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14. ABSTRACT
The message that coalition operations are a critical component of US strategy has not resonated with senior DoD leadership. This disconnect is most apparent in the lack of an effective strategy for implementing the Mission Partner Environment (MPE), which is the DoD's definitive framework for enabling integration with coalition command and control (C2) systems infrastructures. Three recent examples of mission-specific implementations of effective coalition C2 systems include: Afghan Mission Network (AMN), CENTRIXS-International Security Assistance Force (CX-I), and Battlefield Intelligence Collection and Exploitation System (BICES). These systems demonstrate that the MPE framework is technically feasible and show it can support specific operations, but they fall short of the requirement for a global C2 systems capability. Further, analysis of the requirement for coalition C2 systems, based on the Joint Capabilities Integration and Development System (JCIDS), shows that cultural biases are the greatest challenges to successful coalition C2. The MPE is a valid framework for enabling global coalition C2 interoperability, but it will only succeed if DoD leadership prioritizes it as an operational requirement and mitigates cultural biases.

15. SUBJECT TERMS
Mission Partner Environment; MPE; Military Strategic Culture; cultural biases; Afghan Mission Network; AMN; CENTRIXS; CX-I; Joint Interagency Intergovernmental Multinational; JIIM; command and control systems; BICES; command and control systems; C2; coalition networks; common operating picture; COP

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Getting in the Game: Overcoming Cultural Biases in the Mission Partner Environment

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Executive Summary

Title: Getting in the Game: Overcoming Cultural Biases in the Mission Partner Environment

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Thesis: The Mission Partner Environment (MPE) is a valid framework for enabling global coalition Command and Control (C2) interoperability, but it will only succeed if leadership in the Office of the Secretary of Defense (OSD) and the Joint Staff prioritize it as an operational requirement and implement specific changes to overcome the cultural biases that limit the framework's effectiveness.

Discussion: In a speech at Fort Campbell, Kentucky on January 13, 2016, Secretary of Defense (SECDEF) Ashton Carter outlined his plan for defeating the Islamic State in Iraq and the Levant (ISIL), which depends on the strength of an American-led coalition of partner nations that share a common interest in countering this global threat. Secretary Carter applauded the coalition's work to date, but he emphasized that success requires increased contributions and cooperation, among more than forty partner nations, across all instruments of national power, and that in order to ensure ISIL's defeat, "everybody has to be in the game."¹ While Secretary Carter likely intended his speech to encourage increased involvement from partner nations, it should also serve as inspiration for his own subordinate Department of Defense (DoD) leadership to "get in the game" of coalition warfare by prioritizing the military's interoperability with partner nations. Unfortunately, to this point, the message that coalition operations are a critical component of US strategy has not resonated with senior DoD leadership. This disconnect is most apparent in the lack of an effective strategy for implementing the MPE, which is the DoD's definitive framework for enabling integration with coalition command and control (C2) systems infrastructures. Three recent examples of mission-specific implementations of effective coalition C2 systems include: Afghan Mission Network (AMN), CENTRIXS-International Security Assistance Force (CX-I), and Battlefield Intelligence Collection and Exploitation System (BICES). These systems demonstrate that the MPE framework is technically feasible and show it can support specific operations, but they fall short of the requirement for a global C2 systems capability. Further, analysis of the requirement for coalition C2 systems, based on the Joint Capabilities Integration and Development System (JCIDS), reveal that cultural biases are the greatest challenges to successful coalition C2.

Conclusion: As the SECDEF observed in his 13 January speech, coalition operations are a critical component of US foreign policy and success in these operations requires everyone, including the DoD, to "get in the game." This requires SECDEF, OSD, and the Joint Staff to ensure the MPE framework's success by re-tasking the implementation effort from the J6 to the J3, by mandating the CCMDs' and services' C2 systems are compatible with the framework, and by implementing specific changes to doctrine, organization, training, leadership, and education.

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Preface

It is my intention for this paper to serve as a catalyst for discussion at all levels of leadership. As a Marine communications officer, I have repeatedly observed disconnects between leaders and the technicians who manage the command and control systems that support the decision making process. The Mission Partner Environment (MPE) framework represents a solution to this problem, but only if Department of Defense leadership recognizes it as an operational capability that requires close coordination and follow-through at all levels of implementation.

I am grateful to my Master of Military Studies advisors, Col Gary Brown (USAF, Retired) and Dr. Matthew Flynn for assistance with scoping my research and helping to narrow the focus of my paper. I am also thankful for my Command and Staff College military faculty advisors, LtCol Edward Debish (USMC) and LtCol Douglas Lemott Jr.(USMC) who provided invaluable mentorship and advice that drove my research in an effort to make my paper relevant to both the Corps and the joint community. Additionally, I am grateful for the significant scoping and research support from COL Neil Khatod, USA (USCENTCOM), LTC Karlton Lane, USA (USSOCOM), Mr. Arthur Coley (USSOCOM), Mr. Bob Hutchens (USSOCOM), Mr. Martin Westphal (USMC ADC IW), Mr. Tom Lang (Joint Staff J6), and LTC Skye Duncan, USA (USSOCOM). Most importantly, I am thankful to my wife, Stephanie, for her patience, critical reading, and editorial acumen, without which I would still be writing.

I. Introduction

In a speech at Fort Campbell, Kentucky on January 13, 2016, Secretary of Defense (SECDEF) Ashton Carter outlined his plan for defeating the Islamic State in Iraq and the Levant (ISIL), which depends on the strength of an American-led coalition of partner nations that share a common interest in countering this global threat. He applauded the coalition's work to date, but emphasized that success requires increased contributions and cooperation, among more than forty partner nations, across all instruments of national power, and that in order to ensure ISIL's defeat, "everybody has to be in the game."² For the Department of Defense (DoD), "getting in the game" of coalition operations requires the implementation of interoperable command and control (C2) systems that facilitate secure and reliable coalition communications and provide commanders with the information necessary to make battlefield decisions. Historically, while individual Combatant Commands (CCMDs) have implemented coalition C2 systems to support their operations, these systems only supported specific operations with specific partners and have not been flexible enough to meet DoD's demand for global flexibility.

Fortunately, there is a solution, as DoD Instruction (DoDI) 8110.01 establishes the Mission Partner Environment (MPE) framework, which is DoD's definitive plan for developing and implementing coalition C2 systems. However, the effort to implement the MPE has stalled because DoD leadership placed all responsibility for the framework's implementation on the Joint Staff J6; a staff element that has no operational tasking authority over the CCMDs or services. This decision indicates that DoD leadership in the Office of the Secretary of Defense (OSD) and in the Joint Staff primarily views the MPE framework as a communications capability, and not an operational capability. The purpose of this paper is to highlight the need for DoD leadership to support the MPE framework as a critical operational requirement through three key approach-

es – addressing the military’s strategic culture, leveraging lessons learned from previous implementations of coalition C2 systems, and recommending definitive steps to overcome cultural biases which inhibit the implementation of the MPE.

