

Using Operational Design in the Creation of Joint Task Force Component Commands

A Monograph

by

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2018

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REPORT DOCUMENTATION PAGE

*Form Approved
OMB No. 0704-0188*

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1. REPORT DATE (DD-MM-YYYY) 04-17-2018	2. REPORT TYPE Master's Thesis	3. DATES COVERED (From - To) JUN 2017 - MAY 2018
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4. TITLE AND SUBTITLE Using Operational Design in the Creation of Joint Task Force Component Commands	5a. CONTRACT NUMBER
	5b. GRANT NUMBER
	5c. PROGRAM ELEMENT NUMBER

6. AUTHOR(S) MAJ Michael Carvelli	5d. PROJECT NUMBER
	5e. TASK NUMBER
	5f. WORK UNIT NUMBER

7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) U.S. Army Command and General Staff College ATTN: ATXL-SWD-GD Fort Leavenworth, Kansas 66027-2301	8. PERFORMING ORGANIZATION REPORT NUMBER
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9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES) Advanced Strategic Leadership Studies Program; Advanced Military Studies Program	10. SPONSOR/MONITOR'S ACRONYM(S)
	11. SPONSOR/MONITOR'S REPORT NUMBER(S)

12. DISTRIBUTION/AVAILABILITY STATEMENT
Approved for Public Release; Distribution Unlimited

13. SUPPLEMENTARY NOTES

14. ABSTRACT
The emergence of cyberspace as the fifth warfighting domain has changed the character of war. As a domain that exists in the physical as well as non-physical dimensions, it challenges the application of military force that has been typical of past conflicts. Cyberspace continually challenges the US Department of Defense as it applies military force to solve problems throughout the world. To account for the emergent nature of problems, military organizations need to use operational design to structure their component commands. Joint task forces are the preeminent organization to structure their components around the problem. Instead of continually applying legacy structures arranged around services, domains, and functions, joint task forces would benefit from some using elements of operational design to set itself within its unique context and organize the subordinate components around the problem. This paper suggests that using operational design earlier in the creation of joint task force component commands is an effective way to solve problems.

15. SUBJECT TERMS
Joint Task Force, Combined Joint Task Force, Operation Inherent Resolve, Organization Theory, Component Commands, Design, Operational Design, Army Design Methodology

16. SECURITY CLASSIFICATION OF:			17. LIMITATION OF ABSTRACT (U)	18. NUMBER OF PAGES 54	19a. NAME OF RESPONSIBLE PERSON MAJ Michael Carvelli
a. REPORT (U)	b. ABSTRACT (U)	c. THIS PAGE (U)			19b. TELEPHONE NUMBER (Include area code) 8082089993

Reset

Monograph Approval Page

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Monograph Title: Using Operational Design in the Creation of Joint Task Force
Component Commands

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Abstract

Using Operational Design in the Creation of Joint Task Force Component Commands, by MAJ Michael P. Carvelli, Army, 54 pages

The emergence of cyberspace as the fifth warfighting domain has changed the character of war. As a domain that exists in the physical as well as non-physical dimensions, it challenges the application of military force that has been typical of past conflicts. Cyberspace continually challenges the US Department of Defense as it applies military force to solve problems throughout the world. To account for the emergent nature of problems, military organizations need to use operational design to structure their component commands. Joint task forces are the preeminent organization to structure their components around the problem. Instead of continually applying legacy structures arranged around services, domains, and functions, joint task forces would benefit from some using elements of operational design to set itself within its unique context and organize the subordinate components around the problem. This paper suggests that using operational design earlier in the creation of joint task force component commands is an effective way to solve problems.

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Acknowledgements

To my wife Rose and daughter Emma. Rose's patience, kindness, and love is a constant inspiration in my pursuits. Emma's birth and first year kept me smiling every day. Your love fuels me. I am forever thankful.

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What's the Problem?

Current doctrine specifies that Joint Forces be established on a geographic or functional basis, with geographic boundaries shifted as required. In the years to come, security challenges are less likely to correspond with, or even approximate, existing geographic or functional divisions. Future Joint Forces might therefore be increasingly organized around specific security challenges themselves.

—General Martin Dempsey, *Capstone Concept for Joint Operations: Joint Force 2020*

The emergence of cyberspace as the fifth warfighting domain has changed the character of war. As a domain that exists in physical and non-physical dimensions, it challenges the application of military force that has been typical of past conflicts. Cyberspace continually challenges the US Department of Defense as it applies military force to solve problems throughout the world because the traditional means of military power are physical whereas cyberspace has both physical and non-physical aspects.¹ To account for cyberspace, military organizations need to design their component commands to address cyberspace's uniqueness. Joint task forces are the preeminent organization to design their components around the problem as it exists in its unique context. Instead of continually using legacy structures based on services and domains, joint task forces benefit from exploiting operational design that enables the organization to set itself within its own context and focus on the problem. The theory of design enables military organizations to broaden their focus beyond using historical organizational structures. Although two design methodologies account for the complexity of emerging problems, these methods do not recommend designing the organization prior to beginning the planning process. If joint task forces designed their subordinate organizations based on the emerging problem, then they can meet war's evolving character and remain relevant in the future. This is because joint task forces have the potential, when designed and set in their own context, to

¹ James E. McGhee, "Liberating Cyber Offense," *Strategic Studies Quarterly* 10, no. 4 (Winter 2016): 46, accessed 14 March 2017, <http://www.airuniversity.af.mil/SSQ/>

address change. Using the elements of operational design to create the structure of component commands allows joint task forces to understand their context so they can address the problem.

General Martin Dempsey, the former Chairman of the Joint Chiefs of Staff, illustrated his vision for future joint force operations in the *Capstone Concept for Joint Operations: Joint Force 2020*. In this document, he proposed a new concept to solve the United States military's security future challenges.² In this epigraph, he highlighted the inadequacy of current joint operations in addressing future security challenges because of the anticipated future operating environment's complexity. Central to his vision is increasing the adaptability of military forces to cope with uncertainty, complexity, and rapid change.³ Dempsey proposed a solution to this doctrinal shortfall: design the structure of the organization around each security challenge instead of using legacy geographic and functional divisions.

Joint task forces are the military organization to experiment with such solutions and confirm Dempsey's vision for organizing around security challenges because of their ad hoc, problem oriented focus. These organizations have a transient nature: when the organization solves the problem, the proper authority dissolves the joint task force.⁴ Joint task forces offer the US Department of Defense a moldable headquarters capable of meeting the needs of unique problems.⁵ Joint doctrine does not prescribe the structure of a joint task force; however, the US military continually uses legacy geographic, functional, and domain-based joint task force

² Concepts are ideas for a significant change based on proposed new approaches to the conduct of operations or technology. Department of the Army, Army Doctrinal Publication (ADP) 1-01, Doctrine Primer (Washington: Headquarters, Department of the Army, September 2014), 1-2; US Department of Defense, Chairman, Joint Chiefs of Staff (CJCS), *Capstone Concept for Joint Operations: Joint Force 2020* (Washington: Government Printing Office, September 2012), iii.

³ US Department of Defense, Chairman, Joint Chiefs of Staff (CJCS), Joint Information Environment White Paper (Washington: Government Printing Office, January 2013), 3.

⁴ US Department of Defense, Joint Staff, Joint Publication (JP) 3-0, Joint Operations (Washington: Government Printing Office, 2017), IV-5.

⁵ US Department of Defense, Joint Staff, JTF C2 and Organization. Insights and Best Practices Focus Paper (Washington: J7 Deputy Director for Joint Training, April 2017), 2.

component commands instead of designing them for each problem.⁶ Although joint doctrine offers geographic and functional component command examples, it neither prescribes nor limits the number of solutions.⁷ Nevertheless, organizational biases drive joint task forces continually to adopt previous solutions. Unique problems demand tailored solutions, so they need bespoke organizations to produce and deliver them.

Unfortunately, existing and legacy geographic, functional, and domain-based component command structures prevent effective solutions because they focus on old problem sets, not new and emerging ones. An example of this is in the US Southern Command's response to a disaster in Haiti in 2010 when it applied legacy structures for Joint Task Force-Haiti's headquarters and subordinate commands resulting in a quick but inefficient response to the crisis.⁸ Herein lies the value of Dempsey's concept. Security challenges—both current and future—are unique because they exist in their specific context. Thus, military organizations should function in relation to the unique context to address problems. Joint task forces are the right organization to experiment with Dempsey's concept because of their adaptability. The joint force will benefit from employing operational design in designing the structure of joint task force component commands before they charge them with beginning the operational planning process because of the operating environment's ever-increasing scale and complexity, and the resultant change in the character of war. The design process needs to occur earlier to shape the structure of the joint task force prior to conducting the planning process.

⁶ US Department of Defense, Joint Staff, Joint Publication (JP) 5-0, Joint Planning (Washington: Government Printing Office, 2017), III-2.

⁷ US Department of Defense, Joint Staff, Joint Publication (JP) 3-33, Joint Task Force Headquarters (Washington: Government Printing Office, 2012), III-2.

⁸ US Government Accountability Office, Defense Management: U.S. Southern Command Demonstrates Interagency Collaboration, but Its Haiti Disaster Response Revealed Challenges Conducting a Large Military Operation: Report to the Chairman, Subcommittee on National Security and Foreign Affairs, Committee on Oversight and Government Reform, House of Representatives, (Washington: Government Accountability Office, 2010), accessed April 9, 2018, <http://purl.fdlp.gov/GPO/gpo9589>.

Background and Significance

The world is complex and its complexity is growing in scale because of manifold reasons, including cyberspace as a key contributor. Cyberspace can be an esoteric environment to understand. It consists of interdependent physical and non-physical layers that interact in ways unlike those in land, air, maritime, and space.⁹ The traditional domains of land, sea, air, and space interact in purely physical ways. In cyberspace, military forces interact with these four domains in both physical and non-physical ways (logic, digital representations, etc.).¹⁰ For example, a person uses a computer (a physical entity) to create a digital information packet (a non-physical entity) and sends it across wires and cables (physical entities) to another computer (another physical entity).¹¹ Along the way, the packet interacts with many other physical and non-physical entities. This mess of interactions tends to create bias among military commanders to defer to traditional uses of military force over the use of cyber means.¹² Further, cyberspace is a constructed environment in which physical components meet with nonphysical ones; it does not exist in nature because humans created it and could likewise deconstruct it.¹³ It allows multiple actors to connect across the globe, including outer space, in innumerable ways; these ways differ from the traditional interactions in completely physical domains. Joint military organizational structures

⁹ Erik Heftye, "Multi-Domain Confusion: All Domains Are Not Created Equal," *RealClearDefense*, May 26, 2017, accessed January 26, 2017, https://www.realcleardefense.com/articles/2017/05/26/multi-domain_confusion_all_domains_are_not_created_equal_111463.html.

