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Since the passage of the Goldwaters-Nichols Act in 1986, the U.S. armed forces have faced daunting challenges to operate effectively in dynamic, ever-changing, and complex security environments and maintain lethality. Fiscally challenging times in addition to increasing diversity throughout the globe show that interdependence, interoperability, and integration are vital to inevitable success on the battlefield no matter its form. To view the shape of the future joint task force (or U.S. armed force for that matter) through today's lens will inevitably result in paradigm paralysis. Recent history has shown that a U.S. armed force that is completely reliant on interdependent, interoperable, and integrative mechanisms will quickly off balance and paralyze its enemies, and accomplish the missions tasked by the nation (military or non-military). Are we ready to fully commit to this and avoid paradigm paralysis?

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MASTER OF MILITARY STUDIES

TITLE:

INTERDEPENDENCE, INTEROPERABILITY, AND INTEGRATION: JOINT FORCE
ANALYSIS AT THE OPERATIONAL LEVEL

AUTHOR:

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Executive Summary

Title: Interdependence, Interoperability, and Integration: Joint Force Analysis at the Operational Level

Author: Major Micheal D. Russ, United States Marine Corps

Thesis: The guarantee that the United States (U.S.) armed forces are ready to conduct full-spectrum operations at a moment's notice and in light of ever changing, complex security environments relies on: (1) the strength of service interdependence; (2) technical and operational interoperability; and (3) the integration of service capabilities.

Discussion: Since the passage of the Goldwaters-Nichols Act in 1986, the U.S. armed forces have faced daunting challenges to operate effectively in dynamic, ever-changing, and complex security environments and maintain lethality. Moreover, fiscal constraints combined with an American spirit that expects its military to win the nation's wars have made it incrementally difficult to determine the shape of the future force. The lessons of the operations in the Persian Gulf War, and Afghanistan and Iraq have served to focus the lens and reveal the immense responsibilities of operating as a joint task force in today's security environments. To view the shape of the future joint task force (or U.S. armed force for that matter) through the same lens that currently exists will result in paradigm paralysis. Moreover, a misconception of what shape the future force must take will form and result in a force that is potentially unable to conduct full-spectrum operations at a moment's notice.

One might ask, what is the shape of a force that can accomplish this mission for the future? The answer is a U.S. armed force that is completely reliant on interdependent, interoperable, and integrative mechanisms that quickly off balance and paralyze its enemies, and accomplish the missions tasked by the nation (military or non-military). The U.S. armed forces, in order to take the lead and address the challenges and uncertainty in the future, must also be ready to leverage the capabilities of U.S. government agencies, and the agencies and militaries of international partners. To accomplish this, it will take the full effort of the Department of Defense to implement a shift in paradigm and redefine the meaning behind the term "joint" as it applies to interdependence, interoperability, and integration.

Conclusion: In fiscally challenging times and amidst ever-increasing diversity throughout the globe, interdependence, interoperability, and integration are vital to inevitable success on the battlefield no matter its form. Are we, the U.S. armed forces, ready to fully commit to being an interdependent, interoperable, and "capabilities" based armed force and avoid paradigm paralysis? Tomorrow is counting on it.

Preface

This analysis was generated by a combination of deliberate academic research and personal experiences of the author. After ten straight years in the Fleet Marine Forces, I have fortunately served alongside many Marines, sister-service members, inter-agency civilians, and many international military officers during seven deployments throughout the globe (which entail operations in the U.S., and southeast and southwest Asia mainly). I have observed that the level of understanding required for conducting operational design has dramatically changed as a result of increased in complexities that exist in the theaters of operation. Additionally, the changes in the Department of Defense (DoD) to drawdown the size of U.S. armed forces, emplacing fiscal constraints, and focus on conducting full-spectrum operations has prompted me to probe how operational level interdependence, interoperability, and integration are progressing. I believe that in order to maintain a ready-force that is able to conduct full-spectrum (military and non-military) operations in its fullest form and at a moment's notice, the DoD must focus on a capabilities based armed force to script future joint task forces for conducting operations in support of the nation.

Throughout the course of my research and writing, I would like to acknowledge the following people for their support, time, and mentorship throughout this process:

The guarantee that the United States (U.S.) armed forces are ready to conduct full-spectrum operations at a moment's notice and in light of ever changing, complex security environments relies on: (1) the strength of service interdependence; (2) technical and operational interoperability; and (3) the integration of service capabilities. Requiring the U.S. armed force to be completely interdependent, interoperable, and integrated is fiscally sound and reduces redundancies during research and development. Long gone are the days where individual services can afford to fiscally and physically keep pace with the demands of complex security environments and execute full-spectrum combat operations singularly. Only the collaborative efforts of an interdependent, interoperable, and integrated joint force ensures success in combating the challenges of conducting full-spectrum operations on diverse battlefields. Now more than ever, the requirement for unifying sister service capabilities and those of the other government agencies demands an armed force that is completely interdependent, interoperable and integrated far below the strategic level of war.

Joint Force: Strategic and Operational Reflection

The Goldwater-Nichols Department of Defense Reorganization Act of 1986 (GNA) served as the primer for unifying the efforts of the U.S armed forces, elevating the status of theater combatant commanders, and diminishing the role of the service chiefs.[1] Strategically, GNA also implemented processes for "improving defense management" in government and "improving theater military operations"[2] at the geographic combatant commands. Operationally, though, Operations JUST CAUSE and DESERT STORM highlighted that GNA alone could not guarantee that the U.S. armed forces could plan and fight as an interdependent, interoperable, and integrated force.[3] Therefore, over the course of the next twenty-four years the U.S. armed

forces focused on future challenges posed by national and global constraints that helped in defining what it meant to operate as a "joint" force.