In presenting these approaches, first the paper reviews the origin and definition of the MPE framework, and demonstrates that the key challenges to implementation are not technical in nature, but center on cultural biases. Second, the paper reinforces the argument that MPE is technically feasible through case studies of three recent examples of mission-specific implementations of effective coalition C2 systems including Afghan Mission Network (AMN), CENTRIXS-International Security Assistance Force (CX-I), and Battlefield Intelligence Collection and Exploitation System (BICES). Third, the paper addresses the cultural biases of resistance to change that inhibit MPE implementation by recommending specific actions for DoD leadership to take based on analysis using the Joint Capabilities Integration and Development System (JCIDS). Ultimately, the MPE is a valid framework for enabling global coalition C2 interoperability, but it will only succeed if OSD and the Joint Staff prioritize it as an operational requirement and implement specific changes to overcome the cultural biases comprising of resistance to change, mistrust of diverse mission partners, and concerns over resource limitations, which limit the framework’s effectiveness.

II. Literature and Source Review

This paper leverages three primary categories of literature: joint doctrine, online journals and current events reporting, and a significant number of documents available through the MPE Executive Steering Committee’s (ESC) online portal at <https://www.max.gov>. First, joint doctrine provides the definitive guidance, applicable to the entire DoD, which establishes a common

understanding of how the military will operate in a joint and coalition environment. Next, online journals such as *Joint Force Quarterly*, and current events reporting through well-known online media sources provide general insight into the scope of the US military's involvement in coalition operations, including examples of where poor coalition C2 had disastrous consequences. Finally, the ESC portal provides a repository of the policies, after-action reports (AARs), and internal Joint Staff documents that illustrate the status of challenges associated with implementing the MPE framework.

In addition to literature, primary source interviews provided a large portion of the supporting evidence for this paper. Specifically, independent interviews with Mr. Martin Westphal and Mr. Thomas Lang, who were both key leaders in the Joint Staff J6 at the inception of the MPE framework, provided significant background information on the genesis of the MPE framework, and unique perspectives from the J6 and OSD. Additionally, interviews at Macdill, Air Force Base in Tampa, Florida with Mr. Bob Hutchens from USSOCOM J3-I and COL Neil Khatod from USCENTCOM J6 provided substantial information on the CCMDs' perspectives pertaining to coalition C2, and the MPE framework implementation effort. Further, the interviews in Tampa sufficiently balanced the Joint Staff interviews, and facilitated analysis of disconnects between DoD policy, and CCMD implementation of the MPE framework.

III. Origins of the Mission Partner Environment

In the post-9/11 era of warfare via coalitions, during which the US has consistently sought to rally its international partner nations to support its operations, it has become increasingly important for partner nation military forces, interagency partners, and nongovernmental organizations (NGOs) to leverage secure, reliable, and redundant communications. With partner

nation forces operating in coordination and in close proximity, as in the recent examples of coalition operations in Iraq and Afghanistan, there are dire consequences for failing to effectively share C2 systems. The risks of ineffective communication are clear in the numerous friendly fire incidents such as the December 2009 US helicopter attack that killed a British service member in Sangin, Afghanistan. An investigation revealed that the helicopter crew mistakenly fired on a British infantry battalion after receiving incorrect targeting information from British generals.³ Although investigators partially attributed the incident to the British generals who passed incorrect targeting information to their US partners, it highlighted critical gaps in the interoperability of coalition C2 systems including the lack of a shared Common Operating Picture (COP). Accordingly, a shared COP might have prevented the incident by providing the US helicopter crew with real-time positional information on the British battalion.

Through tragedies such as the Sangin incident, the CCMDs, including US Central Command (USCENTCOM), recognized the problems associated with disparate coalition C2 systems and were successful at implementing operationally tailored Joint Interagency Intergovernmental and Multinational (JIIM) C2 networks to facilitate coalition operations. Since 2010, there have been implementations of JIIM C2 networks, which successfully facilitated coalition C2, including the AMN, CX-I, and BICES. While these networks met their intended purposes of facilitating basic coalition C2, they did not meet the entire DoD's demand for global coalition C2 interoperability. Accordingly, DoD leadership recognized the need for an enterprise-wide approach to manage critical coalition operations, and in 2012, the Joint Staff developed the MPE concept. Their intent in developing the MPE was to establish the framework for "moving the coalition fight off of national secret networks to a tailored mission network in which all coalition members

share and operate as equals.”⁴ Subsequently, the Joint Staff’s concept for the MPE framework became DoD policy with the issuance of DoDI 8110.01 in November 2014.

IV. The Mission Partner Environment Defined

Officially, the MPE is “an operating environment that enables C2 for operational support planning and execution on a network infrastructure at a single security level with a common language. An MPE capability provides the ability for Mission Partners (MPs) to share their information with all participants within a specific partnership or coalition beginning in Phase 0 and transitioning to execution of Phase 1, Day 1 operations.”⁵ Essentially, the MPE provides a blueprint for the development and implementation of JIIM C2 networks in order to maximize the US military’s ability to fight as part of a coalition. Further, DoDI 8110.01 mandates a common set of rules for communications systems to ensure interoperability, reliability, and security of communications within the DoD and with its domestic and international MPs.

The foundation of the MPE framework, as specified through DoDI 8110.01, is the principle that all DoD data, information, and information technology “will adhere to a common set of standards, protocols, and interfaces.”⁶ This common guidance facilitates the reliable sharing of data and C2 systems integration between the DoD and MPs. Furthermore, the MPE framework adheres to the National Information Exchange Model (NIEM), which is a standards based model for information exchange with rules applicable to both government and commercial industry, that “ensures that information is well-understood and carries the same consistent meaning across various communities, allowing interoperability to occur.”⁷ NIEM is especially relevant for the MPE framework and JIIM C2 systems design, as it is specifically designed to facilitate accurate communications between disparate systems by mitigating differences in language, including

those experienced between coalition partners, through standardized information exchange rules. Thus, through a standards based approach, the MPE framework provides a sound path forward for resolving the challenges of coalition C2. Unfortunately, the DoD's cultural biases are the most significant factors, which limit the framework's effectiveness.

V. Cultural Biases

Martin Westphal and Thomas Lang are senior DoD officials who are members of the Joint Staff team that developed the MPE framework. In their article, "Conducting Operations in a Mission Partner Environment," Westphal and Lang observe that the successful implementation of the MPE framework requires a cultural shift in the way in which the military executes C2 over its forces.⁸ Accordingly, this shift first requires commanders and their staffs to understand the military's strategic culture and then to overcome three significant challenges including resistance to change, mistrust of diverse mission partners, and concerns over resource limitations.

Implementation of the MPE necessitates an understanding of the military's strategic culture, which Thomas Mahnken defines as "that set of shared beliefs, assumptions, and modes of behavior, derived from common experiences and accepted narratives (both oral and written), that shape collective identity and relationships to other groups, and which determine appropriate ends and means for achieving security objectives."⁹ Accordingly, the strong principles of discipline, determination, and selfless sacrifice in service to the nation shape the military's cultural identity including its beliefs, assumptions, and biases. Unfortunately, these cultural strengths, which provide the military a significant advantage on the battlefield, come at the cost of flexibility to adjust tactics, techniques, and procedures across the spectrum of military operations including the adaptation of interoperable coalition C2 systems.