¹⁰ Ibid.

¹¹ William Stallings, *Data and Computer Communications* (Upper Saddle River, NJ: Pearson Prentice Hall, 2007), 309-17, accessed April 9, 2018, <https://pdfs.semanticscholar.org/5dc8/00b597039e0378230881c8af65849222589c.pdf>.

¹² Rosemary M. Carter, Brent Feick, and Roy C. Undersander, "Offensive Cyber for the Joint Force Commander," *Joint Force Quarterly*, no. 66 (July 2012): 25, accessed April 9, 2018, <http://dtic.mil/doctrine/jfq/jfq-66.pdf>.

¹³ US Department of Defense, Joint Staff, Joint Publication (JP) 3-12, *Cyberspace Operations* (Washington: Government Printing Office, 2013), I-2 to I-4.

are inadequate because cyberspace is vastly different from the purely physical domains around which component commands organize.

When the US Department of Defense finds the need to focus on an operational level problem—whether to combat an adversary, address a security threat, or relieve human suffering—it creates a joint task force.¹⁴ This military unit emerges as the tailored solution to the new problem. Joint task forces then configure their subordinate organizations, referred to as components or component commands, based on domains (land, maritime, and air), military services (Army, Navy, Air Force, and Marine Corps), and functions (special operations and civil-military operations).¹⁵ These three components offer only a partial solution because they focus on the domain or similarity of tasks; however, they do not account for the complexity of operational problems because these problems do not always neatly reside in domain or task bins. An organizational bias bent on applying familiar solutions to past problems pushes joint task forces to repeatedly use previously successful subordinate organization structures.¹⁶ For example, Combined Joint Task Force Operation Inherent Resolve uses two component commands, one configured around the land domain and the other around special operations.¹⁷ These legacy structures used over and over because they are familiar. However, emerging problems demand unique solutions because, as shown with the emergence of cyberspace, past solutions no longer work because of war's changed character. The complexity of military operations in cyberspace as well as in the physical domains challenge joint task force component commands. Therefore, repeated use of legacy structures fails to account for the new complexity resulting from the

¹⁴ US Joint Staff, JTF C2 and Organization, 2.

¹⁵ US Joint Staff, JTF C2 and Organization, III-1.

¹⁶ US Government Accountability Office, Defense Management, 20.

¹⁷ Combined Joint Task Force-Operation Inherent Resolve, "Organization," US Central Command, accessed January 31, 2018, <http://www.inherentresolve.mil/About-Us/Organization/>.

emergence of cyberspace. Joint task forces have the potential to account for the new complexity but must use operational design earlier than it has done in the past.

To account for this new complexity, the tenets of operational design offer an existing way to capture cyberspace's emergence and account for the uniqueness of problems. Although operational design already exists in joint military doctrine, joint task forces repeatedly use legacy component command structures that prevents them from fully exploiting organizational design as a way to address problems. Operational design is supposed to help commanders and staffs to organize and understand their operating environment if designers apply the methods outlined in joint and Army doctrine.¹⁸ Furthermore, using these methods should help to create components that orient on the problem and arrange them in their context. Original thinking about problems, not anchoring on past solutions, can enable commanders and their staffs to focus on the problem's emergent nature.¹⁹ Existing operational design, as written in joint and Army doctrine, seems to focus solely on planning as a process beyond the creation of the organization that does the planning. It does not acknowledge that to execute the plan, planners must arrange the organization to conduct the military operations most effectively to achieve the strategic objective.

Using operational design in the creation of subordinate organizations enables a joint task force to create a unique structure to further arrange tactical actions in pursuit of strategic goals through the effective use of tactical means—the essence of operational art.²⁰ Joint task forces are meant to conduct operational design to solve a wide range of military problems that are relevant to all military services.²¹ However, if the approving authority and his staff does not initially

¹⁸ US Joint Staff, JP 5-0, Joint Planning 2017, IV-6; US Army, ATP 5-0.1, Army Design Methodology 2015, 1-5.

¹⁹ Daniel Kahneman, *Thinking, Fast and Slow* (New York: Farrar, Straus and Giroux, 2015), 119.

²⁰ US Department of the Army, Field Manual (FM) 3-0, Operations (Washington: Headquarters, Department of the Army, 2017), 1-20.

²¹ US Joint Staff, JP 5-0, Joint Planning 2017, I-5.

design the structure of the joint task force, then existing biases will push the use of legacy solutions before operational planning begins. Therefore, using operational design to create the structure of the joint task force prior to the commencement of planning can help to reduce these biases and focus on solving the emerging problem.²²

The organization of a joint task force headquarters and its components is not only important to the joint force, but it is important to individual military services as well. The preferred approach to forming a joint task force headquarters is to use an existing command and control structure taken from one of the military services.²³ The US Department of Defense may call on any of the individual military services to fill the needs of prospective joint task forces. Army corps and divisions, Marine air ground task forces, Navy fleets, and Air Force wings are many of the options that the establishing authority can use to form the nucleus of a joint task force.²⁴ Recent examples include US Army Central as the nucleus of Combined Joint Task Force Operation Inherent Resolve of Iraq and Syria, III Marine Expeditionary Force as the nucleus of Joint Task Force 505 for the Nepal Earthquake in 2015, and Expeditionary Strike Group 2 as the nucleus for Joint Task Force Matthew for the hurricane in Haiti in 2016.²⁵ Each of these show that multiple establishing authorities formed joint task forces for a vast array of operations ranging from large-scale combat to disaster relief using a variety of service headquarters. Further,

²² Gardiner Morse, "Designing a Bias-Free Organization," *Harvard Business Review* (July/August 2016), accessed April 9, 2018, <https://hbr.org/2016/07/designing-a-bias-free-organization>.

²³ US Joint Staff, JTF C2 and Organization, 4.

²⁴ US Joint Staff, JTF C2 and Organization, 4.

²⁵ US Army Combined Arms Center, ARCENT Transition to Combined Joint Task Force—Operation Inherent Resolve Initial Impressions Report, No. 16-10 (Fort Leavenworth, KS: Center for Army Lessons Learned, March 2016), 1; Department of Defense, "Joint Task Force Activates for Nepal Earthquake Relief," Department of Defense, accessed May 6, 2015, <https://www.defense.gov/News/Article/Article/604582/joint-task-force-activates-for-nepal-earthquake-relief/>; USS Iwo Jima (LHD 7) Public Affairs, "Expeditionary Strike Group 2 Takes Command of Joint Task Force Matthew," US Navy, October 17, 2016, accessed October 26, 2017, http://www.navy.mil/submit/display.asp?story_id=97204.

the newest edition of the *National Defense Strategy* states, “Delivering performance means we will shed outdated management practices and structures.”²⁶ Considering the organizations that joint doctrine recommends, and the latest *Strategy*, individual military services should expect the US Department of Defense to request their forces for to fill future joint task force commands.

In the *Capstone Concept for Joint Operations: Joint Force 2020*, Dempsey presents a concept that he calls globally integrated operations. This entails military forces combining quickly across domains, echelons, and geographic boundaries.²⁷ However, the approach detailed in this document is underdeveloped, if not undeveloped. This monograph posits how using operational design in the creation of joint task force component commands can effectively address unique problems. Looking deeper into Dempsey’s concept of integrated operations at the operational level enables future joint task forces to meet unique problems in their context.

This study looks at the proposition as it relates to one of the US military’s most challenging cognitive and practical problems—cyberspace—because of its different nature when compared to the four physical domains. First, this study tries to answer the question, “How has cyberspace changed the character of war?” Cyberspace is critical to understanding the operating environment because pure physical interactions no longer exist due to its omnipresence. Therefore, emerging problems demand an original approach that incorporates cyberspace into the structure of the subordinate commands. This then raises the question, “Which military organization can address an operational problem?” Joint task forces are the military’s operational-level solution to confront threats, relieve suffering, and create the conditions to generate strategic change.²⁸ These organizations have a transient nature and joint doctrine outlines their use. Next,

²⁶ US Department of Defense, *National Defense Strategy* (Washington: Department of Defense, 2017), 10, accessed April 9, 2018, <https://www.defense.gov/Portals/1/Documents/pubs/2018-National-Defense-Strategy-Summary.pdf>.

²⁷ US Chairman, Joint Chiefs of Staff, *Capstone Concept for Joint Operations*, iii.

²⁸ US Joint Staff, JP 3-33, *Joint Task Force Headquarters*, I-1.

“What theories account for, or miss, conducting operational design on the organization prior to beginning planning?” This section evaluates the foundation for design theory, looks into John Boyd’s framework for adaptive organizations, and finds the organizational gap in both the Army Design Methodology, and Joint Operational Design. Lastly, “How can using operational design to organizing joint task force component commands address why legacy solutions are inadequate?” Through eight elements extracted from design theory and these two methodologies, this study answers the question and provides a solution.

Applying operational design using Combined Joint Task Force Operation Inherent Resolve as a case study creates an alternative component command structure in the contemporary operating environment. The alternative structure that this paper analyzes the operational problem and organizes around the security challenge instead of around the warfighting domains. Maintaining relevancy in a constantly evolving operational environment is difficult.²⁹ However, continual focus on the problem enables joint task forces to organize themselves for their unique problem rather than keep using archetypal components.

Operational design in joint task force organization allows designers to remember that, although they are convenient, previous solutions may not fit every new problem.³⁰ As each new joint task force works to solve its own problem or set of problems, the process of trial and error enables future designers to reflect on the trail and set the stage for the next one.³¹ Using operational design allows future joint task force designers to focus on the problem’s unique

²⁹ Kelly McCoy, "The World the Combatant Command Was Designed for is Gone," War on the Rocks, October 6, 2016, accessed April 9, 2018, <https://warontherocks.com/2016/10/the-world-the-combatant-command-was-designed-for-is-gone/>.

³⁰ Donald A. Schoen, *Educating the Reflective Practitioner: Toward a New Design for Teaching and Learning in the Professions* (San Francisco: Jossey-Bass, 1987), 39.

³¹ *Ibid.*, 27.

context and create the organizational structure that addresses a unique problem to affect a solution.³²

³² Joint Staff, JP 5-0, Joint Planning 2017, IV-6.

