The Exercise of Control by Joint Force Commanders

A Monograph

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14. ABSTRACT

Certain characteristics of the Information Age both pressure and tempt commanders, in powerful ways, to exert greater control over military forces during the execution of operations. One pressing question that faces today's military is how to use the information age capabilities now becoming available. Whereas US Army doctrine is clear on its preference for the method known as mission command, our joint doctrine is less clear. Commanders of US and Combined Joint Task Forces (CJFCs of CJTFs) should use the increased capabilities provided by the technological advancements of the information age to cope with increasing complexity, distribution and specialization in the environment of their military operations. They should not to use them to attempt to reduce the fog of war by increasing control over the execution of land-based military operations. To that end, the monograph offers recommendations for rewriting and reorganizing elements of joint doctrine covering command and control. It offers recommendations for organizations and procedures which will foster decentralized control.

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Abstract

The Exercise of Control by Joint Force Commanders by MAJ Robert N. Trabucchi Jr., US Army, 57 pages.

Certain characteristics of the Information Age both pressure and tempt commanders, in powerful ways, to exert greater control over military forces during the execution of operations. As examples, real-time communications with political leaders and the impact of global media pressure while battlespace awareness, intelligence collection and communications capabilities tempt. These increased capabilities seem to present us with a command option not available for over two centuries: centralized control. As stated in joint and army doctrine as well as in the majority of literature on the subject, commanders will have a greater ability to exercise control over their forces than at any time since Napoleon's. Therefore, one pressing question that faces today's military is how to use the information age capabilities now becoming available. Whereas US Army doctrine is clear on its preference for the method known as mission command, our joint doctrine is less clear.

Commanders of US and Combined Joint Task Forces (CJFCs of CJTFs) should use the increased capabilities provided by the technological advancements of the information age to cope with increasing complexity, distribution and specialization in the environment of their military operations. They should not to use them to attempt to reduce the fog of war by increasing control over the execution of land-based military operations. This thesis is supported by scholarly work of military historians, military officers and researchers of RAND and the DoD Command and Control Research Project, among others. The monograph argues that throughout the Industrial Age and the Information Age so far, technology has increased the challenges to military commanders at least apace with the increases in command and control capabilities. Centralized control at the CJTF level therefore remains an unattainable goal. Furthermore, efforts to achieve it are shown to be a distraction from the CJFCs responsibility to integrate and synchronize his operations with agencies and organizations whose cooperation he most probably needs in order to achieve unity of effort and accomplish his missions in the joint operating environment. The monograph therefore finds that in the face of Information Age pressures and temptations towards centralized control, we must institutionalize decentralized control at the Joint Task Force level. To that end, it offers recommendations for rewriting and reorganizing elements of joint doctrine covering command and control. It offers recommendations for organizations and procedures which will foster decentralized control.

The arguments draw strongly from theory but also use recent examples including Operations Desert Storm and Allied Force. Specific recommendations are offered – in the areas of joint doctrine, organizations and procedures – for institutionalizing the further decentralization of control. The conclusions and recommendations are designed to be applied to joint and Service doctrine, to the organization, manning, training and operating procedures of Combined Joint Task Force and Combatant Command headquarters.

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INTRODUCTION

The Problem: The Lure of Centralized Control

US joint doctrine calls for decentralization of control over operations through mission-type orders, implicit communications and mutual trust.[1] US Marine Corps and US Army doctrine make strong arguments for it, rooted in military history, control theory and a philosophy of command and control.[2] However, several characteristics of the Information Age both pressure and tempt commanders, in powerful ways, to exert greater control.[3] These are very familiar characteristics of our operating environment and this monograph will not seek to prove their existence, but postulates both their existence and their tempting and pressuring effect on military commanders, as just stated. They are listed here briefly to ensure clarity. The characteristics which apply pressure on commanders include: the enormous impact that military operations, in both success and failure, can have on domestic politics and on US interests including our economy and stock market. They further include the presence of US and foreign media reporters throughout the operating environment. They are linked to another set of reporters who have close access to our political leaders and are racing with each other to be the first to confront politicians with questions regarding our tactical actions or other events within hours of them occurring on the battlefield. Exacerbating these pressures is the proliferation of digital video cameras and access to the internet among soldiers and civilians. Certainly the concern over imminent consequences of tactical actions for political leaders at the national-strategic level has grown with the increasing speed of news media reporting.