A. Resistance to change

The first significant challenge – the military’s resistance to change – is evident in the pervasive practice of operating on US-only networks such as the Secret Internet Protocol Router Network (SIPRNET) for the majority of training and deployments, while only using multinational networks on a temporary basis to support specific coalition operations. Although the impact of this rigidity was relatively minor during pre-9/11 US-led military operations, it had significant adverse consequences during Operation Enduring Freedom. The mission in Afghanistan was unprecedented in the size and scope of the interoperability challenge, as more than fifty-one NATO and partner nations combined to form the International Security and Assistance Force (ISAF), which conducted operations from 2001 to 2014.¹⁰ Specifically the interoperability problem was so significant that, “in 2008, commanders noted that coalition forces in Afghanistan could not effectively communicate and share commander’s guidance, mission information, and critical intelligence.”¹¹ The crux of the problem was not only that each nation leveraged its own C2 systems and infrastructure, but also that the US military, as the de facto leader of the coalition in Afghanistan, refused to adapt its practice of using only the SIPRNET for operations.¹² As a result, by 2008, the coalition was clearly not functioning as a harmonious entity sharing a common C2 framework, but rather as a loosely connected affiliation of partner nations that operated relatively independent and only shared information in a disjointed fashion.

The U.S. military based its reliance on the SIPRNET as the primary mission-system infrastructure on the pre-ISAF model of training and operations that “did not demand an open framework for greater information sharing.”¹³ Before participating in heavily combined ISAF operations like those in Afghanistan, the US military routinely assumed the role as a leader of combined operations in which the US was the overwhelming contributor of personnel, equip-

ment, and combat power. Westphal and Lang provide a clear example, observing that, “at the peak of the surge in Operation Iraqi Freedom during 2007, the mission partner contribution was only 6 percent of the total personnel strength, and except for one specific area, all battle space commanders were American.”¹⁴ Because of this model, there was little incentive for the military to implement costly and technically significant changes in the C2 systems framework. In cases where US military and partner nations worked together, planners established ad-hoc mission partner networks to facilitate communication, but not as a means to “fight a true coalition fight.”¹⁵ Thus, because of the military’s cultural resistance to change, coalition C2 was sub-optimally efficient and effective until senior CCMD and ISAF leadership prioritized interoperability.

B. Mistrust of Diverse Mission Partners

The second significant challenge that inhibits the implementation of the MPE framework is mistrust of diverse mission partners. Although the US military had worked with partner nations before 9/11, commanders restricted true operational coordination to close historical allies, including the United Kingdom, Canada, Australia, and New Zealand. Along with the US, these countries known as the “Five Eyes” have enjoyed an exceptionally close relationship since the end of World War 2, which has enabled unprecedented intelligence sharing and operational coordination among these nations.¹⁶ Because of the mutual trust, the “Five Eyes” share sensitive classified information, thus greatly increasing the intelligence collection, analysis, and dissemination capabilities of each nation. In the case of the “Five Eyes,” the existing relationships and IT infrastructures supporting intelligence sharing among the partner nations have enabled a relatively smooth transition to support operational communication as necessary without the creation of additional networks. However, as in the case of the current Resolute Support Mission (RSM)

in Afghanistan, with more than forty partner nations participating, mutual trust between all MPs is not always inherent, and security concerns inhibit the connection and interoperability of C2 systems between coalition partners.¹⁷

C. Concerns Over Resource Limitations

The third significant challenge – concerns over resource limitations – has made it increasingly difficult for the DoD to implement the MPE framework. As seen in the President’s 2015 budget, the proposal cut DoD IT spending by 3% from \$81.4B in FY14 to \$79B in FY15.¹⁸ Accordingly, since a DoD-driven effort to overhaul the military’s C2 systems framework for coalition warfare has failed to materialize, CENTCOM and SOCOM have taken matters into their own hands using Overseas Contingency Operations (OCO) funds, which are outside of the DoD congressionally approved base budget and are universally considered to be “at-risk” funds that face possible cuts every year.¹⁹ These funds, which include \$50.9B in FY16 to directly support overseas operations, provide an alternate funding mechanism for CCMDs to procure equipment and infrastructure such as that proposed by the MPE framework.²⁰ Despite the overall cuts in DoD IT expenditures, CENTCOM has leveraged some of its OCO funding to implement significant improvements in its deployed network infrastructure to enable assigned forces to achieve efficiencies and fight as part of a coalition.

VI. Case Studies

Operations in Iraq and Afghanistan since 2008 have driven the implementation of coalition networks that have become increasingly more effective at mitigating technical challenges and enabling coalition C2. Analysis of three such networks: AMN, CX-I, and BICES, further

demonstrates that the current challenges to implementing the MPE framework are cultural and not technical.

A. Case Study: AMN

In Afghanistan, unlike in previous NATO operations where the participating nations' militaries operated relatively independently, a significant number of force contributions came from non-NATO nations. As a result, US military leadership recognized that in order to maximize the operational value of contributions from participating nations, "commanders needed the flexibility to mix US and non-US formations down at the company level."²¹ In order for the mixed formation model to work, commanders required a mechanism for real-time data communications and operational C2 systems that was interoperable with all coalition forces. In 2008 at the USCENTCOM Network Operations (NETOPS) conference in Qatar, ISAF representatives voiced concerns with the inability to effectively fight as a coalition due to insufficient network interoperability.²² These concerns resonated with ISAF leadership, including then ISAF commander GEN David McKiernan, and his successor GEN Stanley McChrystal, who both approved and drove the process to develop the AMN.²³ Thus, in 2010 the AMN, which was "a federation of networks linked to a NATO core mission secret network,"²⁴ became the ISAF primary mission network, and provided the coalition with a network framework that addressed the challenges of interoperable coalition C2 in three significant ways.

First, the AMN provided the framework through which ISAF could leverage "disparate collection data and populate common operational pictures (COPs) in a timely fashion,"²⁵ and which allowed the coalition to operate based on common mission requirements. AMN initially accomplished this through the provision of basic interaction services including "Chat, Voice over

Internet Protocol (VOIP) telephone connectivity, Email, Web browsing, and Secure video teleconferencing (SVTC).”²⁶ Eventually, it evolved into the primary Command, Control, Communications, Computers, Cyber, Intelligence, Surveillance, and Reconnaissance (C5ISR) mission system for coalition forces in Afghanistan, “consisting of the ISAF core and each of the participating nations’ national extensions.”²⁷ By permitting nations to retain autonomous national networks while enabling coalition connectivity through a common ISAF core, AMN effectively mitigated the participating nations’ cultural biases regarding information security concerns stemming from mistrust of diverse mission partners. Consequently, ISAF leadership required participating nations to change their security postures from “need to know” to “need to share” in order to implement and leverage the benefits of the AMN.²⁸

Second, the implementation of the AMN demonstrated the need for coalition participants to utilize “commonly agreed upon, developed, and tested mission threads.”²⁹ Even though the AMN provided the technical means for information sharing, shortfalls in knowledge management inhibited maximum effectiveness and efficiency of the network. ISAF participating nations resolved this problem out of necessity, as they became increasingly willing to adopt the common “mission threads”, and arrange operational information accordingly.