Transitioning the U.S. armed forces over those twenty-four years to meet the requirements set forth by GNA was challenged by decreases in defense budgets, rapid technological advances, and a swiftly changing global setting. Since 1991, increased budget cuts and expectations for efficiency and effectiveness in all facets of the military have mandated that the services cooperate at all levels of command to achieve fiscal goals set forth by the leadership. Rapid technological advances have also brought to light the validity of single-service technological development and the importance of inter-service technological and operational interoperability.[4] To compound matters, globalization, global information access, non-state actors, and enemies without borders removed linearity from the battlefield and in many cases, added unforeseen uncertainty to many military problems in combat.

For the U.S. armed forces and senior leadership, the term "joint" was complicated. To minimalists, "joint" generally referred to "a limited liability partnership or a nonaggression treaty among the services."[5] Conversely, maximalists viewed "joint" as a "synergistic approach to combining the strengths and capabilities of each service."[6] The end of the Cold War forced the renewal of efforts to "integrate regional perspectives and priorities" crafted by emerging "U.S. national security and military strategies."[7] Consequently, operations that took place throughout the 1990s and into the 21st century highlighted stark ambiguities in the relationships of the services at the operational level. Warfighting functions, like logistics and sustainment, increased in importance with the functions of command and control, and maneuver and fires[8]; inevitably prompting that a "joint" effort in the future necessitated the reduction of redundant of service

capabilities in order to focus on the "'first operations' in future campaigns and wars,"[9] as opposed to worrying about "first battles."[10]

The daunting challenges that lay ahead for devising "joint" service roles were captured in *Joint Vision 2010* (published in 1995) and recognized that:

> The American people will continue to expect us to win in any engagement, but...also expect us to be more efficient in...resources while accomplishing the mission successfully. Commanders will be expected to reduce the costs and adverse effects of military operations, from environmental disruption in training to collateral damage in combat. Risks and expenditures will be even more closely scrutinized than they are at present.[11]

As a result, much of the following fifteen years after *Joint Vision 2010* was published was spent shaping and defining joint warfare doctrine and the future of joint force operations. First, to maximize efficiency, the U.S. armed forces developed interdependent operational mechanisms for acquiring equipment and conducting joint training. Second, to be able execute "dominant maneuver, precision engagement, full dimensional protection, and focused logistics,"[12] a joint task force needed interoperable systems that increased compatibility across the joint warfighting functions; all the while, reducing costs and materiel redundancies associated with the increase in technological combat systems. Third, effectiveness in combat throughout the 21st century necessitated a complete integration of service capabilities "institutionally, organizationally, intellectually, and technically"[13] to meet the demands of an increasingly complex world. Though these constraints seemed overwhelming after the passage of GNA, recent history brought to light the need for capabilities based joint task forces and continued U.S. armed force transformation for future endeavors.

Joint Force: Current and Future Perspectives

Every military force in history that has successfully adapted to the changing character of war and the evolving threats it faced did so by sharply defining the operational problems it had to solve.

General James Mattis, USMC
J-5, Joint Forces Command
Joint Operating Environment 2010

The demands of fiscal constraints, complex security environments, and expectations to conduct full-spectrum operations indicate the need to further refine future operating environments in order to achieve true interdependence, interoperability, and integration below the strategic level. First, U.S. armed forces continually face challenging "economic constraints coupled with rapid and increasingly expensive technological advances...[that] require the U.S military to transform the way it thinks about the application of its capabilities."[14] This theme is unlikely to change in the future as the demand for fiscal responsibility increases at a pace complementary to the expense of technology and natural resources, and as the U.S. deepens its ties in the global economic community.

Next, the increasing complexity in battlefield characteristics are numerous and expanding, and require an agile force that is ready to conduct full-spectrum operations. Emerging global markets and international political ties combine with the emergence of non-state actors to add new dimensions to the current and future battlefields. Persistent conflicts that possess the all of the characteristics and types of warfare combine to blur the view of today's security environments adding increased uncertainty. Additionally, the ability to widely access and broadcast information and the use of cyberspace presents a fourth dimension to the battlefield that has just recently begun to be fought on. By and large, these dimensions of

today's and tomorrow's battlefield shape how U.S. armed forces are and will be manned, trained, and equipped to conduct full-spectrum combat operations.[15]

Lastly, the expectation to conduct full spectrum operations provides no choice but for the U.S. armed forces to function as an interdependent, interoperable, and integrated force; reliant also on the capabilities of U.S. and international government and military organizations. Operationally, Admiral Mike Mullen, United States Navy (USN), states in the *Capstone Concept for Joint Operations, 2009* that in the future:

> ...to meet future challenges...We will need to develop new capabilities and change the capacities of existing ones...create new joint and Service doctrine, tactics, techniques and procedures...establish new methods for integrating our actions, both internally and with partners...select, educate, train, equip and manage our people differently...envision and create new organizations...[and] develop new technologies and adapt existing ones to new missions.[16]

In order to address Admiral Mullen's "call to arms," this analysis intends to highlight the importance of viewing the U.S. armed forces in a more holistic way by focusing on mechanisms for achieving true interdependence, interoperability, and integration at the operational level of war.

Operational Interdependence

Interdependence between U.S. military services, inter-agency counterparts and international partners is increasingly important as rapid character changes occur in the global community; i.e., wider proliferation of interwoven political, social, and economic systems. For starters, the U.S. military services require interdependent mechanisms at the operational level to resource and apply military power when tasked and maintain the capacity for full-spectrum operations. Additionally, history has proven that in order to maintain tempo with the rapid changes in security environments, operational level forces require specialization in a wide range

of operations to outpace and combat the rate at which these changes can occur. Moreover, executing full-spectrum operations effectively relies on leveraging the capabilities of U.S. government agencies as well as international partner activities.