The second set of characteristics of the Information Age relevant to this monograph are those which tempt our commanders to exercise more centralized control. These include systems such as Blue Force Tracker which allows awareness of the exact location of friendly forces in near-real time and at minute detail from any headquarters with access to the system. They include robust, secure and redundant communications. They include an extensive array of intelligence collection systems on the ground, at sea, but the most powerful are in the air and in orbit. Bringing all of this before the commander and staff is a suite of powerful processing computers and engrossing, user-friendly display systems. If we are not convinced of the

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[1] Department of Defense (DoD), Chairman of the Joint Chiefs of Staff (CJCS), *Joint Publication (JP) 0-2 Unified Action Armed Forces* (Washington, DC: US Government Printing Office, 10 July 2001) III-14, III-15. Chapter III, Section 12a – Tenets emphasizes this in its discussion of Implicit Communications and Mutual Trust.

[2] Department of Defense, Headquarters, Department of the Army (HQDA), *Field Manual (FM) 1 The Army*, (Washington, DC: June 2005) 3-3 – 3-4, 3-8.

[3] DoD CJCS, JP 0-2 Unified Action Armed Forces (2001) III-12.

omnipotence of the capabilites in the systems already on hand, we are certainly familiar with the furious pace of refinements and upgrades, each promising more capabilites than the last.

The problem is that these increased capabilities seem to present us with a set of options which appear not to have been available for over two hundred years, when the age of armies which moved and fought as single entities neared its end. As stated in joint and army doctrine as well as in the majority of literature on the subject, commanders will have a greater ability to exercise control over their forces than at any time since Napoleon's. This often dizzying array of pressures and tempting capabilites can combine to convince commanders that the time has come to re-centralize control over our military forces, particularly those on land, where most friendly lives are immediately at risk and where they have closest contact with the enemy and with vulnerable civilian populations. Therefore, one pressing question that faces today's military is how to use the information age capabilities now becoming available. Whereas US Army doctrine is clear on its preference for the method known as mission command, our joint doctrine is less clear, as Chapter Four of this monograph will argue. [4]While the relevant joint doctrine publications are three or four years old, the much more up to date Command and Control Joint Integrating Concept does endorse "broad decentralization of decision authority wherever appropriate".[5]

Thesis Statement

This monograph will argue that US Joint Force Commanders should use the increased capabilities provided by the technological advancements of the information age to cope with increasing complexity, distribution and specialization in the environment of their military operations. They should not to use them to attempt to reduce uncertainty by increasing control over the execution of land-based military operations. This thesis statement focuses the scope of the monograph in three ways. The first is its focus on execution. Speaking in terms of the framework of the operations cycle from US Army doctrine, this monograph focuses on the 'execute' step of the cycle. Control clearly plays a role in the 'plan' and 'prepare' steps, and they deserve attention as well, but they lie beyond the scope of this monograph. The purpose of focusing on execution is that it is during the execution of an operation, when events are unfolding, that the pressures and temptations to increase control are greatest. The second is its focus on Joint Force Commanders (JFCs): commanders of a Joint Task Force (JTF), a sub-unified

[4] Chapter Four explains and justifies this assertion in detail.

[5] DoD, CJCS, Command and Control (C2) Joint Integrating Concept (JIC), Final Version 1.0 (Washington, DC: 1 September 2005) 16, 17.

command or a Combatant Command. This focus is important to the exercise of control because this monograph does not question whether or not control is necessary at the tactical level, because that is considered decentralized control from the perspective of the JFC. The focus here is the exercise of control by a commander who has multiple component commanders working for him and who has broad responsibility for unifying, integrating and synchronizing efforts of organizations and agencies beyond his military components. To emphasize this point, and due to the fact that nearly all major military operations and campaigns include forces from multiple countries,[6] the monograph will use the terms Combined Joint Task Force (CJTF) and Combined Joint Force Commander (CJFC) except where referring specifically to US doctrine which did not use them. This is simply a more accurate characterization of warfare and better represents the challenges facing commanders at this level, which Chapter Two will describe in more detail and Chapter Three will build arguments upon.

The third is its focus on operations on land. The reason for this boundary on the monograph's scope is that maritime and air forces, even within a single joint operation or campaign, may not share all the similarities of tempo, environment, challenges and Service doctrine which land forces do. While the author harbors strong beliefs that the fundamental concepts of control described here do apply universally, establishing that as regards maritime and air forces, while worthwhile, is beyond the scope of this monograph.