Third, the AMN demonstrated the benefit of “extra-theater testing, assurance, and validation efforts like those conducted by the Joint Interoperability Test Command’s (JITC) Coalition Interoperability Assurance and Validation (CIAV) program,”³⁰ which enables validation and troubleshooting of coalition network solutions before deployment in theater. Although ISAF leadership rapidly implemented the AMN following the 2008 NETOPS Conference to meet operational needs, the JITC testing program allowed planners to develop and test enhancements to the system without risking interruption of ISAF C2 systems. Planners further enhanced the test-

ing process following the completion of a “cooperative theater-laboratory engagement process”³¹ which enabled ISAF partner nations to continue focusing on operations while ISAF leadership ensured the availability of extra-theater laboratories, including the CIAV, to support improvements of the network. Although the implementation of the AMN significantly improved information sharing and C2 interoperability among coalition partners, a 2014 RAND study identified four significant challenges in the network, which prevented it from evolving into the desired end-state for the DoD’s MPE framework.

First, implementers faced significant issues with achieving a consensus among the forty-eight participating ISAF countries on the establishment of policies, procedures, and governance. Second, the development of AMN revealed challenges in “layers of interoperability” between coalition participants, which included both technical and non-technical obstacles. Implementers incrementally understood the complexity of the interoperability problem to include disparate “political objectives, harmonized strategy/doctrines, aligned operations, aligned procedures, knowledge/awareness, information operability, data or object-model interoperability, protocol interoperability, and physical interoperability.”³² Third, implementers faced challenges in the integration of COPs that contained different types of information at different levels of classification depending on operational standard operating procedures (SOPs) and were further complicated by the use of multiple languages. Fourth, implementers faced challenges to “standardization, protocol, and formatting challenges to operational and incident reporting and visualization.”³³ Thus, although the AMN faced challenges, its implementation marked an important milestone in the establishment of an effective coalition C2 framework. Further, it established the precedent for continued developments including the Combined Enterprise Regional Information Exchange

System - International Security Assistance Force (CX-I), which provided the US presence on the AMN.

B. Case Study: CX-I

As early as 1999, USCENTCOM identified a requirement to build a coalition sharing information network in order to “maintain a shared, timely, common visualization of the battle space with coalition and allied partners.”³⁴ This requirement led to the establishment of the Combined Enterprise Regional Information Exchange System (CENTRIXS) in January 2002, which eventually became the primary coalition C2 network in both OEF and OIF.³⁵ While planners designed CENTRIXS with specific coalitions in Iraq and Afghanistan in mind, they facilitated adaptability through connectivity at the “combatant commands, their components, and foreign countries, [with] the capability to create and modify secure communities of interest... to meet emergent operational needs.”³⁶ The flexible CENTRIXS architecture continued to adapt through multiple implementations supporting coalition C2 from 2004 to 2010.

In 2010, US military forces in Afghanistan implemented a separate domain of CENTRIXS, CX-I, as the US contribution to the AMN. While developers initially established a guard to enable connectivity between CX-I and SIPRNET, by 2012 the US military had transitioned more than 85% of operational C2 and communications to CX-I.³⁷ Thus, CX-I effectively served as the coalition’s primary mission system network and enabled communications among ISAF member-nations at the NATO SECRET level. Although implementers designed CX-I specifically to address the ISAF mission, it serves as an excellent case study for addressing the cultural challenges to MPE including resistance to change, mistrust of diverse mission partners, and concerns over resource limitations.

First, CX-I addressed the military's cultural bias of resistance to change in exercising C2 via SIPRNET, by enabling the shift in information management philosophy from "need to know" to "need to share."³⁸ Before the implementation of CX-I, the US military exercised internal C2 primarily on SIPRNET and coordinated coalition operations with ISAF partners on CENTRIXS. This caused significant information sharing delays and inhibited real-time planning and operational coordination between the US and other ISAF member nations. The problem was that the use of SIPRNET as the primary C2 network unnecessarily restricted non-US personnel from communicating with US partners and inhibited the sharing of time-sensitive mission information. However, once CX-I became the US military's primary C2 system for fighting as part of ISAF, there was little incentive for commanders to continue using the SIPRNET, as all of the functionality of SIPRNET was then resident on a system that was interoperable with the AMN, and therefore with ISAF.

Second, CX-I mitigated the military's inherent mistrust of diverse mission partners through application of a standards-based approach to connect disparate national systems to the AMN "trusted core" in order to facilitate secure information sharing. Since CX-I connected to the AMN, it adhered to criteria for storage and processing of information at the NATO-SECRET level.³⁹ Thus, AMN served as the common hub for ISAF connectivity and information sharing, while partner nations joined the common network through the establishment of their own national contribution networks, as in the case of the US CX-I. This modular approach allowed for growth of the network, as AMN served as the nexus of technical and security guidance for ISAF C2, and nations could join the community upon meeting the requirements. This methodology granted the US much more flexibility, as it enabled direct communication with specific MPs within the AMN for specific operations, without requiring separate bilateral coordination. Con-

sequently, although the US initially did not have the same information sharing agreements with all members of ISAF, CX-I enabled commanders to rapidly communicate and coordinate with all partners connected to the AMN.

Third, CX-I addressed concerns over resource limitations by minimizing the need for additional equipment purchases. This was exceptionally important for CX-I to be a viable mission system, since in 2010 defense spending to support operations in Iraq and Afghanistan had already reached its peak of \$187B in FY 2008 and was on the decline.⁴⁰ Thus, there was little appetite within the US government for applying a significant amount of resources to purchase equipment for another communications infrastructure. Accordingly, the military addressed the challenge of resource limitations by repurposing existing network equipment for use on CX-I. However, rather than simply handing newly configured equipment over to units as they arrived in Afghanistan, which would have introduced a steep learning curve, the Army took the lead on familiarizing users with CX-I at critical points in pre-deployment training.

The first test case for CX-I equipment fielding came as the Army's Program Executive Office for Command, Control and Communications – Tactical (PEO-C3T) spearheaded this cost savings effort through a joint effort with USCENTCOM to support the training and deployment of the Second Stryker Cavalry Regiment (2SCR) in 2010.⁴¹ As 2SCR prepared for deployment, PEO-C3T and USCENTCOM personnel equipped the unit with CX-I enabled assets during its mission readiness exercise in March 2010. Despite the addition of new equipment and the introduction of new network architecture, the CX-I fielding process did not cause any significant delays, and 2SCR successfully met its mission readiness objectives and deployed to Afghanistan on schedule. Most significantly, through the reuse of existing equipment, PEO-C3T reported that it had achieved a five-year sustainment plan cost savings of more than \$15M, and esti-

mated that it would achieve a total savings of \$58M over the life of the CX-I equipment fielding effort.⁴² Through the mitigation of cultural challenges including resistance to change, mistrust of diverse mission partners, and concerns over resource shortfalls, in 2012, CX-I became the gold standard for coalition networks. As in the case of AMN, developers incorporated CX-I lessons learned into subsequent JIIM C2 systems including in BICES in support of Operation INHERENT RESOLVE (OIR) in Iraq.

