of the Army Warfighting Assessment 16.1/Bold Quest was a proof of concept exercise that combined three exercises into one large joint multinational training event, which included fourteen allied countries totaling approximately 5,000 participants. The AWA exercise series provides the military the ability to test new concepts in an experimental environment in order to identify sustainment needs and shape requirements for joint multinational interoperability.¹⁰⁴ The AWA 16.1/BQ provides a good model for other division commanders to follow because it was built around the abilities of the 1st Armored Division and common support networks available at most Army bases, such as the Logistics Readiness Center and Installation Management Command. Some of the test concepts were network and non-network evaluations such as an expeditionary base camp, command post systems, and unmanned systems to help shield Soldiers from harm and

¹⁰³ Headquarters, Department of the Army, Army Capabilities Integration Center Directorates, Brigade Modernization Command, <http://www.arcic.army.mil/Home/index.aspx>.

¹⁰⁴ Vanessa Flores, "New technologies signify shift in assessing Army innovation, shaping requirements," SoSE&I Public Affairs, July 29, 2015, accessed February 9, 2016, www.army.mil/article/153017, 1.

conserve their critical resources.¹⁰⁵ The AWA plans using an eighteen-month calendar from start to finish. Exercise planners could use a timeline similar to the AWA and tailor it to a division long-range calendar as the primary training event for a division.

For a division commander to create an exercise like the AWA, the results can be directly linked to the main thesis of this paper: How a division commander can solve Army warfighting challenges through joint multinational training events. By creating an exercise from scratch or re-engineering a current exercise, division commanders could experiment with concepts in an environment that helps to identify new capabilities or shortfalls.¹⁰⁶ They could test solutions to Army Warfighting Challenges. After the exercise, through staff analysis, division commanders could recommend changes across the DOTMLPF domains to the Centers of Excellence who oversee the AWFCs and associated learning demands.

Massive Joint Multinational Training Exercise

While exercises vary depending on the amount of live, virtual, and constructive simulation, many large exercises follow similar models. The key is to identify which model best suits the needs of the training division and what resources are available at home station training centers. For example, are there Close Combat Tactical Trainers, Engagement Skill Trainers, and Mission Command Training Centers available for combined arms training?¹⁰⁷ Exercise models vary mostly on the amount of live training.

¹⁰⁵ Ibid., 2.

¹⁰⁶ See Glossary for shortfall definition.

¹⁰⁷ Headquarters, Department of the Army, FM 7-0, *Training for Full Spectrum Operations*, 4-20.

Any training that is not live, a division could conduct through either simulation or virtual means. For example, if only one brigade out of the division is participating live in the exercise, then the other brigade command posts could be setup at a minimum to benefit from the command and control training value. The other brigade combat units could be constructive within the simulation so that the division commander and staff benefit from the entire common operating picture (COP) training experience.¹⁰⁸

The amount of live training is normally the deciding factor when considering exercise planning decisions, as it is the most expensive part due to the high logistics costs of troop movement and sustainment.¹⁰⁹ Simulated and virtual training allow for similar effects and training value,¹¹⁰ but with reduced costs and logistics requirements. Live training is also heavily dependent on the available training land and ranges to support brigade-sized movements. For example, does IMCOM offer explosive simulations, laser engagement equipment to monitor enemy and friendly fire hits, enemy uniforms, and enemy vehicle kits for the opposing force? These enablers are necessary for realistic live training, and each costs money to use, train, and operate. It is imperative that the division staff synchronizes closely with the installation management command to prioritize and

¹⁰⁸ Headquarters, Department of the Army, FM 7-0, *Training for Full Spectrum Operations*, 4-21.

¹⁰⁹ Military Analysis Network, “United States Military Exercises,” accessed April 12, 2016, <https://fas.org/man/dod-101/ex>.