How Cyberspace Changed the Character of War

Space and cyberspace will play a particularly important role in the years ahead. As these domains figure more prominently in the projection of military power, operations in them will become both a precursor to and integral part of armed combat in the land, maritime and air domains. Future adversaries may even elect to attack only in cyberspace, where military networks and critical infrastructure are vulnerable to remote attack, and actions remain difficult to trace.

—General Martin Dempsey, *Capstone Concept for Joint Operations: Joint Force 2020*

To understand why joint task forces need to account for cyberspace, understanding how cyberspace changed the character of war is critical. Cyberspace is inescapable in present-day military operations because it reaches across geographic and geopolitical boundaries, much of it existing outside of the control of one nation.³³ Although cyberspace can mean many things to many people, the term conjures up an image of streams of zeros and ones in a dark background. The reality is more complex as cyberspace is not a purely physical place, although participants do share digital information in its environs. Cyberspace has no geography making defining its borders difficult.³⁴ Everywhere a smartphone, tablet, or computer connects to another device, cyberspace exists.

The presence of the Internet makes military operations in cyberspace inescapable.³⁵ Advanced militaries depend on the Internet and the larger sphere of cyberspace for myriad functions including global positioning, precision strike weapons, aircraft operations,

³³ Jackson Adams and Mohamad Albakajai, "Cyberspace: A New Threat to the Sovereignty of the State," *Management Studies* 4, no. 6 (November/December 2016): 256, doi:10.17265/2328-2185/2016.06.003.

³⁴ Ibid.

³⁵ The Internet is not one network; rather, it is a massive combination of billions of computers and other connected devices located worldwide and connected via cables and wireless signals. This enormous network includes personal, business, educational, and government devices such as large mainframes, desktop computers, smartphones, smart home gadgets, personal tablets, laptops and other devices. Paul Gil, "What's the Difference Between the Internet and the Web?" *Lifewire*, May 3, 2010, accessed January 28, 2018, <https://www.lifewire.com/difference-between-the-internet-and-the-web-2483335>.

communications, and data sharing.³⁶ The domain of cyberspace is a confusing concept because of its differences with the four physical domains of land, air, sea, and space. The cyber domain consists of physical components (hardware, systems software, and infrastructure) and nonphysical components (relationships, logic, connections, and digital representations of people and entities) resulting in a complicated and difficult environment to employ military force.³⁷ Where land and naval power intersect in two dimensions, air and space in three, cyberspace defies counting its interactions with all other domains.³⁸ Cyberspace's countless connections span political, economic, military, and social realms. The result of this mass of physical and nonphysical elements is an esoteric domain where warfighting is confusing and not yet well-developed because of the lack of understanding throughout the military.³⁹ Unfortunately, cyberspace belies centuries of traditional military operations where an attacker can see parts of the effect, gather data, and create understanding.⁴⁰

The current operational environment drives the United States, including its military, to prepare for conflict in the cyber domain. The United States continues to defend its sovereign cyberspace, protect the use of non-sovereign cyber commons, and control key parts of

³⁶ Brett Williams, "Cyberspace: What is It, Where is It and Who Cares?," *Armed Forces Journal*, March 13, 2014, accessed April 9, 2018, <http://armedforcesjournal.com/cyberspace-what-is-it-where-is-it-and-who-cares/>.

³⁷ The Department of Defense defines cyberspace as a global domain within the information environment consisting of interdependent networks of information technology infrastructures and resident data, including the Internet, telecommunications networks, computer systems, and embedded processors and controllers and the content that flows across and through these components. US Joint Staff, JP 3-12, *Cyberspace Operations* 2012, I-2; Paul W. Phister, "Cyberspace: The Ultimate Complex Adaptive System," *The International C2 Journal* 4, no. 2, 13, accessed 2 October 2017, http://www.dodccrp.org/files/IC2J_v4n2_03_Phister.pdf.

³⁸ US Joint Staff, *Joint Operating Environment* 2035, 36.

³⁹ Carter, Feick, and Undersander, "Offensive Cyber for the Joint Force Commander," 25.

⁴⁰ Jan Kallberg and Thomas S. Cook, "The Unfitness of Traditional Military Thinking in Cyber," *IEEE Access* 5 (2017): 8127, doi:10.1109/access.2017.2693260.

cyberspace, both sovereign and non-sovereign, for its political and economic well-being.⁴¹ Therefore, the cyberspace domain will maintain its significance in military operations, if not grow in significance as militaries increase their reliance on it. Further, the more a military relies on automation and associated technologies, the greater the part that cyberspace will play in military operations.

Military forces have begun to consider how to integrate cyber forces into their organizations. The elevation of Cyber Command to a unified combatant command formally recognizes cyberspace's importance in military operations at the strategic level.⁴² Cyber Command has the authority to develop strategy, doctrine, and tactics; prepare its budget; organize, train, educate, and equip all assigned active and reserve cyber operations forces within the US military; and conduct a cyber operation activity or mission unless the President or Secretary of Defense direct otherwise.⁴³ As the newest combatant command, Cyber Command will continue to find its mission evolve among the other nine geographic and functional commands. As Cyber Command evolves, so should joint task forces.

The nature of war as a political tool has not changed; however, the character of war has changed.⁴⁴ The rise of cyberspace changed the way that the physical domains interact; therefore, the character of war changed because of its introduction into warfighting. Cyberspace's myriad

⁴¹ The United States depends on an interdependent network of information technology including the Internet, telecommunications networks, computer systems, embedded processors and controllers—and the data, information, and knowledge stored therein—for its economic, industrial, societal, and military well-being. US Joint Staff, Joint Operating Environment 2035, 33.

⁴² Donald J. Trump, "Statement by President Donald J. Trump on the Elevation of Cyber Command" (speech, Washington, August 18, 2017), accessed April 9, 2018, <https://www.whitehouse.gov/briefings-statements/statement-president-donald-j-trump-elevation-cyber-command/>.

⁴³ National Defense Authorization Act for Fiscal Year 2017, Public Law 328, 114th Cong., 2d sess., (December 13, 2016), § 923.

⁴⁴ Christopher Mewett, "Understanding War's Enduring Nature Alongside Its Changing Character," *War on the Rocks*, January 28, 2014, accessed April 9, 2018, <https://warontherocks.com/2014/01/understanding-wars-enduring-nature-alongside-its-changing-character/>.

interactions with military forces living and working in the physical domains increases their complexity.⁴⁵ Additionally, the strategic context of current and future conflicts changed due to this new interaction. Non-state actors, specifically actors capable of applying power in the cyber domain, evolve the character of each conflict and conflict in general. Similarly, new conflicts are unique because they incorporate the cyber domain. This new face of conflict requires adaptable organizations to address the changing character of war as they apply military force in pursuit of political aims.⁴⁶ Joint task forces have the potential to adapt to these challenges because of their transient nature. However, their continued reliance on legacy structures prevents that potential from being unlocked because organizational design requires thinking, analysis, and a systemic approach.⁴⁷ To better understand why joint task forces have this potential requires a deeper look into these organizations and their archetypes.

⁴⁵ Defense Science and Technology Organisation, *Future Cyber Security Landscape: A Perspective on the Future*, (Canberra, Australia: Australian Government Department of Defense, 2014), 4, accessed April 9, 2018, <https://www.dst.defence.gov.au/publication/future-cyber-security-landscape-perspective-future>.

⁴⁶ Mary M. Crossan et al., "The Improvising Organization: Where Planning Meets Opportunity," *Organizational Dynamics* 24, no. 4 (Spring 1996): 24-5, accessed April 9, 2018, doi:10.1016/s0090-2616(96)90011-x.

⁴⁷ Peter F. Drucker, "New Templates for Today's Organizations," *Harvard Business Review* (January 1974), accessed April 9, 2018, <https://hbr.org/1974/01/new-templates-for-todays-organizations>.

Joint Task Forces – The Customizable Operational-Level Organization

Globally integrated operations within the context of increasingly interconnected security challenges may require future Joint Forces to be established based on the nature of the challenge itself rather than pre-established geographic or functional responsibilities. We must begin experimenting now with mutual command and hybrid command architectures.

—General Martin Dempsey, Capstone Concept for Joint Operations: Joint Force 2020

The joint task force is the most customizable military organization that exists to address emerging operational problems for three reasons. First, doctrine does not prescribe its structure allowing the joint task force to tailor its component commands based on the nature of the problem it faces. Second, its transient nature ensures that, should the joint task force incorrectly determine the nature of the problem, it negatively affects only one operational problem because the organization only works on that problem. Finally, stemming from the last reason, the next time someone sets up a joint task force, they could look at another case study to learn from past mistakes. These three reasons place the joint task force in a unique position to experiment with Dempsey’s concept and address the ubiquity of cyberspace in military operations. The historical background concerning formal joint military operations enables a deeper understanding of how joint task forces came into existence.

The National Security Act of 1947 began formal joint US military operations, although informal joint operations existed before Congress enacted this law. Produced after the conclusion of the Second World War, this act directed the Joint Chiefs of Staff “to establish unified commands in strategic areas where such commands are in the interest of national security.”⁴⁸ The concept of joint forces in the US military manifested itself in these unified commands that still exist to this day. The doctrinal definition of a joint force is “the composition of significant elements, assigned or attached, of two or more military departments operating under a single joint

⁴⁸ National Security Act of 1947, Public Law 253, 80th Cong., 1st sess. (July 26, 1947), § 211.

force commander.”⁴⁹ In other words, referring to a joint force means that two or more services of the military, such as the army and the air force, combine their efforts in a single organization. Joint forces have expanded beyond unified commands and exist today in several forms, including as joint task forces. These customizable organizations are well suited to address emerging operational problems.

First, joint doctrine does not prescribe its structure allowing the joint task force to tailor its component commands based on the nature of the problem it faces. A joint task force gives a combatant commander the benefit of having a headquarters focused on a single but potentially complex problem set.⁵⁰ Joint task forces enable combatant commanders the ability to continue to focus on broader theater activities while the task force closely integrates assigned, allocated, and coalition forces as well as interagency partners.⁵¹ Once created, these organizations arrange tactical actions to achieve strategic military aims. Joint task forces need personnel from various military services to execute tactical tasks. Typically, joint task forces work with other US government agencies, including embassies and intergovernmental organizations.⁵² Although not assigned these other elements, a joint task force should be aware of, and incorporate, these stakeholders’ goals in their pursuit of achieving broader policy and political goals.

Once formed, a joint task force sets up new subordinate organizations. These subordinates, referred to as components or component commands, configure themselves based on a selection of domains, including land, air, and maritime; military services, including Army,

⁴⁹ US Joint Staff, JP 3-33, Joint Task Force Headquarters 2012, I-1.