C. Case Study: BICES

The implementation of BICES in support of OIR is an excellent case study for analyzing the employment of JIIM C2 networks and provides lessons learned that are applicable to the MPE framework. While BICES is a joint US/NATO network designed to support intelligence sharing, because of coalition partners' inherent familiarity with the system at the onset of OIR, they leveraged it as an ad hoc coalition C2 network. In a May 2015 assessment of multinational planning utilizing BICES in OIR, the USSOCOM J3 International Directorate (J3-I) observed three significant lessons learned that also apply to the cultural biases challenging the MPE framework.

First, although BICES' primary function is intelligence sharing, its inherent security and the familiarity of the mission partners made it extremely well suited to serve as the primary OIR C2 system. In addition to facilitating intelligence sharing, BICES provides email, an OIR portal page, and file exchange capability.⁴³ Further, the majority of the coalition documents reside at the Middle Eastern Security Force (MESF) releasable level, which is suitable for dissemination on BICES.⁴⁴ Accordingly, due to the network's accessibility, security, and the veracity of its information, SOCOM J3-I staff members noted that BICES significantly contributed to MP confi-

dence in the C2 of the OIR coalition.⁴⁵ Thus, BICES mitigated the military's cultural resistance to change because it was familiar to the coalition and provided basic coalition C2 capability without forcing users to learn a new system.

Second, BICES mitigated the military's cultural biases against working with diverse mission partners by incorporating knowledge management (KM) professionals who organized information on the network and oversaw its delivery to the appropriate recipients. Specifically, the J3-I recognized that although BICES provides the framework for C2 interoperability between OIR MPs, due to the complexities of the coalition, dedicated BICES KM professionals are necessary to maximize the utility of the network.⁴⁶ The J3-I noted that commanders require these individuals in order to organize and ensure the continued flow of the vast amount of OIR C2 data on BICES. Specifically, these dedicated KMs are necessary to ensure the right information gets to the right MPs at the right time. In order to facilitate this, KMs must "know who has to get what, where, and why; put information on [the correct] communications medium, and organize it."⁴⁷ Following the forward deployment of KMs and their incorporation into the OIR headquarters, J3-I staff members noted a significant improvement in the accuracy, efficiency, and effectiveness of MP communications and C2 systems.⁴⁸

BICES addressed the cultural biases surrounding concerns over resource limitations because it enabled users to repurpose an existing system for use as the coalition's primary C2 network. Before its designation as the primary coalition network, BICES was already widely used by the US and coalition partners, and thus there was not a need for significant equipment purchases. However, despite initial cost savings, the J3-I noted there was a significant deficiency in end-user knowledge of BICES in the early stages of OIR.⁴⁹ Over time, users gained familiarity with the system, but the lack of initial familiarity inhibited OIR C2 at a critical period. This prob-

lem was not unique to the US military, but also affected numerous other MPs who had not previously used BICES in a complex coalition environment. In order to mitigate this knowledge gap the J3-I recommended socializing the BICES system as the preferred coalition network, and developing a robust training plan to enable immediate effectiveness at the beginning stages of combined operations.⁵⁰ Further, the J3-I noted that MPs should each maintain familiarity with a standard KM methodology and best practices model to maximize efficiency and effectiveness of the system.⁵¹ Thus, with effective KM and pre-deployment training and familiarization, the use of BICES in OIR may prove to be an effective model for utilizing a C2 system that meets the flexibility requirements of the MPE and addresses DoD's cultural biases.

Although the implementations of AMN, CX-I, and BICES are examples of successful implementation of JIIM C2 networks, planners designed these networks to support specific operations and consequently they do not meet the MPE requirement for globally scalable and interoperable systems. These case studies provide valuable lessons learned that are applicable to the MPE framework, but additional capability analysis reinforces the fact that the primary challenges are cultural rather than technical. Accordingly, successful implementation of the framework requires key DoD leadership, including from OSD and the Joint Staff, to address cultural challenges by taking specific action in the areas of doctrine, organization, training, leadership, and education.

VII. DOTmLPE-P Analysis

As seen in the cases of AMN, CX-I, and BICES, there are technical solutions already available to facilitate coalition C2. However, these systems are not sufficient to meet the requirement for a globally deployable and interoperable JIIM C2 system that supports the entire

DoD. While there is a small contingent of senior DoD, CCMD, and service leadership who appreciate the cultural challenges to the MPE framework, they are primarily in the J6 staff sections and do not have sufficient authority to address the cultural biases that inhibit the framework's implementation. Unless leadership from OSD and the Joint Staff takes decisive action to address these biases, the military will continue to rely on NOFORN networks including SIPRNET, which will limit the military's ability to work with coalition partners. The requirement for the MPE framework represents a DoD-wide capability gap that requires analysis through the Joint Capabilities Integration and Development System (JCIDS).⁵²

JCIDS defines the DoD's capability integration and development process, and is especially applicable to the identification of a solution for identified capability gaps. Specifically, JCIDS uses the DOTmLPF-P Analysis construct that examines the variables of "Doctrine, Organization, Training, Previously fielded materiel, Leadership and Education, Personnel, Facilities, and Policy."⁵³ While analysis of each of these variables provides insight into how to address the capability gap, four variables are especially relevant to addressing cultural biases. Specifically, analysis of doctrine, organization, training, and leadership and education will reveal steps that OSD and the Joint Staff must take to overcome the cultural biases that inhibit the MPE framework's success as a critical operational capability.⁵⁴

A. Doctrine

To successfully implement the MPE framework, OSD and the Joint Staff must address military doctrine. These leaders must determine whether existing doctrine enables the capability to be used to its full potential and in cases where the existing doctrine is insufficient, whether the construct mandates the identification of necessary changes to doctrine and the assignment of an

Office of Primary Responsibility (OPR) for the implementation of the change.⁵⁵ Accordingly, joint doctrine provides the “fundamental principles that guide the employment of US military forces in coordinated action toward a common objective [and] provides authoritative guidance from which joint operations are planned and executed.”⁵⁶ The Chairman of the Joint Chiefs of Staff (CJCS) disseminates this authoritative guidance to the DoD through Joint Publications (JP), which “takes precedence over individual service doctrine, which must be consistent with joint doctrine.”⁵⁷ For this reason, it is critical that joint doctrine is not only specific enough to provide overarching guidance for how the services will operate in the MPE, but also flexible enough to allow services to establish their own tactics, techniques, and procedures that maximize each service’s efficiency and effectiveness in coalitions. Although there are numerous relevant publications, three specific JPs significantly influence the military’s approach to the MPE capability: JP 1-02 (Department of Defense Dictionary of Military and Associated Terms), JP 3-16 (Multinational Operations), and JP 6-0 (Joint Communications System).