¹¹⁰ This is a hotly debated assertion among Department of Defense military and civilian personnel and further research needs to be conducted before considered factual.

manage these scarce resources for the best possible training outcomes and to minimize redundant costs.¹¹¹

The division does not have to bear the cost burden of the entire training event alone. Each participating unit or capability should understand that the commonly accepted payment model for an exercise of this size is pay-to-play.¹¹² The pay-to-play model simply means that units wanting to participate in the exercise are responsible to pay or reimburse costs for commonly used logistics: training meals, billeting, transportation, equipment installation, network equipment integration, boxing and banding services, material handling equipment, ammunition, fuel, and civilian overtime if necessary.¹¹³ The purpose of the pay-to-play method is not to saddle excessive costs on units, which may not have the funding capacity or flexibility like divisions do. The purpose is to make clear up front what costs are expected so that units can make early informed decisions on whether or not the training is cost effective within their training plan. Many units, such as National Guard and U.S. Reserve units, plan years out so the sooner exercise planners develop cost estimates, the better.

Unfortunately, learned through observation of past training events, exercise cost seems to be a taboo subject not discussed until much too late in the planning process, such as three months out from execution. Only then did units receive real cost estimates

¹¹¹ Headquarters, Department of the Army, FM 7-0, *Training for Full Spectrum Operations*, 4-28.

¹¹² Rarely, but on some occasions the U.S. Congress will create a special appropriation fund for a training event with reasonable justification.

¹¹³ Headquarters, Department of the Army, FM 7-0, *Training for Full Spectrum Operations*, 4-20.

and as a result, sometimes withdrew from the exercise due to lack of funding. Delays in accurate cost estimates led to operational plan changes late in the planning process that destabilized the entire exercise. In addition, staffs wasted significant person-hours on planning and coordinating for a unit that could no longer attend the training event. Research in this paper shows that it is best to avoid late finance discussion and be as clear and upfront as possible about the possible exercise costs. Early agreements about financing a training event help to minimize unplanned changes in the future, which could derail an important training event and take focus off the most important part of the exercise--the training.

Chapter 4 focuses on analysis of historical training exercises to determine whether those exercises are suitable for the study of AWFCs. Exercises identified as suitable for AWFC study help to answer the “how” in the primary research question: How can a division commander solve AWFCs through joint and multinational exercise training? The exercise evaluation criteria outlined in chapter 3, deemed by the research as essential criteria to AWFC study, shows key focus areas a division commander could use to setup a future training exercise and incorporate AWFCs into the training objectives. In addition, six key assumptions about a division, outlined in the beginning of chapter 4, form the basis for division planners to setup future large AWFC training events.

The evaluation criteria for this study are not all encompassing. As stated previously, there are simply too many variables to account for all possible outcomes in AWFC study. Research based the evaluation criteria in chapter 3, on the AWFC methodology discussed in chapter 2, and professional military experience from planners at the BMC whose sole purpose is to test and evaluate solutions to AWFC. The criteria in

this thesis are common best practices in use for AWFC training exercises within ARCIC and the BMC.¹¹⁴

In chapter 4, the research shows example exercises compares them to what doctrine states about AWFC learning demands. The research identifies those exercises that trained or had the capability to train AWFCs. With the exercises identified that have the capability to train AWFCs, divisions could use the research data to facilitate future exercise planning and improve AWFC training capability and capacity in their own training plan. Research in chapter 4 also shows exercises, which do not meet the evaluation criteria and identifies how planners might re-engineer exercises in ways that could make them useful to future AWFC study.

Chapter 5 provides the conclusions and recommendations formed by the research in this thesis. In addition, the chapter provides a brief summary of the findings in chapter 4 and discusses meaning and implications for the military. Chapter 5 also provides recommendations for future research, identifies unanswered questions, and recommends necessary action that may be useful for division planners concerning AWFC study. Chapter 5 ends with a brief summary and conclusion of the research.

¹¹⁴ Headquarters, Department of the Army, “Network Integration Evaluation 16.1-Army Warfighting Assessment-After Action Review.”