⁵⁰ US Department of Defense, Joint Chiefs of Staff (JCS), Forming a JTF HQ, Insights and Best Practices Focus Paper (Washington: J7 Deputy Director for Joint Training, 2015), 1.

⁵¹ Assigned forces are permanent, and where such organization controls and administers the units or personnel for the primary function, or greater portion of the functions, of the units or personnel. Attached forces are in an organization where such placement is temporary. US Joint Staff, Forming a JTF HQ, 1; Department of Defense, *Dictionary*, 21.

⁵² US Joint Staff, Forming a JTF HQ, 2.

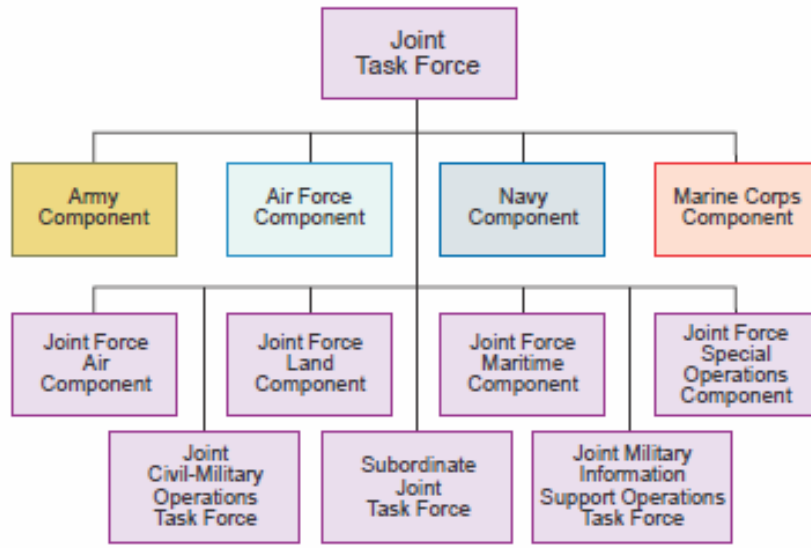
Navy, Air Force, and Marine Corps; and functions, including special operations and civil-military operations. The commander of a joint task force can organize his components with service, function, domain, or a combination of the three organization types.⁵³ Figure 1 shows a diagram of archetypal joint task force components. The top row is the joint task force headquarters. The second row holds the service-based components. All joint forces include service component commands because of each service's unique administrative and sustainment needs.⁵⁴ The third row shows some functional components including land, air, maritime, and special operations. The bottom row holds more functional components (civil-military and military information support) and subordinate task forces. The solid line shows that a joint task force consists of many components, of varying types, that form its essential subordinate organizations. Although the below graphic represents possible components, these have become the de facto set of components in joint task forces.⁵⁵

⁵³ US Joint Staff, JP 3-33, Joint Task Force Headquarters 2012, III-1.

⁵⁴ US Department of Defense, Joint Staff, Joint Publication (JP) 5-00.2, Joint Task Force Planning Guidance and Procedures (Washington: Government Printing Office, 1999), III-1.

⁵⁵ US Government Accountability Office, Defense Management, 20; Combined Joint Task Force-Operation Inherent Resolve, "Organization."

Possible Joint Task Force Components



NOTES:

1. A joint force always contains Service components (because of administrative and logistic support and training responsibilities).
2. A joint force composition can be a mixture of the above. (Navy and Marine Corps forces alone will not constitute a joint force).
3. There also may be a Coast Guard component in a joint force.

Figure 1. Possible Joint Task Force Components. Joint Publication (JP) 3-33, Joint Task Force Headquarters 2012, III-2.

The use of the phrase “functional component command” to describe a variety of subordinate organizations is inaccurate because these commands are arranged around military services and physical domains, not likeness of tasks. Functional components arrange forces based on the similarity in work functions.⁵⁶ In other words, functional components arrange themselves based on the likeness of tasks. For example, the joint special operations component is functional in that it pursues only special operations-type missions.⁵⁷ It is joint because it includes forces of

⁵⁶ Mary Jo Hatch, *Organization Theory* (New York: Oxford University Press, 2006), 297.

⁵⁷ This monograph refers to the Joint Force Air/Land/Maritime Components as domain-based and the Joint Force Special Operations/Civil-Military Operations/Military Information Support Operations task forces as functionally-based. The Department of Defense Dictionary of Military and Associated Terms provides the following definitions: The air domain is the atmosphere, beginning at the Earth’s surface, extending to the altitude where its effects upon operations become negligible. DoD, *Dictionary*, 10; The land domain is the area of the Earth’s surface ending at the high-water mark and overlapping with the maritime domain in the landward segment of the littorals. DoD, *Dictionary*, 137; The maritime domain is the oceans, seas, bays, estuaries, islands, coastal areas, and the airspace above these, including the littorals. DoD, *Dictionary*, 146; Cyberspace is a global domain within the information environment consisting of the interdependent network of information technology infrastructures and resident data, including the Internet, telecommunications networks, computer systems, and embedded processors and controllers. DoD, *Dictionary*, 58; The space environment is the environment corresponding to the space domain, where

two or more military services. “Functional” is the term used when an organization focuses on a set of operational missions. Neither the makeup of the military services nor their operational physical environment characterize the joint special operations component command because their forces come from all military services and they operate in multiple domains. Special operations use unique modes of employment and techniques in hostile, denied, or politically sensitive environments.⁵⁸ These operations can be time sensitive, clandestine, low visibility, and have a relationship with indigenous forces.⁵⁹ To contrast the joint special operations component command from the land component command, it would be more useful to create a new term: domain-based components.

Using the term domain-based component accurately describes the land, air, and maritime commands because they organize around the part of the earth where they conduct the preponderance of their operations. In contrast, the grouping of activity according to the logic of similarity in work functions (i.e. the nature of the work performed) is what defines functional units.⁶⁰ Domain-based component commands align their forces mostly with the military services because the services themselves normally focus on a single domain. For example, maritime assets provide many of the forces available to the maritime component command.⁶¹ However, the domain-based component commands’ operational missions are not unique. For example, all four military services attack ground targets using a variety of aircraft. Although land, air, and maritime forces use air-to-surface fires, their organization aligns to their operating domain.

electromagnetic radiation, charged particles, and electric and magnetic fields are the dominant physical influences, and that encompasses the earth’s ionosphere and magnetosphere, interplanetary space, and the solar atmosphere. DoD, *Dictionary*, 213.

⁵⁸ DoD, *Dictionary*, 215.

⁵⁹ *Ibid.*

⁶⁰ Hatch, *Organization Theory*, 297.

⁶¹ US Department of Defense, Joint Staff, Joint Publication (JP) 3-32, Command and Control for Joint Maritime Operations (Washington: Government Printing Office, 2013), II-2.

It is important to understand that joint doctrine prescribe these types of component commands within joint task forces. Joint doctrine provides these as examples of components, not as the only set of solutions available. Functional, domain, and service based component commands have become the de facto set of components in joint task forces.⁶² However, there is potential within the joint task force to arrange future component commands based on the problem identified in the operational design process.

Second, the transient nature of joint task forces ensures that should the joint task force incorrectly determine the nature of the problem it faces, it negatively affects only one operational problem because the establishing authority disbands the organization after the problem is solved. The complexity, uncertainty, speed, and interdependence of events in today's environment require highly adaptable organizations capable of integrating operations in a variety of competition and conflict scenarios.⁶³ When the scope and complexity of a crisis require the capabilities of at least two military departments, the proper authority establishes a joint task force through either an ad hoc or deliberate process.⁶⁴ This shifts the onus of operational planning and execution away from strategic leaders thus vesting the day-to-day planning and execution to an operational organization.⁶⁵ If a crisis arises that needs an immediate organizational response, then the establishing authority forms an ad hoc joint task force. If more time is available and the problem is not as critical, then a deliberate planning process occurs. In both cases, the joint task force becomes an entity, receives forces, and begins addressing the operational problem.⁶⁶ The

⁶² US Government Accountability Office, Defense Management, 20; Combined Joint Task Force-Operation Inherent Resolve, "Organization."

⁶³ US Joint Staff, Forming a JTF HQ, 2.

⁶⁴ US Joint Staff, JP 3-33, Joint Task Force Headquarters 2012, I-1.

⁶⁵ The Secretary of Defense, a combatant commander, a sub-unified commander, or a commander of an already established joint task force have the authority to establish a joint task force. Ibid.

⁶⁶ When the joint task force achieves its purpose, or when it is no longer needed, the establishing authority dissolves the organization. US Joint Staff, JTF C2 and Organization, 4.

transient nature of a joint task force allows a strategic leader—the Secretary of Defense or a combatant commander—to create an organization to conduct day-to-day operations to solve a problem. Therefore, joint task forces are the optimal organization to organize themselves around an emerging problem.

The use of subordinate organizations to focus on smaller elements of a problem is not unique to the military. As Peter Senge describes in his book *The Fifth Discipline*:

Traditionally, organizations attempt to surmount the difficulty of coping with the breadth of impact from decisions by breaking themselves up into components. They institute functional hierarchies that are easier for people to "get their hand around." But, functional divisions grow into fiefdoms, and what was once a convenient division of labor mutates into the "stovepipes" that all but cut off contact between functions.⁶⁷

The use of components is not inherently bad. However, joint task forces need to acknowledge that these organizations can create what Mary Jo Hatch calls functional silos that also exist in civilian businesses.⁶⁸ These silos enable the components to develop greater loyalty to their function than to the organization.⁶⁹ Acknowledging this fact allows the joint task force to understand the implicit bias that it injects into the components when it chooses to create these commands.

Joint task forces should look beyond function, service, and domain as the main organizing principles that joint doctrine provides. Problem focus, instead of familiar organizational structures, enables joint task forces to arrange forces around the parts of the problem thereby removing familiarity bias. The five warfighting domains can be a solution, but the multidimensionality of cyberspace changes the interactions of the four physical domains.⁷⁰ Functional arrangement of components places forces in subordinate organizations with similar

⁶⁷ Peter M. Senge, *The Fifth Discipline: The Art & Practice of the Learning Organization* (New York: Currency Doubleday, 1990), 24.

⁶⁸ Hatch, *Organization Theory*, 299.

⁶⁹ Ibid.