1) JP 1-02

JP 1-02 is the Chairman’s authoritative guidance for the lexicon of the DoD, as it “sets forth standard US military and associated terminology to encompass the joint activity of the Armed Forces of the United States [in order to] improve communication and mutual understanding within DoD, with other federal agencies, and among the United States and its allies.”⁵⁸ Thus, JP 1-02’s primary function is to eliminate ambiguity of terms and facilitate clear and accurate communications. The authors wrote the publication in the format of an English language dictionary, and each entry contains a thorough definition and a reference to indicate where the term resides in relevant joint doctrine. Although JP 1-02 is useful for clarifying the DoD’s use of termi-

nology, it is critically deficient in facilitating common understanding of the terminology that underpins the DoD's way forward for coalition communications.

Surprisingly, the Joint Staff recently amended JP 1-02 in a publication dated 15 November 2015, yet the updated publication fails to mention two terms that DoD policy guidance has referenced since at least 2014: "Mission Partner" or "Mission Partner Environment."⁵⁹ The omission of these terms is significant for two reasons: first, it indicates that DoD did not conduct a holistic analysis of applicable doctrine before introducing the MPE concept; and second, it indicates that OSD and the Joint Staff do not prioritize a unified approach to working and communicating with mission partners. In order to address the deficiencies, OSD and the Joint Staff should mandate that JP 1-02 includes these terms, and that future revisions of the publication should include any new significant terminology that is critically important to ensuring the success of the MPE. These concerns surface again through analysis of JP 3-16.

2) JP 3-16

JP 3-16 "provides doctrine for the Armed Forces of the United States when they operate as part of a multinational force,"⁶⁰ and as in the case of JP 1-02, this critical publication is woefully silent on discussion of the MPE. Specifically, while the publication states "coalition members should share all relevant and pertinent intelligence," the Joint Staff leaves the extent of sharing to the reader's interpretation as "information about intelligence sources and methods should not be shared with coalition members unless approved by the appropriate authority."⁶¹ While this may seem to be a practical safeguard to protect sensitive information about the capabilities of US military intelligence, it is ambiguous enough to potentially inhibit the timely passage of sensitive

intelligence and operational information as a foreign disclosure officer (FDO) would need to review any dissemination prior to release to coalition partners.⁶²

Another contradiction in JP 3-16 is the requirement “that a system be devised for and by the multinational force (MNF) members that is capable of transmitting the most important intelligence rapidly to units.”⁶³ Immediately following this, the publication states, “several nations maintain separate classified Internet and communications systems. For US forces the SIPRNET is the primary classified architecture.”⁶⁴ Thus, the publication directs the implementation of measures to ensure the timely sharing of classified information while simultaneously stating that the primary classified network for the US military will remain SIPRNET, which is a NOFORN network. This means that regardless of the actual classification level of information, JP 3-16 mandates a review – either human or automated – to screen information before transfers of information from the SIPRNET to a coalition network. In addition to potentially introducing delays in coalition information sharing, this guidance exacerbates the cultural biases that challenge the MPE framework, as it encourages commanders to continue utilizing the SIPRNET as the primary C2 system.

As in the case of JP 1-02, the Joint Staff should revise JP 3-16 to include a focus on working with MPs, and on moving mission systems from SIPRNET to a SECRET-REL network in order to facilitate direct and timely communication, intelligence sharing, and C2 system integration with coalition members. Concurrently with the revisions to JP 1-02 and JP 3-16, the Joint Staff must provide general technical guidance for implementing the MPE through a revision to JP 6-0.

3) JP 6-0

JP 6-0 “provides the doctrinal foundation for communications system support to joint operations.”⁶⁵ This guidance addresses the requirement to share information with mission partners, stating “multinational information sharing should be facilitated by establishing a shared architecture using existing and emerging multinational mission capabilities, including Internet protocol networks.”⁶⁶ It further mandates the establishment of standards, and the need for “mission partner communications networks [to be] capable of securely integrating mission partners’ systems.” Although this guidance is loosely in accordance with the MPE concept, it falls short of being authoritative and remains ambiguous enough to allow for the interpretation that mission partner networks may be of secondary importance to the SIPRNET as the primary US mission system network. Further, without clarification, JP 3-16 will supersede the guidance in JP 6-0, as it states that the SIPRNET will remain the US military’s primary classified network. Thus, as in the cases of JP 1-02 and JP 3-16, OSD and the Joint Staff should leverage a revision of JP 6-0 to explicitly designate MPE as the way forward for coalition C2 systems, with the mandate that primary mission systems networks must be interoperable with MPE to allow for flexible integration into coalitions.

B. Organization

“Organization” requires a determination of whether current organizational structures facilitate the utilization of the MPE framework capability to its fullest potential. If current organizational structures do not meet these criteria, DOTmLPF-P calls for the identification of necessary changes and the creation of resource estimates to capture the associated costs.⁶⁷ In the case of the MPE, analysis must center on the organizational structure of the CCMDs, as these organi-

zations will continue to be at the fulcrum of all coalition operations. Accordingly, CCMDs are the “vital link between those who determine national security policy and the military forces or subordinate Joint Force Commanders (JFCs) who conduct military operations,”⁶⁸ and therefore the structure of CCMDs must facilitate seamless integration, communication, and collaboration between assigned forces and MPs. The case of USSOCOM’s implementation of the J3-I provides a model for an organizational structure, which is compatible with the MPE framework.

USSOCOM established the J3-I in May, 2014 as “an integration of Partner Nations (PN) within the SOF Enterprise, located at headquarters, USSOCOM,” in order to improve the command’s ability to operate effectively with its MPs.⁶⁹ The creation of the J3-I came at a critical time, as it immediately preceded the President’s September 2014 announcement of a coalition to counter the activities of Islamic State in the Levant (ISIL) under OIR.⁷⁰ While OIR is currently ongoing, the coalition of more than forty nations has achieved notable successes at the operational and strategic levels. This success is in part due to the accomplishments of the USSOCOM J3-I in facilitating interoperable C2 between MPs and the US military.⁷¹ Before the implementation of the J3-I, both physical and logical separation between the US and its mission partners hindered collaboration. The J3-I has mitigated these challenges by providing two critical functions.

First, the J3-I “facilitates enhanced decision making for US and global SOF commanders.”⁷² Essentially, the J3-I provides MPs with direct access to USSOCOM staff and assigned forces, and facilitates direct communication between coalition members. Notably, MP representatives who are assigned to the J3-I as exchange officers are fully empowered members of the USSOCOM team, and the scope of their responsibilities extends well beyond that of traditional liaison officers (LNO). Whereas previously MPs had restricted access to common areas, and se-

curity had to review and approve all meetings, the J3-I provides “a common workspace with connectivity to BICES, [and] the J3-I setup allows officers from the US and [MPs] to collaborate regularly during daily operations.”⁷³ This direct and regular interaction significantly increases the speed of decision-making at USSOCOM headquarters, which translates to gains in efficiency and effectiveness of coalition C2 around the globe.