CHAPTER 5

CONCLUSIONS AND RECOMMENDATIONS

Introduction

Chapter 4 outlined the research analysis of historical training exercises and evaluated each exercise against evaluation criteria developed in chapter 3. Identifying whether an exercise is suitable for AWFC study gives military planners a starting point to plan future exercises. In addition, showing what exercises are best suited to AWFC study helps answer the research questions in chapter 5. Also listed in chapter 4 are key assumptions that should be true about a division and local training area in order to make AWFC study most effective.

Chapter 5 begins with the section, *Research Questions* that provides background on the primary and secondary research questions and shows how the research in chapters 2 and 4 answers the research questions. The next section, *Doctrine Analysis*, identifies ideas and insights from joint and Army doctrine on the direction of the U.S. military in the future. In addition, what challenges the force will face with regard to interdependence, mission command, and future development. The section, *Recommendations*, outlines ideas for future AWFC research, shows what future exercise planners could do differently, and identifies areas that the military could take action on immediately to improve AWFC study in a resource-constrained environment. Lastly, this section shows a trend analysis based on the chronology of the historical training exercises and how they progressed over the timeframe from 2003 through 2015. Chapter 5 ends with the conclusion to the research report.

Research Questions

The research findings in this paper outline why a division commander benefits from Army Warfighting Challenge study. The AWFCs are systemic challenges that negatively affect the readiness and combat power of Army divisions. Through the study of AWFCs, a division commander can increase the division combat power, and improve the readiness of the force by providing crucial data to Army leadership on insights and lessons learned through the AWFC training exercises. Applying lessons learned enable the Army and larger joint force to move continuously toward solving individual AWFCs and improving the capability of the military to fight and win America's wars.

The study of the Army Warfighting Challenges is not a short endeavor. It most likely requires much more time and many studies before the United States fully grasp the significance of the challenges the military faces. It is immensely important that studies utilize accepted research methodologies when looking at the AWFCs because the executive and legislative branches of the U.S. government will rely on those studies for future decision making and funding. In an effort to meet the significance and validity requirements necessary for scholarly work, research in this paper utilized qualitative research methods along with historical and autoethnography research techniques to provide the highest information quality possible. Research methods in this paper also facilitated understanding and pushed forward the collective understanding of the Army Warfighting Challenges based on the main thesis question of this paper: How can a division commander solve an Army Warfighting Challenge through joint multinational exercise planning?

Chapter 4 answered the primary thesis question. Chapter 4 identified ways through which a division commander could train on AWFCs by identifying historical exercises of large joint and multinational training events for reference. Utilizing the knowledge gained from past AWFC exercises and incorporating innovative training into future exercises, a division commander is in the best position to solve Army Warfighting Challenges through large joint and multinational exercise training.

Chapter 4 used evaluation criteria developed in chapter 3, based on doctrine and Army test and evaluation best practices, to identify the training exercises that offered the best opportunity to study AWFCs. The exercises, ranked as either highly suitable, moderately suitable, or poorly suitable for the study of AWFCs, help a division planner identify the best application for their next exercise. Along with a brief exercise summary, each exercise analysis identified what changes could be made for future iterations, based on the evaluation criteria, to increase the exercises suitability for AWFC study. If planners could make an exercise more suitable for AWFC study, then the exercise could better facilitate the development of understanding and lessons learned that are needed to solve AWFCs. Joint doctrine says that future leaders must be innovative professionals that can adapt quickly to ever changing threats.¹¹⁵ Rapidly adjusting training opportunities is one way to overcome changing threats.