Being ready and able to conduct full-spectrum operations necessitates U.S. armed force reliance on a host of partnerships inside and outside of the Department of Defense during operations to thwart the potential for creating redundancies in capabilities and increasing operational costs. Presently, U.S. armed forces are not capable of maintaining capabilities that allow them to operate singularly amidst increasing fiscal and resource constraints, and in characteristically security environments. Therefore, joint task forces now and in the future need "capabilities that are beyond the simple combination of service capabilities"[17] to fully meet the challenges posed by the complexities of today's and tomorrow's battlefields; operational environments likely possessing characteristics of conventional, unconventional, regular, and irregular warfare. Additionally, expectations to decrease redundancies in capabilities and costs, and maximize unity in effort forces the U.S. military to request and utilize the capabilities of U.S. and international agencies to provide expertise in areas for which the U.S. military has limited or no capability. Thus, it is imperative that "the strength of individual...competencies [are] pulled together"[18] and a maximum effort is exerted toward synthesizing the strengths of these numerous capabilities made available for consumption.

First, the four services of the U.S. armed forces rely on one another to perform certain inherent and specialized missions in training and combat to support the designated main effort of joint task forces globally. For example, the Army, as the primary land force, relies on the Air Force and Navy for deep and close aviation fires and logistical support despite its efforts to maintain indigenous rotary wing capabilities. The U.S. Marine Corps relies on U.S. Navy ships

to carry Marines and equipment in order to conduct amphibious operations. Historically, Operation DESERT STORM ascertained "that 'jointness' worked" to support the U.S. Army logistically despite the U.S. Air Force and Navy's marginalization of the mission throughout the operation.[19] Holistically, the U.S. Army, Navy, Air Force and Marine Corps were also able to synergistically combine military strengths and efforts to swiftly divulge Iraqi troops from Kuwait in just a few days.

However, new generations of operations that are constrained by resources and blend many different characteristics of warfare necessitate a deeper understanding of joint service capabilities and limitations for conducting operational design in support of accomplishing strategic objectives. (i.e., Operations IRAQI and ENDURING FREEDOM)[20] Because of this, joint task force tailoring today and tomorrow will more likely be shaped by the force capabilities required to address the defined problem within its area of operation. Therefore, the shape of the joint task force must be expanded to also include the capabilities resident in U.S. and international government agencies in order to fill anticipated and identified gaps in capability.

Secondly, the U.S. armed forces reliance on one another's capabilities when operating as a joint task force further require the assistance of interagency partners to provide unique capabilities that are not resident within the armed forces. In Operation IRAQI FREEDOM, for example, the U.S. armed forces were limited in personnel and expertise for training and mentoring an indigenous police force for the Iraqis. Thus U.S. Central Command partnered with U.S., international, and private organizations to employ current and former civilian policemen to lead training, mentoring, and transition programs for Iraqi police forces throughout the country.[21] In more recent operations, elements of the Drug Enforcement Agency likewise provide counter-

narcotics expertise to decrease illicit drug production and trafficking in support of security operations in Helmand Province, Afghanistan.

The above illustrates that interagency partners provide joint task forces the ability to more fully understand environmental complexities and enable a "whole of government" solution to complex problems. Synthesizing interagency capabilities with the U.S. armed forces as shown also aids in reducing the creation and employment of redundant capabilities, and reduces cost in training. In the long term though, the might of joint task forces in combination will not be enough to overcome the increasing complexities of the security environment characterized by difficult and confusing social, economic, and political agendas that are culturally dependent. The efforts to partner with and utilize the expertise of international partners (military, government, and international organizations) provides the greatest chance of completely defining the problems in order to implement courses of action that are more likely to solve issues more quickly.

Lastly, interdependence with international agencies and militaries provides numerous points of view and the most important insights to the problems faced today and into the future. Henry Kissinger stated in 1975 that "the world has become interdependent in economics, in communications, in human aspirations."[22] More modern interpretations also purport that "advances in technology and increases in social and economic transactions will lead to a new world in which states, and their control of force, will no longer be important."[23] On the contrary, traditional interdependence analysts tout that "military interdependence continues" despite difficulties in interpreting the dimensions of international interdependence. How are commanders expected to interpret and understand the levels of complexity on a U.S. internal and international scale? The answer lies first in mandating interdependency amongst the U.S. armed

forces to exercise and employ varieties of capabilities during operations in training and combat; all the while, working to increase interdependency with other U.S. and international government entities.

Reliance on the capabilities of the U.S. armed forces and interagency and international partners is the key to achieving strategic objectives in the conduct of full-spectrum operations at the operational level. Joint task forces must actively seek to "depend on the other services for certain tasks"[24] to maximize efficiency and decrease overages in combat, and leverage these capabilities in training to widen the knowledge base of operational commanders and staff planners. The interactions that occur as a result of interdependence inevitably identify inconsistencies in compatibility when working alongside one another. Ultimately, the insights gained by becoming interdependent in training and combat serves as the stepping stone for becoming completely interoperable.