Second, the J3-I “integrates partner nation representatives into headquarters processes,”⁷⁴ through collaboration with the USSOCOM J635, by facilitating access to critical coalition and national C2 systems. Specifically, the J635 provides MPs with on-site help desk support for all connectivity-related issues, ensures availability of C2 systems, assists with the installation of MP’s national systems, and helps coordinate and establish VTCs on all networks.⁷⁵ Thus, with the J635 providing direct matrix support, the J3-I remains a viable and effective nexus for communication across all MPs in support of both headquarters and coalition C2. Moreover, beyond the direct benefit of facilitating interoperability with MPs, the implementation of the J3-I at USSOCOM headquarters provides the CCMD with a mechanism for implementing the MPE guidance set forth in DoDI 8110.01.⁷⁶

According to DoDI 8110.01, combatant commanders are responsible for implementing the MPE, and specifically for directing “commanders to employ the MPE framework for operational information sharing with traditional and non-traditional MPs.”⁷⁷ Presumably, at USSOCOM, the J3-I will be the focal point for all MPE guidance within the CCMD. As a subordinate element of the J3, the J3-I is able to directly influence operational guidance and directives disseminated to commanders by USSOCOM. Additionally, with MP representatives physically working in J3-I spaces, the combatant commander and his staff have direct access to coalition partners who have a stake in the MPE and consequently the CCMD is able to rapidly respond to

partner requirements in support of coalition C2. While other CCMDs have integrated MPs into their staff sections, USSOCOM's J3-I serves as an operationally validated model for success, and provides a viable organizational structure, which the other CCMDs should duplicate in order to facilitate implementation of the MPE. To take the recommendation a step further, in order to ensure prioritization of the MPE framework, OSD and the Joint Staff should shift responsibility for its implementation at the Joint Staff from the J6 to the J3. Only when the OPR is in the operational chain of command, is there a realistic chance that the MPE framework will be a priority over competing requirements throughout DoD.

C. Training

“Training” identifies whether the implementation of the capability requires specialized training and if so what the purpose, scope, and cost of the training will be. For the implementation of the MPE, relevant training will include both technical training for planners, installers, and maintainers, and operational training for end-users including commanders and their staffs. While classroom and virtual training will provide a foundation for familiarity with the MPE, the most effective way to ensure proficiency is through realistic live training. Accordingly, the Joint Staff's Network Integration Evaluation/Bold Quest (NIE/BQ) Mission Network (MN), Informal MPE Assessment provides a relevant case study for the successful training and evaluation of technical and operational MPE proficiency.

The planners designed the NIE/BQ event, which occurred from 21 September to 8 October 2015, to facilitate “the pursuit of modernization, interoperability and training objectives, while leveraging the significant power of collective resources,” with participants including the Army's 1st Armored Division headquarters and representatives from thirteen partner nations.⁷⁸

Notably, in addition to US participants, five of the participating MPs including Norway, France, Denmark, Italy, and Great Britain agreed to “federate their networks, core services and Mission Command systems as Network Contributing Mission Partners (NCMPs).”⁷⁹ The remaining eight participating MPs did not connect their own networks, and instead participated in the BQMN as Hosted Mission Partners (HMPs), “connecting their Mission Command systems to NCMP networks.”⁸⁰ Thus, throughout the exercise, the coalition’s C2 systems resided on an integrated connection of networks that allowed MPs to continue to utilize their familiar Mission Command systems, while retaining connectivity to all other coalition members. The Joint Staff J6 assessed the BQMN and made three significant observations that indicate significant potential for the MPE.

First, the J6 determined the NIE/BQMN to be operationally effective and “a stable and technically robust environment that supported mission partner objectives.”⁸¹ The BQMN successfully facilitated both internal MP C2 with organic Mission Command systems, and collaboration through the federated network connectivity. However, the J6 also observed some challenges to the coalition’s Unity of Effort among mission partners due to “separate command structures, processes and varying mission objectives supported by a single network... [and challenges to] Speed of Command and Situational Awareness due to ‘machine to machine’ interoperability issues between US and coalition Mission Command systems.”⁸² While these challenges inhibited C2 during the exercise, the J6 observed that they could be mitigated through increased collaboration and familiarity between MPs, adherence to data exchange standards, and multi-lateral developmental efforts to ensure mission system compatibility.⁸³

Second, the MPs heavily leveraged BQMN’s core services, including Email with Global Access List, VoIP, multiple Chat rooms, and Shared File Directory, and these services signifi-

cantly improved collaboration within the coalition.⁸⁴ J6 observers noted that the use of these services, which were available independent of the MPs Mission Command systems, mitigated some of the interoperability issues that inhibited operational effectiveness. Thus, the assessment indicated that core services would be a critical requirement for future implementations of the MPE.

Third, NIE/BQMN leveraged collaboratively developed Joining, Membership, and Exit Instructions (JMEI), which involved participation of all MPs, and significantly increased participants' overall familiarity with the BQMN. These instructions were based on the DoD Joining Instructions for an Episodic MPE, and were further refined with input from MPs in preparation for the NIE/BQ exercise. While users experienced some challenges with operating on the BQMN, evaluators determined the majority of these issues were the result of failure to read and adhere to the JMEI. Thus, a collaborative JMEI proved to be critically important and should remain a vital component of all future implementations of the MPE.

The insights gained from the NIE/BQMN assessment and utility of the J6's observations demonstrate the utility of a well-structured training plan at multiple levels. Not only did the J6 observe the implementation of MPE in a multi-national training exercise, the end-user participants gained critical experience in working as part of a coalition. The NIE/BQMN assessment is a viable model for training to operate in the MPE, and OSD and the Joint Staff should mandate that commands that may function as part of a coalition participate in these exercises on a recurring basis. Ultimately, the greatest value from these exercises will be in the external assessment and subsequent incorporation of lessons-learned into the evolution of the MPE.

D. Leadership and Education

“Leadership and education” requires identification of whether current leadership enables utilization of the capability to its fullest potential. This implies a determination of whether senior DoD leaders are committed to the successful implementation of the MPE. There are two significant examples that indicate support in the Joint Staff, through the MPE Executive Steering Committee (ESC), and at the CCMDs. Unfortunately, in each of these cases, while some senior leaders have expressed interest in seeing the MPE framework succeed, the lack of follow-through by OSD and the Joint Staff has severely inhibited its implementation.

1) ESC

First, in October 2014, the Chairman of the Joint Chiefs of Staff established the MPE ESC “as a flag officer/general officer (FO/GO) level joint body to govern and manage the MPE framework... [and chartered it to] analyze, integrate, and provide recommendations to improve mission partnered command and control, communications, computers and cyber (C5) interoperability and integration.”⁸⁵ Membership on the ESC, which meets semi-annually, includes general officer or civilian equivalent representatives from each of the military services, the CCMDs, the Joint Staff, and the OSD. Additionally, the ESC contains a hierarchy of subordinate working groups (WG) to address the committee’s areas of concern between the semi-annual meetings. The purpose of the ESC is to provide “a joint forum for the Community of Interest (COI) to address MPE issues across the full DOTmLPPF-P spectrum.”⁸⁶ Ultimately, the ESC provides an invaluable mechanism for senior DoD leaders to influence the evolution of the MPE so that it meets their operational needs. However, the lack of formal tasking authority limits the ESC's ability to implement changes. In order to address this challenge, OSD and the Joint Staff should mandate that the ESC reports directly to the Joint Staff J3, and should publish approved recommendations as DoD policy.