Chapter 2 answered the secondary research question. Why is it important for a division to solve Army Warfighting Challenges? The research in chapter 2 showed that divisions must be able to command and control joint forces. The land force must be the

¹¹⁵ Sue Ulibarri, “Perkins outlines how and why to ‘Win in a Complex World,’” U.S. Army Training and Doctrine Command Public Affairs, April 1, 2015, accessed February 9, 2016, www.army.mil/article/145638.

foundation to synchronize joint force efforts.¹¹⁶ In addition, chapter 2 showed that many of the AWFCs are systemic to joint and multinational operations that a division command could face. Without training on AWFCs, a division commander cannot realize the full synergy of the combined force.¹¹⁷ The next section, *Doctrine Analysis*, goes into further detail on what military doctrine states about what a command should be capable of and how AWFCs affect the command's capability.

Doctrine Analysis

This section provides conclusions and recommendations for division commanders, military planners, and government civilians, based on the findings of the research in this paper. Findings include the necessity for a division to train on AWFCs, multinational interdependence, and the ability of a division commander to solve AWFCs through joint and multinational training exercises.

Joint Multinational Interdependence through Trust

A significant amount of U.S. Army combat strength is devoted to sustainment, not only of Army forces, but also of joint and multinational forces.¹¹⁸ In order for 5,000 service members to relocate themselves and their equipment for a training event, some traveling across the globe, there must be an understood trust that they will be supported and not be left to fend for themselves in a foreign place. Early in the planning process,

¹¹⁶ Ulibarri, "Perkins outlines how and why to 'Win in a Complex World.'"

¹¹⁷ Joint Chiefs of Staff, JP 1, *Doctrine for the Armed Forces of the United States*, I-2.

¹¹⁸ Headquarters, Department of the Army, ADP 1, *The Army*, 3-7, 3-22.

the division commander can build mutual trust and create a shared understanding and purpose by exercising mission command.¹¹⁹ Mission command is the exercise of authority by the commander, through orders, to enable disciplined initiative within the commander's intent to empower agile adaptive leaders in the conduct of unified land operations.¹²⁰ Division commanders must understand that they cannot provide direction and guidance for all possible issues. However, they can issue guidance early on that all exercise participants are treated with the highest values and respect that the U.S. holds important. That is why team building through mutual trust is the most important factor for the primary research question. How can a division commander solve an Army Warfighting Challenge?

Hosting a major training event within the borders of the United States is a challenge, but participating in or leading joint and multinational training events in another country is a feat all its own due to complex laws, language barriers, and local infrastructure differences. The Army Strategic Planning Guidance for 2012 states that, in all the mission areas the Army will consider joint interdependence as a best value solution.¹²¹ Joint interdependence is the ability for one armed service to rely on the capabilities of another armed service for common use needs that each service shares, such as fuel, food, and water. As evidenced in nearly every U.S. conflict for the past 100 years,

¹¹⁹ Headquarters, Department of the Army, Army Doctrine Publication (ADP) 6-0, *Mission Command* (Washington, DC: Government Printing Office, 2012), 2-5.

¹²⁰ Headquarters, Department of the Army, ADP 1, *The Army*, 1.

¹²¹ *Ibid.*, 3-2.

the military has relied on the expertise or capabilities of other military services and host nations to build and sustain their combat power.¹²²

Not only must the United States joint force rely on each service for interdependence, so, too, must the U.S. military learn to rely on its partner nations for multinational interdependence as a best value solution.¹²³ Partner nations have specialized capabilities and historical understanding in many areas of the world in which the U.S. has no authority or profound historical knowledge. The U.S. war in Iraq in 2003 serves as such an example. According to one journalist, for all the intensity of the fighting, one of the most striking aspects in hindsight is how little the generals prepared the Army to fight.¹²⁴ Most brigade commanders did not have a cultural or military understanding of how to fight a guerrilla insurgency while conducting stability operations.¹²⁵ Division commanders must be able to recognize and utilize multinational interdependent capabilities in order to maximize influential power. By enabling all players in a multinational training operation and confronting AWFC #12-Conduct Joint Expeditionary Maneuver and Entry Operations, and AWFC #14-Ensure Interoperability and Operate in a Joint Interorganizational and Multinational Environment, the division

¹²² Support such as interpreters, potable water, transportation, and contract support.