Operational Interoperability

Joint Publication 1-02 defines "interoperability" as "the ability to operate in synergy in the execution of assigned tasks."[25] Historically (particularly during the early and mid 20th century) interoperability was not deemed as important as it has become today's U.S. armed forces. U.S. operations along with the rapid rise in the use of information technologies throughout the 1980s and 1990s brought interoperability between the services, agencies, and multi-national partners as a forefront issue to be confronted in the future.[26] Moreover, *Joint Vision 2020* (published in 2000) identified "interoperability" as one of the key tenets in the conduct of joint operations and "the foundation of effective joint, multinational, and interagency operations."[27]

Operationally, the increasing probability that future conflicts will require a force that is able to conduct of full-spectrum operations requires U.S. armed forces, government agencies and international partners to rely on one another to understand and meet environmental challenges. In addition to interdependence, achieving complete interoperability in training, planning, execution, and after action is what effectively enables the ability to conduct full-spectrum operations at a moment's notice. Becoming interoperable can only be completed by a commitment to change the current paradigm and implementing continued change that: 1) refines, aligns, and merges U.S. armed force doctrine; 2) develops and employs combat systems that communicate with one another; 3) mandates and increases the amount of joint training; and 4) improves the intellect of the joint warfighter.

Interoperability achieved through doctrine alignment is the cornerstone of the U.S. armed force's capacity to plan and execute below the strategic level and win wars for the nation. Joint Publication 1 emphasizes that "joint doctrine promotes a common perspective from which to plan, train, and conduct military operations…[and] represents what is taught, believed, and advocated as what is right…[to] guide warfighting at the strategic, operational, and tactical level of war."[28] Since the passage of GNA and as a result of combat operations in the 1990s to the present, joint doctrine evolved and methodized the way the U.S. military is supposed to operate in a joint, multi-national force while partnered with other government agencies. Moreover, present joint doctrine that emerged as a result of global conflicts throughout the 1990s and early 2000s provides "on paper" mechanisms for moving towards interoperable processes that aid in planning, development, training, and employment as a coordinated force. Below the strategic level though, the evolution of joint doctrine has not become deeply rooted enough to ensure that technical and operational mechanisms are inherent to operational warfighters.

The "technical" and "operational"[29] sides of the U.S. military interoperability

encompasses the capabilities of combat systems (technical) and the expertise, knowledge and

experience of military members (operational).[30] The U.S. armed forces are likely to operate with

"embedded technologies and adaptive organizational structures"[31] that are mission specific and

formed by elements of each of the services. The interoperability of joint task force systems and

personnel directly contributes to the complete success or failure of its operations. Moreover, the

more reliant the U.S. armed forces are on the inter-U.S. government agencies and international

governments for support, the more important reliance on technical and operational

interoperability grows.[32]

The technical interoperability of communications, information sharing (intelligence and

fires), and logistics systems are key components to fully support combat operations for scripted

joint task forces that are employed today and in the future. Communication systems have

historically provided the means for commanders to communicate with senior and subordinate

units. By and large, increasingly capable information technologies have progressively made it

easier for commanders to communicate with senior and subordinate entities; usually with all

entities simultaneously and on the same communication medium.

Since 1986 though (and as U.S. military forces have operated more as a part of a joint or

coalition force), communication systems and standard operating procedures below the strategic

level have not evolved to the point of complete interoperability. Operation DESERT STORM

highlighted the slow progression toward technical interoperability in that "communications

[were] plagued by incompatibilities and technical limitations."[33] Subsequently, communication

at the combatant command levels (specifically interactions between the ground and aviation) was

"conducted over commercial telephone lines because of the volume and compatibility limitations

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of the military communications..."[34] Operations in Africa, Iraq, and Kosovo throughout the rest

of the 1990s also showed that lacking communications interoperability between U.S. and multi-

national forces would likely "impede future NATO and European operations." and that the

"Pacific theater [would face] equal if not greater difficulties in the future."[35]

Communications at the operational level since the 1990s have improved, however, and

resulted in increasingly compatible and interoperable communications systems; such as

improved common operational pictures, secure chat, voice-over-internet protocol, and

information sharing and email systems to name a few. The slow progression has been the result

of lessons learned from global training exercises and combat operations that indicate the

importance of and improvements in technical interoperability an, but suggest that it has not been

achieved.[36] *Joint Vision 2010 and 2020* predict that communications interoperability is

increasingly important in light of the unique challenges of developing security environments and

the increased integration of joint and international forces, and enablers sourced from U.S. and

international government and non-government agencies.[37]

The sharing of information, in addition to communicating, is also crucial for increasing

all operational participants' situational awareness during training exercises and combat

operations. Since the Persian Gulf War, numerous venues, like command websites, secure chat

and SharePoint, have emerged as potential force multipliers that allow military forces to share

information amidst the increased likelihood of commands being geographically separated. Frank

Tiboni stated in *Defense News* in January of 2001 however that:

> Old, incompatible command and control systems are preventing the...sharing [of]
> information in a timely manner with other regional services and allies...These disparate
> systems, known as stovepipe systems, perform only one function and do not share
> information with other voice, video, and computer systems. This means Army leaders in
> the region must make decisions using data that sometimes is two to four hours old in an
> era when battlefield and intelligence information changes by the second...[38]

The incompatible data and information systems and protocols associated with accessing them continue to plague forces in Afghanistan today as joint, multi-national, and inter-agency partners are unable to access single-stovepipe information sharing systems that are in use. The discourse, by not having near, real-time access to information for planning, execution, and after action hampers the capability to synthesize with multi-national partners, maintain operational tempo, and ultimately diminishes the rapport of U.S. armed forces.

"Operational" interoperability (unlike "technical" interoperability which primarily references materiel capabilities) deals primarily with the knowledge and experience bases of military personnel and tailored to improving operational design below the level of strategy. Anthony Faughn describes that "operational interoperability...assumes that the information exchange is between two or more users (senders and receivers), who must be able not only to exchange information but also to understand it;" the emphasis to on "understanding."[39] How U.S. armed force members are educated, employed, and exercised throughout their careers dictates their level of understanding at the operational level. Inevitably, investments in U.S. service members must focus on increased opportunities to pursue higher levels of education, and see that they are assigned to units that familiarize them with the conduct of full-spectrum operations. Additionally, joint warfighters must be led by leaders that expect them to be culturally service-minded and blind at the same time in order to benefit the health of the institutes and more broadly the nation.