⁷⁰ Phister, "Cyberspace: The Ultimate Complex Adaptive System."

tasks. However, the similarity of tasks does not focus on the problem; rather it focuses on the actions that the component command takes. Lastly, components arranged around military services can prevent efficient use of resources because of the overlap in tasks and effects. Reaffirming operational design in the construction of the joint task force components, beginning with framing the problem to understand the context, enables broader range of organizational solutions that leads to a larger array of possible component structures.⁷¹

Third, because joint task forces have a transient nature, the next time an establishing authority sets up a joint task force, organizational designers can look at past mistakes and apply them if they are relevant. Even within an existing joint task force, changes in the strategy or operational plan often require changes in structure to determine how to allocate resources.⁷² Fortunately for the military, joint task forces are a moldable and scalable headquarters with the capability to address unique security challenges.⁷³ The military organization capable of adapting to the changed character of war is the joint task force. However, joint task forces continually adopt legacy component command structures because of heuristics. Heuristics are simple procedures that help to find adequate, though often imperfect, answers to questions and problems.⁷⁴ The familiarity and past success of component command structures makes them alluring. Continuing to use joint force land, maritime, and air component structures may not address the uniqueness of a problem but their familiarity lures joint task forces to adopt them time and again. Geographic boundaries aid the decentralization of effort to achieve a common purpose;

⁷¹ US Joint Staff, JP 5-0, Joint Planning 2017, IV-1.

⁷² Kalu I. Awa, "Functional Structure and Operational Issues: An Examination of Core Challenges and Remedies," *Journal of Business and Management* 18, no. 1 (January 2016): 1, accessed April 10, 2018, <http://iosrjournals.org/iosr-jbm/papers/Vol18-issue1/Version-3/A018130104.pdf>.

⁷³ US Joint Staff, JP 3-33, Joint Task Force Headquarters 2012, II-1 to II-3.

⁷⁴ Kahneman, *Thinking, Fast and Slow*, 98.

however, they should not impede the level of effectiveness that joint task forces can achieve.⁷⁵ Operational design aids joint task forces in arranging their component commands because it helps designers to understand that form follows function.⁷⁶ Cognitively thinking beyond geographic borders allows these organizations to integrate component efforts in pursuit of political and military objectives.

The three reasons provided place the joint task force in a unique position to address emerging problems. However, to ensure that the organization's form follows its function, operational designers should not solely focus on the operational plan.⁷⁷ Rather, they need to include the organization's structure as part of the design process and acknowledge that historical archetypes may not be the best fit for the existing problem. Examining existing design theory, and joint and Army design methodologies, provides a base from which joint task force creation can improve.

⁷⁵ Awa, "Functional Structure and Operational Issues," 1.

⁷⁶ US Joint Staff, Forming a JTF HQ, 10.

⁷⁷ Ibid.

The Organizational Gap in Existing Design Theory

The theory of design derives from four big ideas: systems, difference, social construction, and learning. They are considered the big ideas because they permeate all of the other key concepts and together they embody the ‘spirit’ of design.⁷⁸ Systems thinking helps to understand the complexity inherent in the interactive, non-linear relationships among interdependent variables. Although not one of the four ideas, narratives link time, space, and logic into a frame that allows designers to understand the workings of a system.⁷⁹ Difference identifies relevant data, and the occurrence of change between existing and emerging systems, for designing the change and applying the needed energy to implement it.⁸⁰ Social construction furthers the understanding of difference because difference presents itself to consciousness as constituents of different spheres of reality.⁸¹ Reality is perception and interpretation where people organize and act based on a theory of knowledge. Lastly, designers can exhibit learning when they understand the system as framed within the narrative’s logic, they see the differences, and they understand the differences in various versions of reality and can further structure action relevant to the system. Designers then create a theory for action to manipulate the system to change it create a position of relative advantage.⁸² These big ideas combine in ways that help designers to think using a conceptual framework to make patterns clearer to themselves, understand the logic of

⁷⁸ US Department of the Army, School of Advanced Military Studies, *Art of Design Student Text, Version 2.0* (Fort Leavenworth, KS: School of Advanced Military Studies, 2017), 43, accessed April 14, 2018, https://community.apan.org/wg/aucoi/command__control_coordinating_activity_c2ca/m/mediagallery1/196938.

⁷⁹ H. Porter Abbott, *The Cambridge Introduction to Narrative* (Cambridge: Cambridge University Press, 2010), 13.

⁸⁰ John P. Kotter, *Power and Influence* (New York: Free Press, 1985), 92.

⁸¹ Peter L. Berger and Thomas Luckmann, *The Social Construction of Reality: A Treatise in the Sociology of Knowledge* (Princeton, NJ: Recording for the Blind & Dyslexic, 2006), 21.

⁸² Everett C. Dolman, *Pure Strategy: Power and Principle in the Space and Information Age* (Hoboken: Taylor and Francis, 2012), 101.

interdependent variables, see differences inherent in systems, have an opportunity to exploit relevant action, and make a strategy and structure to operationalize it.

Very much like these four big ideas, John Boyd relied on these principles when he developed his observation, orientation, decision, and action framework. This framework provides the equivalent of a decision cycle that helps to inform organizational designers.⁸³ Boyd's observe, orient, decide, and act process is an iterative method to continually adjust one's self or organization to evolving context and problem sets. Although some might argue that it is a loop, others state that it is a continuous process and that it is not circular.⁸⁴ Neither of these are important and distract users from the inherent value in its application. What is important is that Boyd stresses organizations need to be agile and adaptive, and provides a mechanism for thinking and achieving these characteristics.⁸⁵ Boyd recognized the difference between traditional and emerging worldviews. In an emerging worldview, Boyd identified key characteristics including a focus on relationships between entities, variation, and holism.⁸⁶ Robert Jervis reinforced this view of emerging systems when he noted that within these systems, strategies depend on the strategies of others and that behavior changes the environment.⁸⁷ These characteristics are important because they help to explain the existing world that is non-linear and complex. This is the world in which joint task forces operate. These characteristics are the principles that could be applied to a joint task force design that would place the organization within the relevant context, explain

⁸³ Frans P.B. Osinga, *Science, Strategy and War: The Strategic Theory of John Boyd* (New York: Routledge, 2007), 231.

⁸⁴ *Ibid.*, 6-7.

⁸⁵ *Ibid.*, 7.

⁸⁶ *Ibid.*, 88.

⁸⁷ Robert Jervis, *System Effects: Complexity in Political and Social Life* (Princeton: Princeton University Press, 2001), 60-5.

how the organization would change its environment, provide for agile learning, and construct narratives that enable the organization to implement an effective strategy.

Boyd's theory in the areas of observe and orient exist past the point of organization construction. Boyd begins the process well after the military established the organization. Writing specifically about fighter pilots, Boyd's theory begins with an already established organization.⁸⁸ This theory falls short because it has not begun with designing the structure of the organization, in his examples mainly fighter squadrons; rather, his theory begins beyond the establishment of an organization. This is important because whatever organization uses this theory has existing biases that will push it to observe specific types of activity and orient on the relevant parts. For example, if a group of plumbers see a leaky faucet, they might simply fix it rather than dig deeper into systemic maintenance issues. Boyd looked deeper than the plumbers and developed a concept where holism, synthesis, and reframing contribute to the process of designing the organization. However, joint and Army doctrine fall short in Boyd's observe and orient areas.

Two design methods that the military uses can help to understand how the planning process leaves out the structure of organizations that conduct the planning process.⁸⁹ First, the Army Design Methodology is supposed to help commanders and staffs apply critical and create thinking to understand, visualize, and describe unfamiliar problems and approached to solving them.⁹⁰ Second, Joint Operational Design helps joint military planners to conceive and construct a framework that underpins a campaign or operation and its subsequent execution.⁹¹ Although these

⁸⁸ Osinga, *Science, Strategy, and War.*, 2.

⁸⁹ *Ibid.*, 231.

⁹⁰ Department of the Army, Army Technical Publication (ATP) 5-0.1, Army Design Methodology (Washington: Headquarters, Department of the Army, July 2015), 1-1 to 1-3.

⁹¹ US Joint Staff, JP 5-0, Joint Planning 2017, IV-1.

two design methods provide iterative processes to better understand operational problems, they do not account for the design of the organization that conducts the planning process.

First, the Army Design Methodology is another approach to planning and problem solving that is supposed to help planners understand unfamiliar problems.⁹² Although there are no prescribed steps to employ this methodology, the activities associated with it include framing an operational environment, framing problems, framing solutions, and reframing.⁹³ Key characteristics in the technical publication covering this methodology include relationships, time, space, purpose, and intent.⁹⁴ These characteristics reflect some of Boyd's insights with regard to the existing complexity in the world and the potential operating environments of joint task forces.

Unfortunately, Army Design Methodology fails to address the design of the organization to conduct the planning process because it is interested in redesigning the world, not redesigning the organization that uses the process. The technical publication does reference things to consider when forming the planning team such as skill, diversity, size, and roles, but it does not address organization within the problem's context.⁹⁵ The publication describes the individual planners that come to the planning team, but misses the design of the planning team to be relevant within the context of the problem. For example, when using the warfighting functions as the basis around which the planning team organizes, the publication does not help planners to understand that if individuals come to the team in warfighting sections, then the team will solve the problem with warfighting functions.⁹⁶ The challenge here is that if the problem is not cleanly split into these categories, such as a hurricane or tsunami, then the team will struggle to solve the problem

⁹² US Army, ATP 5-0.1, Army Design Methodology 2015, 1-5.

⁹³ Ibid., 1-3.

⁹⁴ Ibid., 2-1 to A-1.

⁹⁵ US Army, ATP 5-0.1, Army Design Methodology 2015, 2-4 to 2-9.

⁹⁶ The six warfighting functions are movement and maneuver, fires, intelligence, mission command, sustainment, and protection. Ibid., 2-4.

because the commander or lead planner have already determined its structure. Although Boyd approaches at least the idea of the need to change the organization in his orientation step, both Boyd's theory and Army Design Methodology share their problems with Joint Operational Design.

Second, Joint Operational Design should help joint military planners to conceive and construct a framework that underpins a campaign or operation and its subsequent execution. This theory is also an iterative process that is supposed to create shared understanding, identify and frame problems, and develops approaches. Key characteristics of this theory include strategic guidance, policy, objectives, context, and effects.⁹⁷ These characteristics, combined with Boyd's and those of the Army Design Methodology, provide the underpinning for planners to understand what their organization's purpose.

However, just like the Army Design Methodology, Joint Operational Design places the planning process beyond the development of the organization. For example, the doctrinal manual points to inputs called "Where we are?" and "Where do we want to go?" that focus on generating common understanding of the situation and continuous refinement.⁹⁸ This publication does not question who is the organization or what is the purpose of it. Joint Operational Design places this theory beyond the organization's formation and already sets it up to plan.