¹²³ Joint Chiefs of Staff, JP 3-16, *Multinational Operations*, I-7.

¹²⁴ Dexter Filkins, "The Fall of the Warrior King," *New York Times*, 23 October 2005, accessed March 3, 2016, <http://www.nytimes.com/2005/10/23/magazine/the-fall-of-the-warrior-king.html>, 5.

¹²⁵ Ibid.

commander can achieve economies of scale that are tremendously powerful against a common threat or multiple threats.¹²⁶

Multinational interdependence is one aspect of this thesis in which the research steps beyond established U.S. joint doctrine. As of 2015, joint doctrine refers to multinational interoperability in a number of areas but nowhere could research find mention of multinational interdependence.¹²⁷ The United States Army and joint force must be able to accept multinational interdependence as fact in future combat operations to maximize combat power.¹²⁸ Just as joint interdependence assumes some risk, multinational, or for that matter, interagency interdependence assumes risk. However, the risk is spread across more entities, making the cause for success even stronger. Herein lies the key to building economies of scale-mission command through unified action.¹²⁹ If all entities participating in an operation are a cohesive team built through trust with a shared understanding of the problem and a common goal, then leaders receive assurance that combat power is at its maximum.¹³⁰ America's security requirements are global.¹³¹ The U.S. military can no longer suffer the cost of unilateral action, nor should it; the

¹²⁶ Joint Chiefs of Staff, JP 1, *Doctrine for the Armed Forces of the United States*, 4.

¹²⁷ Joint Chiefs of Staff, JP 3-16, *Multinational Operations*, I-9.

¹²⁸ Joint Chiefs of Staff, JP 4-0, *Joint Logistics*, III-17.

¹²⁹ Headquarters, Department of the Army, ADP 6-0, *Mission Command*, 2, 8.

¹³⁰ Joint Chiefs of Staff, JP 3-16, *Multinational Operations*, I-9.

¹³¹ Headquarters, Department of the Army, ADP 1, *The Army*, 3-5.

exponential advantages of multinational interdependence are a combat multiplier as well as a cost saver.

Cyber Interdependence

Just as kinetic combat forces must move away from unilateral action, so, too, must cyber electromagnetic combat forces. Unilateral action has limited effect in cyberspace. The Internet is built on a global network architecture; therefore, any military action, which occurs in cyberspace, should be multinational to be most effective.¹³² Increasingly, the ability of the Army to employ capabilities relies heavily on cyber electromagnetic capability.¹³³ Adversaries rely on the same networks that most other countries use. The shared network backbone of the Internet is both a benefit and a hindrance. The Army is a contributor to and a major beneficiary of multinational capabilities in both space and cyberspace.¹³⁴ Without the support of other countries, the U.S. cannot efficiently combat cyber terrorism because most offense actions in cyberspace must negotiate the backbone networks of other countries in order to reach the target. The extent that the joint force protects friendly networks or degrades adversary networks is intrinsic to combined arms.¹³⁵ A division commander's mastery of combined arms, using the full array of joint and multinational capabilities, is a decisive factor in

¹³² Joint Chiefs of Staff, JP 3-16, *Multinational Operations*, III-31.

¹³³ Headquarters, Department of the Army, ADP 1, *The Army*, 3-7, 3-21.

¹³⁴ *Ibid.*, 3-3, 3-6.

¹³⁵ *Ibid.*, 3-7, 3-21.

breaking the enemy's will to fight.¹³⁶ Maximizing combat power reinforces the main thesis of this paper; combined arms multinational exercise training to solve critical Army Warfighting Challenges will prepare a division commander to face known and unknown threats in future wars.