Training and educating joint warfighters has been accomplished primarily through established career professional military education (PME) venues, service and international exchanges, and joint and multi-national exercises. Experiences gained by assignment and participation in these venues assisted in "[overcoming] the barriers of organizational culture and

differing priorities" and fielded appreciations for "the full range of service capabilities available to them."[40] Additionally, best practices learned and reviewed during military education, exchanges, and exercises has included a saturation in the capabilities of other U.S. and international government and non-government agencies.

First, the foresight to dictate quality, quantity, and consistency in PME curriculum lacked a common vision between the U.S. military services historically. Leading up to the passage of GNA in 1986, U.S. armed force services (unlike the United States Marine Corps) held views ranging from hostility of the very idea of such professional military education...to views that experience was the best teacher."[41] However in 1986, Title IV of GNA mandated that the services improve the quality, connection, and education of its officers. Throughout much of the twenty-four years that followed, every service implemented changes that have slowly diversified school populations in addition to focusing on educating its officers on the operational level of war and design; for example, the induction of Joint PME standards and increased service, agency, and international participation at all levels of schooling.[42]

Second, personnel exchange programs on top of PME has been an effective program that has increased operational interoperability with sister services, and U.S and international government militaries and agencies. Personnel exchange programs that have existed since World War II have highlighted the necessity for familiarization with joint, agency, and international affairs when operating as a joint or coalition task force. Recent operations in Afghanistan and Iraq provided many opportunities for U.S. armed force members to serve as a part of joint, coalition, or international force; i.e. individual augment (IA), mentoring teams, and/or adjacent unit / international liaison billets. Even though the IA-type billets are not usually considered exchanges, they illustrate alternate means for how military members have broadened

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their "know-how" on joint, agency, and international interoperability. Lieutenant Commander

Jim Newton DFC, British Royal Navy, in Operation IRAQI FREEDOM, March 2003 noted that:

> ...the exchange 'brought a number of essential qualities and capabilities, without which, our planning, training, execution and the resulting operational successes would have been less than assured...I am certain that without such expertise [the exchange] our ability to maintain our Operation effectiveness and momentum on the battlefield would have been significantly reduced.'[43]

Exchanges, in addition to PME, have proven to be a valuable resource of information and "know-how" for U.S. armed forces; a likely necessity for future endeavors in training and combat.

Third, testing, revising and validating the interoperability of technical and operational joint mechanisms will only be possible if joint forces conduct a wide variety of training events on a more routine basis in an effort to increase efficiency and effectiveness at the operational level. Often, operational planners do not (and may never) fully understand the inherent and basic capabilities of the forces assigned to their command, often the genesis for frustration and confusion. Planners in Operation DESERT STORM captured this observation regarding the capabilities and employment of the U.S. Marine Corps:

> [BGEN] Glosson [USAF, Director of Planning, CENTAF] was frustrated with the strict Marine adherence to their doctrine and their lack of empathy toward the other services. All the same, he admired the Marine fighting spirit and was determined to support them. What is unfortunate is that better joint education and training before the war, followed by more open-mindedness and communication during the war, would have resulted in better cooperation and trust.[44]

Although the size, complexity, and frequency of joint training exercises has increased since the end of the Persian Gulf War, the inconsistency in pre-deployment training between operational units and staffs assigned to deploy to combat together has hampered initial operating relationships and familiarity. Additionally, joint task forces are consistently plagued by lack of continuity due to personnel rotations and the absence of individual augmenters during regular

pre-deployment training specifically designed for training and educating the core battle staffs.[45] The absence of personnel in joint training at the operational level has disparaged the quality of future joint warfighters and serves as an inhibitor to joint operations holistically.

Creating "joint warfighters" is more important to joint interoperability now more than ever. The basic skills learned and honed at the service/tactical unit level forms the foundation by which U.S. armed force members operate from initially. Progressive saturation in tactical and operational joint matters throughout the duration of their career broadens their ability to think in a more holistic manner and understand how the capabilities of a joint force can be synthesized.[46] The focus by the services to retain the current experience level of the U.S. armed forces also provides additional insurance that experienced personnel continue to serve and are provided increasing number of opportunities to operate as a part of a joint force in training and combat.[47] Inevitably, the success of the U.S. armed forces relies on the ability to create service members who are culturally (with regard to their service) minded and blind, are familiar and experienced with sister service, agency, and international operations, and have the nation's best interest in mind vice their service's.

Technical and operational interoperability (or lack thereof in some cases) have historically shown that increased synergy at the operational level is required to operate effectively as a joint force during development, practice, and in combat. Complete interoperability of technical combat systems and operational joint warfighters are key components to ensuring that the U.S. armed forces are set up to be employed in and efficient and effective manner. Thus, this will ensure that they are afforded the best chance of being completely integrated into a superior fighting force prepared to conduct full-spectrum operations at a moment's notice.