Boyd's framework and these two design theories offer many useful characteristics that can help joint planners to tailor a joint task force to solve an operational problem. These characteristics include variation, holism relationships, time, space, purpose, intent strategic guidance, policy, objectives, context, and effects.⁹⁹ Taken together and consolidated into a

⁹⁷ US Joint Staff, JP 5-0, Joint Planning 2017, IV-1 to IV-4.

⁹⁸ Ibid., IV-2.

⁹⁹ Osinga, *Science, Strategy and War*, 88; US Army, ATP 5-0.1, Army Design Methodology 2015, 2-4 to 2-9; US Joint Staff, JP 5-0, Joint Planning 2017, IV-1 to IV-4.

useable form, joint task forces can benefit from these characteristics if designers apply them in the creation of the joint task force, prior to the start of planning. These characteristics help joint task force designers to arrange their component commands in a tailored way to resolve operational problems in conjunction with their transient nature. Further, when taken together and applied prior to the beginning of operational planning, joint task forces can design their structures to be context driven, create theories of action, incorporate learning, and tailor themselves to the emerging problem to be relevant in the future.

Tailored Joint Task Force Component Commands

A common mistake in systems design is to assume that there are universally optimal archetypes—that one size can fit all, so to speak. In reality, this is never the case.

—Harold G. Nelson and Erik Stolterman, *The Design Way*

Joint task forces live at the nexus of strategy and tactics. Strategy uses engagements for the war's purpose; states link political intent with the use or threat of violence using strategy.¹⁰⁰ Tactics are the use of force in an engagement or battle.¹⁰¹ In other words, tactics is the employment, ordered arrangement, and directed action of forces.¹⁰² Strategy is the why; tactics are the how. The link between strategy and tactics is the operational function; this is the cognitive operating environment of joint task forces. The focus at this level is in the planning and execution of operations using operational art.¹⁰³ An alternative framework that designs a joint task force's structure enables the arrangement of tasks to achieve strategic aims within the context of each unique problem using available resources.

A flawed assumption inherent in the use of legacy organizational structures is that the strategic context of one problem to the next has not changed.¹⁰⁴ However, the strategic context of any conflict is different than the last one because the logic has changed. Aleksander Svechin, a renowned Russian scholar, reinforced this when he said, "Each war is a unique case, demanding the

¹⁰⁰ Everett C. Dolman, "Seeking Strategy," in *Strategy Context and Adaptation from Archidamus to Airpower*, ed. Richard J. Bailey, James W. Forsyth Jr., and Mark O. Yeisley (Annapolis: Naval Institute Press, 2016), 5.

¹⁰¹ Clausewitz, Carl von, *On War*, ed. Michael Howard and Peter Paret (Princeton, NJ: Princeton University Press, 1984), 177.

¹⁰² US Joint Staff, JP 3-0, Joint Operations 2017, I-14.

¹⁰³ *Ibid.*, I-13.

¹⁰⁴ Awa, "Functional Structure and Operational Issues," 1.

establishment of a particular logic and not the application of some template.”¹⁰⁵ Myriad nuances adjust the operational environment in small and large ways. No operational problem is the same as another, although they might look similar. For instance, even though the Cold War happened several decades ago, many people apply the concept of the Cold War when referring to current relations between the United States and Russia. While there may be some similarities, there are even more differences needing further discussion. Several presidential administrations have applied the strategy of containment to the Soviet Union as it appeared to be the most effective method. However, the current strategic context of relations between the United States and Russia is different.¹⁰⁶ Economies have changed form, the nature of Russia’s political system has changed, globalization has increased, and cyberspace has evolved. Joint task forces need learn from this example: although a past event appears similar to a current one, the context has changed.

Amphibious operations open a window into understanding how mission-based component commands can work effectively at the operational level. A factor identified in the conduct of amphibious operations, that each littoral environment is different, is critical to understanding the importance of designing a joint task force according to the context and problem that drove its existence. *Amphibious Operations* states,

Amphibious forces are task organized based on the mission. No standard organization is applicable to all situations that may be encountered in an amphibious operation. Each task group may be organized separately, or several may be combined based upon operational requirements. Task organizing allows an operational commander to subdivide subordinate forces and assign authority and responsibility to plan and execute based on

¹⁰⁵ Valery Gerasimov, “The Value of Science Is in the Foresight,” *Military Review* (January/February 2016): 29, accessed April 11, 2018, http://usacac.army.mil/CAC2/MilitaryReview/Archives/English/MilitaryReview_20160228_art008.pdf.

¹⁰⁶ Lynn E. Davis and Mikhail Troitskiy, *Euro-Atlantic Security*, in *A Roadmap for U.S.-Russian Relations*, ed. Andrey Kortunov and Olga Olikier (Washington: Rowman and Littlefield, 2017), 36, accessed April 3, 2018, https://csis-prod.s3.amazonaws.com/s3fs-public/publication/170815_KortunovOlikier_USRussiaRelations_Web.pdf?E0bdGVHlxxYRAXhOw8zJ9tbRGwdWjEgV.

mission, platform capability, geography, or other issues or challenges, thus enabling a more reasonable span of control. Flexibility is essential.¹⁰⁷

Flexibility and task organization are critical to the successful conduct of an amphibious operation. The uniqueness of such an operation belies standard task organization constructs because it similarly applies to joint task forces. Legacy structures are inadequate to handle the complexity of an operational dilemma ranging from large-scale combat operations to humanitarian assistance. Furthermore, *Amphibious Operations* shows the existence of many separate but interrelated tasks needed to meet operational requirements.¹⁰⁸ The achievement of separate tasks requires mutually supporting component commands within the joint task force oriented on the problem, not solely on their domain or service boundary.

Designers can improve organizational design when they use amphibious doctrine principles because this doctrine states that each new problem exists in its own unique context with respect to the littoral environment. Amphibious forces cannot design a single template, or set of templates, to confront a range of problems due to the uniqueness of each littoral environment. Rather, an amphibious force tailors the organization when the problem arises. Joint task forces benefit from adopting this technique.

Eight Elements of Joint Task Force Component Organization Design

Joint task forces use legacy component structures because of their familiarity and past success. However, this is a flawed approach to solving unique problems. Lawrence Freedman, writing about the evolution of strategy, identified the use of scripts as technique for applying past knowledge to current events. He defines a script as a knowledge structure that fits predictable, conventional, or frequently encountered situations. They specify behavior or event sequences

¹⁰⁷ US Department of Defense, Joint Staff, Joint Publication (JP) 3-02, *Amphibious Operations* (Washington: Government Printing Office, 2014), II-5.

¹⁰⁸ *Ibid.*

appropriate for specific situations.¹⁰⁹ He further added that the point about these scripts is that if not challenged they may result in predictable behavior and miss variations in the context that should demand original responses.¹¹⁰ Scripts are useful when the context is the same and where there are stable regularities in the environment.¹¹¹ When the context changes, designers need to reevaluate the script—or in this case the component template—to see if it still applies. If not, they need to start over.

There are eight critical elements of organizational design that Boyd, Army Design Methodology, and Joint Operational Design offer to construct a bespoke organization prior to initiating operational planning.¹¹² These elements enable designers to create an organization rooted in the situation and constructed to focus externally instead of internally. These eight elements are context, strategic direction, intent, time, space, problem, tasks, and supporting relationships. When form follows function, the organization focuses on the problem that it intends to solve.¹¹³ These eight elements are help designers to focus on the organization itself prior to initiating operational planning. Describing these elements puts them in a cognitive method for planners.

Context

Boyd's characteristic of holism and Army Design Methodology's characteristic of context are similar. Establishing context involves discerning the relationships of that something

¹⁰⁹ Dennis A. Gioia and Peter P. Poole, "Scripts in Organizational Behavior," *The Academy of Management Review* 9, no. 3 (1984): 449, doi:10.2307/258285.

¹¹⁰ Lawrence Freedman, *Strategy: A History* (New York: Oxford University Press, 2013), 620.

¹¹¹ Daniel Kahneman, *Thinking, Fast and Slow* (New York: Farrar, Straus and Giroux, 2015), 241.

¹¹² Osinga, *Science, Strategy and War*, 88; US Army, ATP 5-0.1, Army Design Methodology 2015, 2-4 to 2-9; US Joint Staff, JP 5-0, Joint Planning 2017, IV-1 to IV-4.

¹¹³ US Joint Staff, Forming a JTF HQ, 10.

and its surrounding.¹¹⁴ The context of the operational problem is the circumstances that form the setting of the joint task force that can enable designers to understand the organization's situation. Context includes the diplomatic, economic, military, and social situations where the joint task force will operate. A joint task force's environment includes not only its assigned operating area, but also includes events, organizations, and ideas that influence the organization.¹¹⁵ Context is the fabric of the environment. It defines the current state and describes its conditions. An understanding of the entirety of the setting may not be possible. However, designers should gain an understanding of the temporal, physical, spatial, and environmental factors that set the stage for the joint task force to begin its work.¹¹⁶ Context provides the uniqueness of the situation where the joint task force will operate. It is inherently different from any other event in the past. Applying military force can change the current context if it achieves, or leads to the achievement of, strategic and political aims.

Strategic Direction

The political and strategic military aims set the expectations of the joint task force. *Joint Planning* defines strategic direction as "The President, Secretary of Defense, and senior military leaders provide their orders, intent, strategy, direction, and guidance via strategic direction to the military to pursue national interests within legal and constitution limitations. They generally communicate strategic direction to the military through written documents, but it may be communicated by any means available."¹¹⁷ Designers should seek out and understand the goals of the political and military leaders working above them. Set within the context, this direction offers

¹¹⁴ US Army, ATP 5-0.1, Army Design Methodology 2015, 1-4.

¹¹⁵ US Joint Staff, JP 5-0, Joint Planning 2017, V-7.

¹¹⁶ US Army, ATP 5-0.1, Army Design Methodology 2015, 3-3.

¹¹⁷ US Joint Staff, JP 5-0, Joint Planning 2017, II-1.

the first insight into what strategic leaders want the joint task force to do. From this strategic direction, organizational designers identify the problem requiring the use of military force.

Problem

Within the strategic direction exists a military problem. The military must use available resources within the existing context to affect a result. The military problem focuses on dealing with and overcoming the matter or situation regarded as unwelcome or harmful.¹¹⁸ This could be the presence of weapons of mass destruction, a violation of international norms, or the violation of another country's sovereignty.¹¹⁹ The problem is the joint task force's *raison d'être*; it is unique and exists within the context, strategic direction, intent, time, and space that define its environment.¹²⁰ Conflating the problem with the problem's symptoms leads to an ineffective organizational design. Once the joint task force determines the problem, it then describes the essential tasks.