The evidence in joint and Army doctrine cannot stress enough, whether in cyberspace or on firm ground, sea, or air, that American control of the global commons solicits tactical, operational, and strategic advantages to joint forces.¹³⁷ U.S. armed forces cannot afford to be complacent when given an advantage of multinational capability and be unable to utilize that combat multiplier to seize the initiative. The best way a division commander can accurately assess multinational capability is to train and evaluate its effort. In today's multinational force, theater integration capabilities of World War II and the Vietnam War are now found integrated at the small-unit level.¹³⁸ Platoon leaders are able to call upon capabilities such as air, maritime, and space-based options that were unheard of in past wars. The tactical effects of interdependence are extraordinary and foretell new ways of operating.¹³⁹

Future Development

The U.S. military found itself, after the U.S. Civil War and World War I, in a position of not knowing where the next war would take place or who the enemy would

¹³⁶ Headquarters, Department of the Army, ADP 1, *The Army*, 3-4, 3-9.

¹³⁷ *Ibid.*, 3-8, 3-26.

¹³⁸ *Ibid.*, 3-27.

¹³⁹ *Ibid.*, 3-9, 3-29.

be. Currently, the United States does not have a clear vision for where the next war will take place or whom it will be fighting. Despite a clear understanding of the pattern of future conflict after the Civil War, the military developed skills in operational art, logistics, tactics, and joint cooperation.¹⁴⁰ After World War I, the military was able to adapt large numbers of new recruits and train them into a force that defeated the German army.¹⁴¹ An unknown future is not new to the profession of the U.S. military and should not be an obstacle to future development.

Today the United States military confronts an unpredictable security environment.¹⁴² The U.S. military must develop a land force as part of the future Joint Force 2020 and, at the same time, remain flexible to meet unknown requirements.¹⁴³ A division commander can play a critical role by conducting adaptive training on a wide range of operations and testing new ideas and concepts based on the last wars' lessons learned. By conducting adaptive training, a division commander builds operational adaptability, or the ability to adjust rapidly to shape an operational environment, prevent crises, and win wars.¹⁴⁴ Operational adaptability is a key factor in the ability to respond to unknown future crises and conflicts.

¹⁴⁰ Headquarters, Department of the Army, ADP 1, *The Army*, B-3, B-6.

¹⁴¹ *Ibid.*, B-5, B-13.

¹⁴² Association of the U.S. Army's Institute of Land Warfare, "Milley: Big Army Advances Are a Decade Away."

¹⁴³ Headquarters, Department of the Army, ADP 1, *The Army*, 4-2, 4-2.

¹⁴⁴ *Ibid.*, 4-3, 4-4.

By applying the lessons from this thesis on how to conduct multinational exercise training, division commanders can ensure all leaders under their command understand the complex operational environment they will face in future conflicts. Increasingly each day, service members enter the U.S. military without combat experience, while experienced service members are separating from military service. As the military goes through the current post-war transition, Army leadership is charged with stewardship of the profession.¹⁴⁵ Leaders at all levels must pass on the knowledge gained from the most recent conflicts and encourage new leaders to conduct meaningful research on how those battles were won or lost. Through in-depth research, thought, and innovation, division commanders can make informed recommendations to military leadership on the best practices for joint and multinational employment. By developing best practices on new ways of fighting and winning wars, commanders ensure that training plans focus on the newest and most relevant tactics and procedures. For the foreseeable future, the military must be able to train its new forces, both enlisted and officer, for an unknown war in an unknown place. Winning in a complex world requires that commanders ensure the development of new military expertise and that they pass on expertise to aspiring professionals.¹⁴⁶ Instructing young leaders in the military profession ensures capable, adaptable personnel forces ready to take on unforeseen challenges.

¹⁴⁵ Headquarters, Department of the Army, ADP 1, *The Army*, 4-7, 4-19.