Operational Integration

The effectiveness of the joint task force ultimately relies on the synergistic (or integrated) effects of the U.S. armed force capabilities to ably execute full-spectrum operations at any time. The interdependence and interoperability of the U.S. armed forces and inherent capabilities rely upon the mechanisms to integrate forces, identify capabilities gaps, and backfill to ensure the synchronization of efforts to "produce paralysis, and bring about [the enemy's] collapse."[48] GNA originally sought at varying degrees to integrate the U.S. armed forces primarily at the senior levels of command, increase unity of effort, and ultimately support geographic combatant commanders. Since that time, offsetting potential capabilities loss as a result of downsizing the force and increased costs in equipment has placed capabilities integration as a "frontline" issue for reorganizing and preparing an armed force capable of full-spectrum of operations globally. Moreover, the U.S. armed forces also require the capabilities of U.S. and international government and non-government agencies to be fully integrated into operational design to address the complexities that define the in political, economic, and cultural dimensions of security environments.[49]

First, after the passage of GNA and Persian Gulf War lessons regarding capabilities, integration stressed a progressive need to integrate the capabilities of the services (particularly the U.S. Army, Air Force and Marine Corps) to safeguard unity of effort and synergy for future wars. The rift and mistrust between the services, lack of an integrated joint doctrine, and misunderstanding for how to employ other service capabilities combined to fuel the flames of discord. Post-war assessments also highlighted numerous service incompatibilities and identified that complete integration (synergy) of the air-ground team was never accomplished.[50] However, the success of the force in Kuwait served as one of the main influencers in the

development of joint doctrine throughout the 1990s and functioned as a potential model for joint

task force operations in the future.[51] The idea that services would synergistically work together

in future conflicts was forecast in *Joint Vision 2010* (published in 1995). Additionally, *Joint*

Vision 2010 stressed the necessity for integrating and partnering with allied, coalition, and

international partnering forces to completely address unfamiliar complexities in the security

environments of tomorrow.[52]

As stated above, *Joint Vision 2010* specifically addressed that the efforts of the U.S.

armed forces would "not [be] enough just to be joint, when conducting future operations...[and

that] integrating...with allied and coalition partners" was necessary for maintain a decisive edge

for addressing the complexities of a rapidly changing world.[53] Unfortunately, this has been an

uphill battle. Operations in the Persian Gulf War, Afghanistan, and Iraq proved that complete

integration with international partners was hampered by incompatibilities in hardware,

information sharing systems, and sensitivities to the conduct of international forces.[54] *Joint*

Vision 2020, published in 2000, further mandated that to achieve full-spectrum dominance as a

joint force, the U.S. armed forces increasingly rely on multi-national partners "to defeat any

adversary and control any situation across the full range of military operations."[55] This requires

operational level commanders and their staffs to continually forge strong international

partnerships and personal relationships to ensure the cooperation of international partners while

conducting combat and theater cooperation and security operations in support of strategic

objectives.

A completely integrated joint task force relies not only on the integration of the

capabilities of the U.S. and international armed forces, but that of the U.S. and international

government and non-government agencies. Combat operations in Iraq and Afghanistan

identified severe dysfunctional mechanisms and a lack of synergy between the efforts of the U.S.

armed forces and other government agencies. Particularly, a study conducted by the Strategic

Studies Institute indicated that:

> ...[interagency interaction was] cited as a fundamental obstacle to U.S. progress...Flaws in the way the different components align their objectives, resources, and strategic thinking lead to limited communication and integration when conducting daily operations. Extremely complex and asymmetric environments...require a more cooperative and efficient interagency system to synchronize all elements of U.S. power and ensure success.[56]

This reality described by the above quote predicts the likelihood that U.S. armed forces will be

increasingly reliant on other U.S. and international government and non-government agencies to

assist in providing non-military specific capabilities; for example, for humanitarian assistance /

disaster relief missions, and peace keeping operations. Integrating the capabilities of the

agencies in future operations will be a source of strength for smaller and more agile forces

tailored for rapid deployment and conducting full-spectrum or specific operations.

Diverse security environments coupled with the internal focus on efficiency and

effectiveness with the U.S. armed forces underline the need for integrating the U.S. armed force,

inter-agency, and international capabilities to ensure full-spectrum dominance.[57] Today,

"integration," as defined in JP 1-02, is "the arrangement of military forces and their actions to

create a force that operates by engaging as a whole."[58] Tomorrow, integration will require the

inclusion of many inherent and outside capabilities for creating an integrated force that is capable

of conducting full-spectrum operations to achieve operational success; all the while, further

complicating the problem for the enemy.[59]

Future implications

*He who is willing and able to take the **initiative** to exploit **variety, rapidity,** and **harmony**—as the basis to create as well as adapt to the more indistinct - more irregular - quicker changes of rhythm and pattern, yet shape the focus and direction of effort—survives and dominates.*
*Or contrariwise: He who is unwilling or unable to take the **initiative** to exploit **variety, rapidity,** and **harmony**...goes under or survives to be dominated.*

<div align="right">

Patterns of Conflict
Colonel John R. Boyd, USAF (ret)

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The success of the U.S. armed forces rests on the ability to emerge as a completely interdependent, interoperable, and integrated force. Time and experience, since the passage of GNA, has spelled out very clearly the direction in which the U.S. armed forces must evolve. The Persian Gulf War highlighted that the services were likely to never operate as separate services ever again.[60] The 1990s oversaw the publishing of the first documents that addressed, formulated, and revised joint doctrinal procedures. Additionally, the conduct of operations throughout the end of the 20th century until now indicated that the success of U.S. armed forces in the future requires complete interdependence, interoperability, and integration with much more than just its own internal military capabilities.