Intent

The intent describes to organizational designers the purpose of the organization, the desired strategic end state, the military end state, and risks associated with the joint task force's anticipated operations.¹²¹ Intent should also answer the reasons why this joint task force is the proper organization and why forming it now, instead of another time in the future, is critical. The intent forms the reason for establishing the joint task force in context and within the strategic direction. After understanding the intent, organizational designers can understand the factor of time.

¹¹⁸ *Oxford English Dictionary*, s.v. "problem," accessed November 8, 2017, <https://en.oxforddictionaries.com/definition/problem>.

¹¹⁹ US Joint Staff, JP 3-0, Joint Operations 2017, I-3.

¹²⁰ US Joint Staff, JP 5-0, Joint Planning 2017, I-5.

¹²¹ US Joint Staff, JP 3-0, Joint Operations 2017, II-7.

Time

The joint task force requires time to plan, prepare, conduct, and sustain the forces assigned to it. Time is linear and is also relative. Political and strategic military leaders may have a different understanding of the time required to achieve their intent.¹²² Organizational designers should gain an understanding of time as it related to its higher headquarters, lateral military forces, coalition and alliance partners, and the joint task force's objective. The factor of time closely relates to the factor of space in adding to the joint task force's understanding of the problem.¹²³

Space

In practical terms, space includes the physical domains and cyberspace influencing the employment of military forces.¹²⁴ Additionally, cyberspace plays a vital role in all facets of military operations adding complexity as its composition is of physical and non-physical layers. Factors such as shape, size, position, and distance relate in complex ways, creating a web of interrelationships where the joint task force should operate and understand. Time and space add to the logic of the relations among myriad elements affecting the joint task force. Together, they help to define the unique problem.

Effects

An effect is a condition, either physical or behavioral, that changes the state of a system.¹²⁵ Effects are the critical element in the operational niche between strategic military goals and tactical tasks. The joint task force seeks to change the trajectory of the operating environment toward the desired state. Finding the set of desired effects requires deliberation and effort.

¹²² US Joint Staff, JP 5-0, Joint Planning 2017, V-4.

¹²³ Vego, *Joint Operational Warfare*, III-19.

¹²⁴ *Ibid.*, III-7.

¹²⁵ US Joint Staff, JP 5-0, Joint Planning 2017, IV-21.

However, after identifying these effects, the joint task force can begin to link available forces to the tasks required to achieve the desired effects. Tasks describe friendly actions to create desired effects or prevent undesired ones.¹²⁶ Each task creates an effect or a set of effects that nudges the current state towards the desired state. It is imperative to begin identifying the desired effects rather than start with assigning tasks. Once identified, the joint task force establishes the component commands from available resources and their supporting relationships.

Interactions

The operational approach prescribes the interactions among the component commands and their relationships. The initial array of support and supporting relationships as described in joint doctrine can enable the joint task force to focus its efforts. The initial array of components, focused on the problem and directed towards the desired state, should orient on the main components of the missions or operations required to solve the problem.

Amphibious doctrine can help organizational designers apply transitory support relationships among the component commands. Mutually supporting component commands provide an example to guide the organizational design approach.¹²⁷ The current joint amphibious doctrine also offers a solution to multiple supporting command structures within a joint task force. For example, the purpose of the forces within the context of the operation drives the temporal and structural relationships between the amphibious task force and the landing force in amphibious doctrine.¹²⁸ The supporting relationships can shift. Throughout the operation, the shifts in the support relationships shown in Figure 2 are dependent on the mission assigned and the phases of the operation. The commander of the entire amphibious operation decides the

¹²⁶ US Joint Staff, JP 5-0, Joint Planning 2017, IV-22.

¹²⁷ US Joint Staff, JP 3-02, Amphibious Operations 2014, II-4.

¹²⁸ Ibid.

relationship based on the operation.¹²⁹ In a demonstration, the commander of the amphibious task force keeps his role as the supported commander throughout.¹³⁰ In a raid with a coastal threat, the supported command relationship can shift twice between the two commands.¹³¹ Joint task forces could benefit from this concept because the supported command can shift based on time, space, or purpose dependent on the mission or problem. If joint task forces designed their organization and subordinate commands based on the context and uniqueness of the operational problem, then they could gain additional flexibility through command relationships. Further, joint task forces could break away from domain-based components because multiple mission-based task forces can shift their support to each other as the problem evolves during military operations.

Examples of Shifts in the Support Relationship

Mission	Supported Commander
Assault	CATF, then CLF
Raid with coastal threat	CATF, then CLF, then CATF
Inland raid with no coastal threat	CLF
Demonstration	CATF
Withdrawal	CLF, then CATF
Foreign humanitarian assistance	CATF or CLF

* Actual supported-supporting commanders will be designated by the establishing authority based on the specific mission requirements.

Legend
 CATF commander, amphibious task force CLF commander, landing force

Figure 2. Examples of Shifts in the Support Relationship. Joint Publication (JP) 3-02, Amphibious Operations 2014, II-4.

The eight elements of joint task force organizational design enable the creation of structures to address a unique problem. They focus the organization’s designers on solving the

¹²⁹ US Joint Staff, JP 3-02, Amphibious Operations 2014, II-2.

¹³⁰ Ibid., II-4.

¹³¹ Ibid.

dilemma that defined the organization's creation. Instead of using legacy component structures, this method roots the organization in the situation enabling it to focus externally. Recognizing the changed character of war, including accounting cyberspace in the fabric of the operating environment, joint task forces could expand and enhance their operational understanding in developing the logic that links tactical actions to strategic goals.¹³² Joint task forces are supposed to provide, or should be, that link between military strategy and military tactics, or what Everett Carl Dolman calls the logic in war.

¹³² Dolman, *Pure Strategy*, 29.

An Example of Applying Design Theory to a Joint Task Force's Component Commands

Applying operational design to the on-going United States led military operation in Iraq and Syria sets the elements in a historical example. This military operation involves the application of military force in all domains, including cyberspace. It has a joint task force leading the coalition military efforts directed against the Islamic State. The alternative organizational theory offers a different approach to creating component commands to support military operations in the region.

In 2004, the Islamic State (also known as the Islamic State of Iraq and the Levant, the Islamic State of Iraq and Syria, and Daesh) emerged from the remnants of al Qaeda in Iraq, a local offshoot of al Qaeda. After fading away for several years, it reemerged in 2011 taking advantage of the growing instability in Iraq and Syria. In 2013, the Islamic State announced a caliphate stretching from Aleppo, Syria to Diyala, Iraq.¹³³

In 2014, the United States formed a coalition to thwart the Islamic State's expansion and return control of sovereign territory to the recognized states of Iraq and Syria. In June 2014, the National Command Authority directed US Central Command to begin military operations against the Islamic State.¹³⁴ On September 10, 2014, President Barack Obama provided strategic direction for the US military when he announced the strategic goal of degrading, and ultimately destroying, the Islamic State.¹³⁵

¹³³ Cameron Glenn, "Timeline: The Rise, Spread and Fall of the Islamic State," *Wilson Center*, January 30, 2018, accessed February 1, 2018, <https://www.wilsoncenter.org/article/timeline-the-rise-spread-and-fall-the-islamic-state>.

¹³⁴ US Army, ARCENT Transition to Combined Joint Task Force—Operation Inherent Resolve, 1.

¹³⁵ Barack Obama, "Statement by the President on ISIL" (speech, Washington, September 10, 2014), accessed January 31, 2018, <https://obamawhitehouse.archives.gov/the-press-office/2014/09/10/statement-president-isil-1>.

The Islamic State presents a myriad of problems. First, although it is in decline, it possesses swaths of territory in three areas of Syria—in the southwest on the border with Israel, in the eastern border with Iraq, and in the northwest.¹³⁶ Second, it generates billions of dollars of income from a combination of oil. Taxes, antiquities, foreign donations, looting, confiscations, and fines.¹³⁷ Third, it exploits a multitude of information platforms including social media, print media, videos, and speeches to spread its global message to its “citizens,” supporters, recruits, and adversaries.¹³⁸ Fourth, it receives material support from various sources including foreign suppliers, captured stockpiles, and seizures.¹³⁹ Lastly, it has a global recruiting network to regenerate its pool of fighters.¹⁴⁰ The Islamic State presents a complex problem for the application of military force.

Recognizing that operations required full joint integration and an operational-level organization, US Central Command established the Combined Joint Task Force—Operation Inherent Resolve in October 2014. In President Obama’s September 2014 speech, he gave his intent for Central Command and the new joint task force. He stated that the Islamic State “poses a threat to the people of Iraq and Syria, and the broader Middle East—including American citizens,

¹³⁶ Michal Kranz, "This Map Shows How ISIS Has Been Almost Completely Wiped out," *Business Insider*, December 22, 2017, accessed February 1, 2018, <http://www.businessinsider.com/map-of-isis-territory-2017-12>.

¹³⁷ Stefan Heißner, Peter R. Neumann, John Holland-McCowan, and Rajan Basra, *Caliphate in Decline: An Estimate of Islamic State's Financial Fortunes* (London: International Centre for the Study of Radicalisation and Political Violence, 2017), 5, accessed February 1, 2018, <http://icsr.info/wp-content/uploads/2017/02/ICSR-Report-Caliphate-in-Degradation-An-Estimate-of-Islamic-States-Financial-Fortunes.pdf>.

¹³⁸ North Atlantic Treaty Organization, *Daesh Information Campaign and Its Influence*, (Riga, Latvia: NATO Strategic Communications Centre of Excellence, 2015), 46.

¹³⁹ Tony Cartalucci, "Logistics 101: Where Does ISIS Get Its Guns?" Global Research - Centre for Research on Globalization, November 27, 2017, accessed February 1, 2018, <https://www.globalresearch.ca/logistics-101-where-does-isis-get-its-guns/5454726>.

¹⁴⁰ Rukmini Callimachi, "ISIS and the Lonely Young American," *New York Times*, June 27, 2015, accessed February 1, 2018, <https://www.nytimes.com/2015/06/28/world/americas/isis-online-recruiting-american.html>.

personnel, and facilities. If left unchecked, these terrorists could pose a growing threat beyond that region, including to the United States. While we have not yet detected specific plotting against our homeland, [Islamic State] leaders have threatened American and our allies.”¹⁴¹

President Obama decided that military force was necessary to prevent attacks on the homeland and contain the growing threat to the region.