¹⁴⁶ *Ibid.*

Recommendations

This section outlines future research available for scholars regarding AWFC study. Due to the time limitations for the research and certain security access requirements, this thesis omitted some areas of multinational and interagency research. For example, research into United Nations (UN) and North Atlantic Treaty Organizations (NATO) allied publications requires a specific security access. In addition, this section provides recommendations for researchers to use different research approaches to AWFC study. Research using a different methodology could save person-hours and get sources better focused on the main research topic. Lastly, this section outlines actions for immediate implementation that, within a resource constrained environment, could further AWFC study while not exceeding budget allowances. Research trend analysis bases the recommended actions in this section. Actions that the military could take today would greatly broaden AWFC study and information collection. Broader AWFC study could lead to more proposed and implemented solutions to Army Warfighting Challenges.

Future Research

Due to the large volume of regulations among military organizations, more research is required concerning joint, interagency, intergovernmental, and other government agency participation. In addition, a plethora of multinational training research areas, such as the UN and NATO remain available for research. On the technology front, the research in this paper identified cyber multinational interdependence as a budding subject that also needs further research as the cyber field of study is rapidly evolving, while current Army regulation is trying to catch up.

UN and NATO rules require research institutions to have special permission to access documents and conduct research.¹⁴⁷ For the purposes of this research, such approved institutions were not available within the timeframe to complete the research. Researchers with access to UN and NATO allied publications could seek to identify ways in which other countries are attempting to solve AWFC-like problems within their respective militaries. It is possible that researchers could glean useful lessons learned from the works of other nations that regularly conduct joint and multinational exercises. A robust Internet based partner sharing network could aid in that effort if large repositories of data were in one place. U.S. Joint Publication 3-16, *Multinational Operations* provides a good starting point for multinational publication research.¹⁴⁸

Many of the AWFCs also affect the U.S. Department of State and the U.S. Agency for International Development during combined operations. Interagency synchronization is important because agency coordination forges the critical link between the military and diplomatic, informational, and economic instruments of national power.¹⁴⁹ AWFCs, such as AWFC # 1-Develop Situational Understanding and AWFC #14-Ensure Interoperability and Operate in a Joint, Interorganizational, and Multinational Environment, are critical to the success of combined operations. Future research focused on intergovernmental organizations, and what their doctrine allows for combined exercise participation, could provide valuable lessons learned for government planners. Research

¹⁴⁷ Joint Chiefs of Staff, JP 3-16, *Multinational Operations*, I-8.

¹⁴⁸ Ibid.

¹⁴⁹ Joint Chiefs of Staff, JP 1, *Doctrine for the Armed Forces of the United States*, II-13.

could also make recommendations on how to better integrate U.S. organizations into joint and multinational training exercises. The integration of intergovernmental organizations could provide more observations and lessons learned to further AWFC study. With the recent wars in Iraq and Afghanistan, the complexity of interagency coordination is obvious; therefore, all parties must work together to achieve unified action. Unified action is the foundation for achieving the national strategic direction.¹⁵⁰ Without unified action, the U.S. government loses unity of effort.

Like UN and NATO publications, cyber interdependence is a large subject of unexplored research. Also like UN and NATO publications, information classification security rules govern who is allowed to conduct research into cyber areas. Researchers with proper access could focus research on integrating cyber operations into the study of AWFCs. Future cyber research might lead to new AWFCs not yet conceived of by ARCIC, or possibly lead to solving or negating a current AWFC through a new idea or change to DOTMLPF domains. Whatever area of study researchers choose; there are other ways to sift through the mass of data available.

A different approach researchers could take toward AWFC study is a top-down approach. Research in this paper worked from the bottom-up, starting at the Army level and expanding outward through joint and Department of Defense publications. The bottom-up research approach used for this thesis led to an overwhelming amount of information that did not focus on the primary research question. A top-down research approach could start at the national level and work down through the levels of government to gather research data solely focused on information related to the research

¹⁵⁰ Joint Chiefs of Staff, JP 3, *Joint Operations*, I-8.

questions. A top-down approach might streamline the information flow and focus research time toward relevant research question material. This approach could save significant person-hours and researchers could get more sources focused on the primary research topic.