First, achieving complete interdependence between the services, agencies, and international partners is responsible, economical (force-wise), and fiscally. Leveraging sister-service, agency, and international capabilities, technology, and personnel to fill gaps in joint task force coverage is essential to reducing uncertainties and compounding the enemy's capability to operate. Using the strengths and capabilities of the services, inter-agencies and international partners to augment strengths or thwart weaknesses also reduces redundancy when developing and tasking the U.S. armed forces to operate with a lighter, agile, and more effective force. Additionally, interdependence reduces the requirement for each service to create indigenous

capabilities that are resident in other services or agencies, and should reduce the monetary costs usually dedicated to research, development, and fielding. The U.S. armed forces must embrace three distinct mindsets to shift the service paradigm towards complete interdependence: 1) lower the barriers caused by service pride[61]; 2), completely embrace joint doctrine in its truest form and redefine "joint" based on the capabilities required of a joint task force vice the service composition; and 3), depend on, trust, and utilize the expertise of the U.S. and international agency counterparts.

Second, achieving complete interoperability ensures that any forces scripted to operate together in training and combat can equally understand and communicate with one another technically and operationally (as defined in the "Interoperability" section). Technically, the U.S. armed forces must work together to continually develop command and control, information sharing, and logistics systems that are compatible between services as well as inter-agency and international partners (keeping in mind that technical interoperability is not limited to the systems listed). Operationally, the U.S. armed forces need more mandatory joint training exercises at the operational levels and below to increase the knowledge base of tactical level operators on their joint, agency, and international counterparts and increase familiarity prior to deployment.[62] Additionally, the U.S. armed forces must increase cross-service, inter-agency and international exchanges and education opportunities to reinforce and build upon familiarity gained during operations in training and combat. These assignments should be career enhancing, filled by superior performers who are able to think critically, and should not be characterized as a penance or be filled by below average performers.

Lastly, full integration of the capabilities of the U.S. armed forces, the inter-agency, and international partners in all phases of training and combat must be achieved. A completely

integrated capable force achieves greater results holistically than that of the sum of its individual pieces through synthesis. Moreover, interdependent and interoperable forces that are completely integrated across the spectrum of doctrine, organization, training, materiel, personnel and leadership preserve the best opportunity for achieving operational success the first time; in addition to making new mistakes vice those that have been already made in the past. Increasing the fixation on joint doctrine implementation and exercising joint capabilities as an integrated force will improve the readiness for conducting full-spectrum operations. Correct and honest assessments during and after training events will also afford higher level staffs and school houses the feedback that will assist the U.S. armed forces in foreseeing the future, revising doctrine, and altering procedures to develop future forces in the face of an ever-changing world.

Conclusion

An interdependent armed force that is interoperable and completely integrated in capability is key for addressing increasing global complexities, the needs of the nation strategically, and maintaining a ready and agile armed force. The Persian Gulf War, conflicts in the 1990s, and current conflicts in Iraq and Afghanistan have highlighted that the interdependence, interoperability, and integration of the U.S. armed forces, government agencies, and international partners is crucial for ably conducting a wide range of operations at a moment's notice. The implications of the analysis show that if the leadership of U.S. armed forces is not fully committed to lowering service barriers, understanding each other's capabilities, and solving each problem set as a team, failure to maintain pace with a fast-paced, diverse, and increasingly complex globe is certain.

In fiscally challenging times and amidst ever-increasing diversity throughout the globe, interdependence, interoperability, and integration are imperative to ensuring success in all missions tasked to the U.S. armed forces by its nation. The implications of ensuring this happens now and into the future "serve to influence the concepts that drive our services' adaptations to the environments within which they will operate" and ensure that operational "leaders are to have the fewest regrets when future crises strike."[63] Are we, the U.S. armed forces, ready to fully commit to being an interdependent, interoperable, and "capabilities" based armed force and avoid paradigm paralysis? Today and tomorrow's national and global security are counting on this commitment.

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[2] Ibid., 1.

[3] Roger A. Beaumont, *Joint Military Operations: A Short History* (Westport: Greenwood Press, 1993), 171-174.

[4] Gordon N. Lederman, *Reorganization of the Joint Chiefs of Staff: The Goldwater-Nichols Act of 1986* (Westport: Greenwood Press, 1999), 110.

[5] Ibid., 104.

[6] Kenneth C. Allard, *Command, Control and the Common Defense* (New Haven: Yale University Press, 1990), 254. Additional note: John Boyd and the military reformers attempted to instill modern military theories that were unconventional in nature focusing more on the synthesis of military capabilities vice conventional reliance on equipment (reference: (1) *The Mind of War*, by Grant T. Hammond; (2) *The Pentagon Wars*, by James G. Burton).

[7] Michael D. Krause and R. Cody Phillips, *Historical Perspectives of the Operational Art* (Washington, D.C.: Center of Military History, United States Army, 2005), 16-18.

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[9] Ibid., 17.

_10_ John L. Romjue, *American Army Doctrine for the Post-Cold War* (Fort Monroe, VA: U.S. Army Training and Doctrine Command, 1996), Chapter 5.

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_12_ Ibid., 1.

_13_ Ibid., 9.

_14_ Thomas G. Pope, *Transformation: Herding the Cats towards Service Interdependence.* (Carlisle Barracks: U.S. Army War College, 27 February 2004), 1.

_15_ U.S. Joint Chiefs of Staff. *Capstone Concept for Joint Operations.* Version 3.0 (Washington, D.C,: U.S. Joint Chiefs of Staff, 2009), 2.

_16_ Ibid., iv.

_17_ Henry H. Shelton, "Joint Vision 2020," *Joint Force Quarterly*, Summer 2000 (Washington, D.C.: U.S. Joint Chiefs of Staff, June 2000), 75.

_18_ Ibid., 75.

_19_ Beaumont, *Joint Military Operations: A Short History*, 173.

_20_ Pope, *Transformation: Herding the Cats towards Service Interdependence*, 6.

_21_ Dennis E. Keller, *U.S. Military Forces and Police Assistance in Military Operations: The Least-Worst Option to Fill the U.S. Capacity Gap* (Carlisle, Pennsylvania: August 2010), 17-20.