The multinational character of the joint task force impacts the time available from several angles. First, each contributing nation understands the immediacy of the problem. There are twenty-three coalition members that contribute land forces to the land component.¹⁴² Although the United States leads the joint task force, each contributing nation understands time relative to their own goals. For the United States, one could infer that President Obama was willing to accept a longer duration for this operation when he said, “degrade and ultimately destroy.”¹⁴³ Second, the Islamic State is not under pressure to achieve their caliphate immediately; time favors them because their goals are not immediate. Lastly, the joint task force sustains its forces from afar further contributing delays should resources become limited. Time’s unique logic relates to the space available for military operations.

The Islamic State not only conducts operations primarily in the land and cyber domains, but it has niche capabilities in the air domain as well. Military force cannot easily target the Islamic State’s use of the World Wide Web to support its inform and influence operations. The decentralized nature of the Internet allows the Islamic State to safely store information out of the reach of the joint task force. The Islamic State’s territory orients on major roads and urban centers, enabling easier targeting but increased collateral damage. The territory occupies parts of two sovereign nations and does not recognize the international border. The long distance from

¹⁴¹ Obama, “Statement by the President on ISIL.”

¹⁴² US Central Command, “CJFLCC-OIR.”

¹⁴³ Obama, “Statement by the President on ISIL.”

one end of the Islamic State's territory to the other creates challenges depending on the nature of logistic support needed. Time and space combine to unveil the joint task force's desired effects.

Again, President Obama outlines several effects in his September 2014 speech. They include a reduction of Islamic State terrorists, increased support to ground forces, increased military aid to Syrian opposition, prevention of Islamic State attacks, and the provision of humanitarian assistance to displaced civilians.¹⁴⁴ The President expected the joint task force to reduce Islamic State terrorist fighters, prevent attacks on the United States and countries in the region, create more capable ground and opposition forces, and reduce human suffering to affected civilians.

The existing component command structure in Combined Joint Task Force—Operation Inherent Resolve consists of two components: Combined Joint Land Forces Component Command—Operation Inherent Resolve and Special Operations Joint Task Force—Operation Inherent Resolve.¹⁴⁵ These two subordinate commands conduct all military operations in Iraq and Syria. The land component supports the Iraqi army with training, equipment, intelligence, advice, and fire support, and partners with Iraqi security forces to eliminate the Islamic State and provide security to the people of Iraq.¹⁴⁶ The special operations component coordinates and directs all special operations forces in their train, advise, assist, and accompany operations with partner forces in Iraq and Syria.¹⁴⁷ Together, these components conduct the Joint Task Force's military operations.

¹⁴⁴ Obama, "Statement by the President on ISIL."

¹⁴⁵ Combined Joint Task Force-Operation Inherent Resolve, "Organization," US Central Command, accessed January 31, 2018, <http://www.inherentresolve.mil/About-Us/Organization/>.

¹⁴⁶ US Department of Defense, "First Infantry Division, 'Big Red One,' Assumes Command in Iraq", Combined Joint Task Force-Operation Inherent Resolve, accessed February 1, 2018, https://www.defense.gov/Portals/1/features/2014/0814_iraq/docs/20161117-02-First-Infantry-Division-assumes-command-in-Iraq.pdf.

¹⁴⁷ US Department of the Army, John F. Kennedy Special Warfare Center and School, *USASOC 2035: Communication the ARSOF Narrative and Setting the Course to 2035* (Fort Bragg, NC: John F.

The four areas of fewer Islamic State terrorists, fewer attacks, more capable ground and opposition forces, and increased humanitarian assistance results in an alternate arrangement of military forces within the joint task force because of the critical elements of organizational design. If the four areas of counter terrorism, protection, security force assistance, and humanitarian assistance became the components, then the joint task force arranges military forces per their purpose.¹⁴⁸ This contrasts with the existing arrangement of land and special operations. The new arrangement provides several advantages. First, the military units from conventional land, special operations, cyber, and air forces are intermingled as needed. This reduces the duplication of effort as land and special operations similarly conduct direct action, reconnaissance, training, and other forms of security force assistance. Second, commanders focus on one element of the problem instead of the entire problem but at a lower level. The counter terrorism component commander looks to neutralize the Islamic State's ability to inflict violence. This includes countering recruiting (including online), stemming the flow of arms, conducting direct action, reconnoitering, and offensive cyber operations. The protection commander defends physical and information networks and provides security for bases, personnel, and equipment. The security force assistance commander focuses on increasing the capacity and capability of the Syrian opposition and Iraqi security forces incorporating both conventional and special operations forces and liaising with the Office of Security Cooperation-Iraq. Lastly, the humanitarian assistance commander focuses efforts on the civilian population as well as associated civil

Kennedy Special Warfare Center and School, 2017), 7, accessed February 1, 2018, <http://www.soc.mil/Assorted%20Pages/USASOC2035%20Overview.pdf>.

¹⁴⁸ Counterterrorism – activities and operations taken to neutralize terrorists and their organizations and networks to render them incapable of using violence to instill fear and coerce governments or societies to achieve their goals. DoD, *Dictionary*, 55. Protection – preservation of the effectiveness and survivability of mission-related military and nonmilitary personnel, equipment, facilities, information, and infrastructure deployed or located within or outside the boundaries of a given operational area. DoD, *Dictionary*, 189. Security Force Assistance – activities that support the development of the capacity and capability of foreign security forces and their supporting institutions. DoD, *Dictionary*, 207. Foreign Humanitarian Assistance – activities conducted outside the United States and its territories to directly relieve or reduce human suffering, disease, hunger, or privation. DoD, *Dictionary*, 91.

military operations including non-government organizations and civil affairs forces. In this way, cyberspace becomes part of all components. The joint task force incorporates offensive and defensive cyber operations into the counterterrorism and protection components. Also, cyber enabled messaging allows the humanitarian assistance component to reach affected civilian populations to increase the efficiency of its efforts.

Applying the eight elements in the four new components, the joint task force can determine their interactions (i.e. their support relationships). Depending on the phase of the operation, the supported commander shifts among the components just like joint doctrine describes an amphibious operation.¹⁴⁹ Upon entry into the area of operations, other commanders would then support the prevention commander as he initially establishes lodgments and bases.¹⁵⁰ The supported component then shifts to counterterrorism commander because the Syrian opposition and Iraqi security forces do not have the capacity to conduct effective operations themselves as President Obama stated.¹⁵¹ Once they do, the supported commander becomes the security force assistance commander. Throughout the operation, the humanitarian assistance commander supports the other commanders, as needed, but remains focused on the civilian population to stabilize government entities and reduce suffering.¹⁵²

This new joint task force component design methodology integrates cyberspace throughout the organization instead of creating a functional silo.¹⁵³ Instead of relying on templates, it centers the joint task force in the context and focuses the components on the problem. In breaking away from domain and function structures, it needs to overcome military

¹⁴⁹ US Joint Staff, JP 3-02, Amphibious Operations 2014, II-4.

¹⁵⁰ US Army, ATP 5-0.1, Army Design Methodology 2015, 5-7.

¹⁵¹ Obama, "Statement by the President on ISIL."

¹⁵² US Joint Staff, JP 3-0, Joint Operations 2017, V-2.

¹⁵³ Hatch, *Organization Theory*, 299.

service biases. Spreading cyber forces among the components goes against the way that military services attempt to concentrate forces by type. However, if this methodology were used, it would benefit joint task forces because they can avoid historic organizational biases.

The alternate component command structure is an effort to degrade Combined Joint Task Force Operation Inherent Resolve's efforts to achieve President Obama's initial political aim of the destruction of the Islamic State. Rather, it uses a contemporary operation to explore alternate methods of designing a joint task force. Again, no perfect organization exists. However, accounting for the changed character of war, specifically cyberspace, requires different approaches to account for increased complexity and scale.

Conclusion

Future Joint Forces will face an increasingly complex, uncertain, competitive, rapidly changing, and transparent operating environment characterized by security challenges that cross borders...Joint force elements postured around the globe can combine quickly with each other and mission partners to harmonize capabilities fluidly across domains, echelons, geographic boundaries, and organizational affiliations.

—General Martin Dempsey, *Capstone Concept for Joint Operations: Joint Force 2020*

The operational dilemma spurring the establishment of a joint task force should drive its organizational structure. Legacy component command structures are now insufficient to address the range of operations that joint task forces face. Past component commands, including geographic, functional, and domain-based, could be a solution, but joint task forces should not assume that they are the correct solution. Everett Dolman wrote that constantly changing conditions create unique problems that designers cannot forecast from a thorough study of past wars.¹⁵⁴ It is the present war or problem that organizational designers need to examine so that they can create an effective organization to address an emerging problem. Component commands, arranged with temporal, spatial, or condition-based support relationships, present an effective way to achieve the strategic aims and not anchor on past examples. In this way, cyberspace becomes part of the fabric of the joint task force's organization because its emergence is different than most previous examples.

Operation Inherent Resolve is the most recent military operation that incorporates all domains, including cyberspace. This study offers an alternative organizational design for the Combined Joint Task Force to experiment with Dempsey's statement that future joint forces might be increasingly organized around specific security challenges themselves.¹⁵⁵ President Obama offered the security challenge in four tasks: reduce Islamic State terrorists, increase

¹⁵⁴ Dolman, "Seeking Strategy," 10.

¹⁵⁵ US Department of Defense, Chairman, Joint Chiefs of Staff, *Capstone Concept for Joint Operations: Joint Force 2020* (Washington: Government Printing Office, 2012), 6.

support to ground forces and the Syrian opposition, prevent local Islamic State attacks, and provide humanitarian assistance.¹⁵⁶ These four parts demonstrate that Combined Joint Task Force Operation Inherent Resolve could have conducted operational design to establish their component commands before they began planning and executing military operations. This also demonstrates that future joint task forces have the ability to incorporate design earlier than has been the tradition. Fortunately, joint task forces are transient organizations that can learn from this study and the examples of other joint task forces.

To be sure, joint task forces will face enemies, adversaries, and threats that are more interconnected than they have been in the past. As the requisite authority creates a joint task force to affect a problem, he should understand the problem's context to orient on the dilemma and determine an effective approach. Achieving the desired conditions in a complex environment is no easy task. However, using operational design to structure joint task forces based on the elements of the problem increases their effectiveness.

Legacy structures limit the capability of an organization to decide the most effective structure to confront a problem because of familiarity biases. Therefore, the establishing authority should design a joint task force using the eight critical components of context, strategic direction, problem, intent, time, space, effects, and interactions. The logic that connects these factors helps designers to structure an ad hoc organization. Conducting design for joint task force component commands instead of adopting legacy structures ensures that the problem's context helps to reveal the needed solution. Accounting for the changed character of war in joint task force design keeps the organization relevant into the future.

¹⁵⁶ Obama, "Statement by the President on ISIL."

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