Actions and Conclusion

The Army operating concept through the year 2040 outlines the need to do more within a resource-constrained environment. The Army could immediately implement a policy that all division and brigade training events must align their training objectives to AWFC learning demands. Even without a policy, training objective AWFC alignment may already be happening. Trend analysis from the historical exercises in chapter 4 showed as training exercises were conducted closer to the present, those training exercises met a greater number of evaluation criteria. This positive trend shows training exercises are progressively increasing their suitability for AWFC study. If the Army were to implement the above recommendation to align all division training objectives to AWFCs, then that action would significantly broaden the amount of AWFC study and analysis. Increased study and analysis could lead to more valuable proposed and implemented solutions for leaders to consider, and ultimately to identify solutions to AWFCs. To go one-step further, the joint force could assist with AWFC study, as many of the challenges are interrelated.

The Chairman of the Joint Chiefs of Staff could take action by implementing a policy that all joint forces align their training objectives with AWFCs as a best-case scenario. The research in this paper already identified that many joint training objectives are similar to AWFCs, but only need minor adjustments, such as enhanced data collection

and wider joint force participation, to make them relevant to AWFC study. Minor changes in joint force training, such as an Air Force Reserve unit including an Army sustainment brigade for logistics and communication testing during their annual training, immensely increase AWFC study with few actual disruptions to the training objectives. Minor changes like these, executed thousands of times over the joint force and multinational force, exponentially increase the scope of AWFC study. At the same time, increased participation does not have to come at significantly increased costs.

Military training budgets are probably not going to see increased funding in the near-term. However, stagnate budgets might not be a problem. Using the Army Warfighting Assessment 16.1/Bold Quest exercise as an example, tailoring AWFCs to division training objectives does not significantly change division budget requirements. The 1st Armored Division did not receive a significant budget increase for the exercise. Instead, the 1st Armored Division, the Brigade Modernization Command, and the Joint Staff's Bold Quest team worked together, through a series of work groups, to combine their resources in the most efficient means possible to accomplish the mission. These work groups looked at finance, network architecture, training objectives, and sustainment. Each work group function related to cost in some way. Work group participants came up with solutions to synergize common needs and came to agreements on cost saving measures.

The most significant change for the AWA exercise was not in the budget, but in the thinking of the vested commanders, planners, and support networks to broaden their vision for the exercise and connect with enablers around their local area. In addition, by integrating more virtual and constructive training elements, along with local logistics

networks, military units further exercise AWFCs and saved money through cost sharing synergy.

AWFC training may be uncomfortable for some due to the uncertainty caused by interdependency with partner units. That is understandable. National leadership made it clear that uncertainty is the future of the U.S. and that the U.S. must prepare for that future. There is no better way to face uncertainty than by conducting joint and multinational training exercises in which commanders must rely on mission command, built through trust, in order to be successful.

There is at least one thing worse than fighting with allies, and that is to fight without them.

— Sir Winston Churchill, 1 April 1945

GLOSSARY

Logistics. Planning and executing the movement and support of forces.

Resource management. A financial management function that provides advice and guidance to the commander to develop command resource requirements. Also called RM. See also financial management.

Resources. The forces, materiel, and other assets or capabilities apportioned or allocated to the commander of a unified or specified command.

Shortfall. The lack of forces, equipment, personnel, materiel, or capability, reflected as the difference between the resources identified as a plan requirement and those apportioned to a combatant commander for planning that would adversely affect the command's ability to accomplish its mission.

Support. The action of a force that aids, protects, complements, or sustains another force in accordance with a directive requiring such action. A unit that helps another unit in battle. An element of a command that assists, protects, or supplies other forces in combat.

Sustainment. The provision of logistics and personnel services required to maintain and prolong operations until successful mission accomplishment.

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