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[27] Shelton, "Joint Vision 2020," *Joint Force Quarterly*, Summer 2000, 63-65.

[28] Department of Defense, *Joint Doctrine for the Armed Forces of the United States*, Joint Publication 1, 20 March 2009 (Washington, D.C.: Government Printing Office, 2009), ix.

[29] Faughn, *Interoperability: Is it Achievable?*, 6.

[30] Shelton, "Joint Vision 2020," *Joint Force Quarterly*, Summer 2000, 65.

[31] Ibid., 65.

[32] Ibid., 65.

[33] Les Aspin and William Dickson, *Defense for a New Era: Lessons of the Persian Gulf War* (Washington, D.C.: Government Printing Office, 1992), 23.

[34] Ibid., 23.

[35] Faughn, *Interoperability: Is it Achievable?*, 16.

[36] Reference search engines for Joint Center for Lessons Learned: https://www.jllis.mil/JKMS/main.jsp

[37] U.S. Joint Forces Command, *Joint Operating Environment 2010*, 7-9, 31; Shelton, "Joint Vision 2020," *Joint Force Quarterly*, Summer 2000, 65-67.

[38] Frank Tiboni, "Slow Systems Hinder U.S. Pacific Forces, Allies," *Defense News* (Jan. 8, 2001), 12.

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[40] Shelton, "Joint Vision 2020," *Joint Force Quarterly*, Summer 2000, 65.

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[42] Marine Command and Staff College, Academic Year 2010-2011(total of 199 student officers):
  101 U.S. Marine Officers
  24 U.S. Navy Officers
  18 U.S. Army/Army Reserve/National Guard Officers
  15 U.S. Air Force/Air National Guard Officers
  1 U.S. Coast Guard Officer
  14 Civilians
  26 International Military Officers

Courtesy of Marine Corps University Administration Department.

[43] William D. Chesarek Jr., Major USMC, "Foreign Personnel Exchange Programs: A Supporting Effort in Building Partnership Capacity," (Quantico, Virginia: Marine Corps Combat Development Command, February 2008), 3.

[44] P. Mason Carpenter, Major, U.S. Air Force, *Joint Operations in the Gulf War: An Allison Analysis* (Maxwell AFB, Alabama: February 1995), 28.

[45] Gary Luck, General, U.S. Army (ret), *Joint Operations: Insights and Best Practices*, 2nd edition (Joint Warfighting Center, July 2008), 26.

[46] Reference United States Marine Corps Order 3500.14. As an example, Chapter 1 of the Marine Corps Training and Readiness Manual discusses the USMC linkages between the Universal Joint Task List and Marine specific Mission Essential Task lists.

[47] Reference U.S. Military Service and Joint Chiefs of Staff posture statements given to congress in 2010.

[48] John R. Boyd, Colonel, U.S. Air Force (ret), *Patterns of Conflict*, Briefing slide 115. In the "Aim" of Maneuver Warfare.

[49] Service, agency, and international integration stated as a key function of the Joint force in both *Joint Vision 2010 and 2020*; addressed as an area of interest vice a directive in *The National Military Strategy of the United States 2011: Redefining America's Military Leadership.*

[50] Carpenter, *Joint Operations in the Gulf War: An Allison Analysis*, 78.

[51] Don M. Snider, "The US Military Transition to Jointness," *Airpower Journal* (Fall 1996), 21-22.

[52] U.S. Joint Forces Command, *Joint Operating Environment 2010*, 4-9.

[53] Ibid., 9-10.

[54] Terry J. Pudas, "Preparing Future Coalition Commanders," *Joint Force Quarterly*, Winter 1993-94, 46.

[55] Shelton, "Joint Vision 2020," *Joint Force Quarterly*, Summer 2000, 61.

[56] Jay W. Boggs and Joseph R. Cerami, *The Interagency and Counterinsurgency Warfare: Stability, Security, Transition, and Reconstruction Roles* (Carlisle, PA: December 2007), 1.

[57] U.S. Joint Forces Command, *Joint Operating Environment 2010*, 25-26; Shelton, "Joint Vision 2020," *Joint Force Quarterly*, Summer 2000, 59, 61.

[58] Department of Defense, *Dictionary of Military and Associated Terms*, Joint Publication 1-02, 230.

[59] Shelton, "Joint Vision 2020," *Joint Force Quarterly*, Summer 2000, 58.

[60] Carpenter, *Joint Operations in the Gulf War: An Allison Analysis*, 1.

[61] Snider, "The US Military Transition to Jointness," *Airpower Journal*, 16. Is it time to rethink the man, train, and equip responsibilities of the serving and transform? Snider further comments that "... accepted wisdom has held that interservice rivalry is bad, even though very logical explanations have been made, both for its existence and for its ebbs and flows over time. In very broad terms, this "wisdom" has rested...on the twin beliefs that interservice rivalry has produced some of our nation's most ignominious military disasters, such as Desert One, and that it inherently **causes an inefficient allocation of resources across what are often redundant capabilities**—a luxury America can no longer afford." This is the danger that the U.S. armed forces must be on the lookout for.

[62] MRXs are not enough. The operational level planners require tactical level units that are familiar with one another. Especially pre-deployment to combat: operational staffs and tactical units designated to deploy together to the same theater should participate in joint training venues together prior to deploying (this pertains to all services). U.S. Marine Corps training attempts to accomplish this by having ground, logistics, and aviation combat elements to participate in Exercise MOJAVE VIPER prior to deploying to Afghanistan with the Marine Air-Ground Task Force there.

[63] U.S. Joint Forces Command, *Joint Operating Environment 2010*, 2.

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