2) CCMDs

Second, the CCMDs have demonstrated significant interest in the continued development of the MPE framework. The degree of interest is evident in a February 2015 memorandum from the deputy commanders of USPACOM, USEUCOM, USAFRICOM, USCENTCOM, and USSOCOM, to the DoD CIO.⁸⁷ Through the memorandum, also known as the “15-Star Memo”, CCMD leadership emphasized the urgency of the operational requirement for the MPE capability and expressed concerns that inaction by the Joint Staff would cause delays. Additionally, the CCMDs specifically requested the CIO’s assistance with three objectives including an accelerated timeline for the implementation of the MPE, initiation of a DoD-led programmatic approach to managing the implementation, and the assurance of close coordination with NATO and coalition partner C2 systems efforts.⁸⁸ Thus, through the memorandum, the five CCMDs confirmed that they shared a stake in the success of the MPE and indicated that they supported a top-down, whole of DoD approach to addressing the challenges of coalition C2.

While the CCMDs and the Joint Staff have demonstrated significant interest, the successful implementation of the MPE depends on DoD-wide support including OSD and the leadership of the individual services. It is incumbent upon the services, as force providers to the CCMDs, to ensure the proper training and equipping of deploying units. Thus, service leadership must remain engaged, both through the MPE ESC, and through regular direct interaction with the CCMDs regarding the incorporation of coalition C2 systems that are interoperable with the MPE. Although the incorporation of MPE instruction in CAPSTONE, Joint Forces Staff College, and Joint Knowledge Online courses and curriculums, has improved education about the framework,

there is room for improvement.⁸⁹ Ultimately, service leadership must ensure the incorporation of MPE instruction in all levels of professional military education in order to ensure that by the time officers, enlisted personnel, and government civilians ascend to the senior ranks, they have already become fully aware of the importance of MPE and its capability to facilitate seamless interoperability with coalition partners.

VIII. Perspectives from the Joint Staff

An analysis of doctrine, organization, training, leadership, and education provides a starting point for addressing the cultural biases that inhibit the implementation of the MPE framework, but the framework's success depends on the direct involvement of OSD and the Joint Staff. In separate interviews, Martin Westphal and Tom Lang confirmed the requirement for direct involvement, and they provided valuable insight gained from their experiences on the Joint Staff during the inception of the MPE framework. Drawing on these experiences, they each provided candid assessments of the status of the MPE implementation from the Joint Staff's perspective, and recommendations for addressing the cultural biases.

First, Mr. Lang observed that the MPE framework implementation has stalled because of a disconnect between the SECDEF's guidance, as established in DoDI 8110.01, and the assignment of the Joint Staff J6 as the OPR. Additionally, Mr. Lang noted that the Joint Staff incorrectly identified the MPE framework as a "network" capability and a responsibility of the J6. He stressed that in actuality it is an operational capability that requires a thorough DOTmLPPF-P gap analysis that extends beyond the scope of the J6. While the J6 has the technical expertise to ensure the proper development and employment of the MPE framework, as a non-operational staff section, it does not have the authority to enforce policy throughout the DoD. Thus without the

direct involvement of DoD's operational leadership including the OSD, the J6 is only able to make recommendations to the CCMDs and services to implement changes that will facilitate the implementation of the MPE framework. Accordingly, the J3, with regular reporting to the CJCS and OSD, should take over as the MPE framework OPR.

Second, Mr. Westphal, in addition to agreeing with Mr. Lang's concerns about the Joint Staff J6 as the MPE framework OPR, emphasized the need for a unified approach towards developing and deploying IIIM C2 networks. He specifically rejected the approach that many service and CCMD components have taken by working with contractors to create proprietary network solutions to meet immediate mission requirements, but that do not facilitate interoperability with MPs. According to Mr. Westphal, the current fiscally constrained environment has exacerbated this problem, as the services inevitably prioritize expenditures on service-specific requirements over joint capabilities. To address the issue, he recommends that OSD establishes and enforces policy that divests the DoD from proprietary C2 systems and mandates an open-standard development approach such as the NIEM. Ultimately, both Mr. Westphal and Mr. Lang are optimistic about the potential for the MPE framework, but emphasize the need for direct and consistent involvement by OSD and the Joint Staff to address cultural biases.

IX. Conclusion: Getting in the Game

Despite technical challenges to implementing the MPE, it is a valid framework that will enable global coalition C2 interoperability if OSD and the Joint Staff implement specific changes in doctrine, organization, training, leadership, and education to overcome the framework's cultural biases. The MPE framework leverages lessons learned from fifteen years of coalition operations and industry best practices and addresses the DoD's enduring requirement for interoperable

coalition C2 systems. This analysis has demonstrated that, as in the cases of the AMN, CX-I, and BICES, the necessity to share information with our coalition partners will drive innovation, and the military will continue to accomplish its missions despite C2 challenges. However, without direct involvement by OSD and the Joint Staff, cultural biases including resistance to change, mistrust of diverse mission partners, and concerns over resource limitations will continue to inhibit the abilities of individual components of the DoD to function harmoniously in coalitions.

To mitigate these cultural biases and guarantee the success of the MPE framework, OSD and the Joint Staff must re-task the responsibility for the framework's implementation from the J6 to the J3, to ensure that its prioritization as an operational capability. Next, SECDEF must provide definitive guidance requiring that all service and CCMD communications systems be compatible with MPE framework specifications and interoperable with coalition C2 systems. Subsequently, SECDEF, through the Joint Staff, Service Chiefs, and Combatant Commanders, must direct implementation of specific changes, as identified in this paper, to doctrine, organization, training, leadership, and education. Ultimately, it is incumbent upon SECDEF to require all senior DoD leaders to "get in the game" by mitigating the military's cultural biases and driving the transformation of the military into a force optimized for success in coalition operations.

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² *U.S. DEPARTMENT OF DEFENSE*, "Carter: Lasting Defeat of ISIL."

³ "Officers' Errors 'Killed Soldier in Friendly Fire Gunship Attack': Coroner Condemns 'Unprofessional' Use of Grainy Images from Drone Aircraft," *Mail Online*, September 7, 2012, <http://www.dailymail.co.uk/news/article-2199706/British-soldier-killed-US-Apache-helicopter-friendly-Afghanistan-died-result-mistaken-beliefs-cumulative-failures.html>.

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- ⁵ Department of Defense, *Mission Partner Environment (MPE) Information Sharing Capability Implementation for the DoD*. Instruction 8110.01, November 25, 2014. <http://www.dtic.mil/whs/directives/corres/pdf/811001p.pdf>.
- ⁶ DoDI 8110.01, 1.
- ⁷ Institute for Intergovernmental (IIR) Research for United States Department of Justice (DOJ), “National Information Exchange Model (NIEM),” accessed January 31, 2016, <https://www.niem.gov/aboutniem/Pages/niem.aspx>.
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