Some Key Concepts

Chapter One is devoted entirely to describing the concept of control for the monograph, so an in-depth description is found there. To provide the reader a basic understanding from the very beginning: control is "purposive influence",[7] that activity which seeks to ensure the desired ends are reached in any endeavor. By this definition, control is necessary to achieving any purpose. Control is present in almost all our actions, conscious or unconscious, which is also an example of the fact that there are many different forms of control. These statements apply in a military context as well. As in all other organisms and organizations, some degree of control is required in almost all military actions.

One essential characteristic which defines control in the military domain, as opposed to any other, is its relationship to command. The two terms are used together so universally as to

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[6] DoD CJCS, *JP 3-16 Joint Doctrine for Multinational Operations* (2000) Chairman's Letter, I-3, B-1 – B-3.

[7] James R. Beniger, The Control Revolution – Technological and Economic Origins of the Information Society, (Cambridge, Massachusetts: Harvard University Press, 1986) 8.

essentially have become one compound term. This is due to their interdependent relationship: control exists to serve command, and command, like any other purposive action, is impossible without some form of control.

> "Commanders cannot exercise command effectively without control. Conversely, control has no function without command to focus it. … C2 is not a one-way, top-down process that imposes control on subordinates. C2 is multidirectional, with feedback influencing commanders from below, from above and laterally".[8]

Therefore, after Chapter One, the monograph's discussions of control are all in the context of its role in command. Occasionally this means the discussion must be about command overall, either because the context is indispensable to the point at hand, or because the source material does not distinguish between the two.

Centralization and Decentralization

As stated above there are many forms of control and ways of exercising it. One way to differentiate between them is to measure them by their degree of centralization. In basic terms, centralization places a greater fraction of control in fewer hands, while decentralization spreads it among more. The "Command and Control (C2) Spectrum" framework,[9] used in US Army and US Marine Corps doctrine as well as by the Department of Defense (DoD) Command and Control Research Project (CCRP)[10] explains how the degree of centralization used by a commander can drive many aspects of the exercise of control. Since this framework carries such broad application and offers specific implications for organizations and procedures, the monograph uses degrees of centralization and adopts this framework to characterize forms of control.

Uncertainty

Uncertainty, according to Martin Van Creveld, is a perpetual feature of war.[11] This is Clausewitz' "fog of war". No one can eliminate uncertainty in conflict, Chapter Three argues this

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[8] DoD, HQDA, *FM 6-0 Mission Command: Command and Control of Army Forces*, (Washington, DC: 11 August 2003) 1-15 (Figure 1-4)

[9] DoD, Department of the Navy, Headquarters, US Marine Corps (HQUSMC), *MCDP 6 Command and Control* (Washington DC: 4 October 1996), 81 and DoD, HQDA, *FM 6-0 Mission Command* (2003) 1-15.

[10] David S. Alberts and Richard E. Hayes, *Power to the Edge* (Wasington, DC: DoD, Command and Control Research Project (CCRP) June, 2003) 18-19. CCRP's mission includes improving DoD's understanding of the national security implications of the Information Age and improving both theory and practice of command and control.

[11] Martin Van Creveld, *Command in War* (Harvard University Press: Cambridge, Massachusetts, 1985) 267-268.

in greater detail. Coping with uncertainty is one of the purposes of control of military forces because control allows the commander to react to the unexpected. There is a basic choice in coping with uncertainty: acceptance or reduction.[12] Attempting to reduce uncertainty calls for gathering and processing enormous amounts of information, limiting flexibility and decision authority of subordinates while imposing strict rules of engagement (ROE), reporting requirements and other mechanisms of control. By maintaining a combined-arms reserve under his direct control a commander preserves his ability to react to unexpected events and opportunities, thereby coping with his perpetual uncertainty about those events. However, if a commander maintains a significant amount of his combat multipliers, enablers or other forces under his direct control, he increases his own ability to deal with uncertainty but reduces that of his subordinates. Accepting uncertainty calls for gathering and processing only specifically selected pieces of information considered essential and reliable. It calls for more informal communication, delegating authority for decisionmaking and distributing enablers among subordinate commands, thereby increasing their ability to cope with uncertainty and respond to unexpected events and opportunities. Accepting uncertainty generally corresponds to decentralizing control.[13]

Structure of the Monograph

Chapter 1, Control in Theory and Practice, uses scholarly sources, doctrine and history to provide a theory of control for the monograph and to clarify the relationship between control and command. Chapter 2, Approaches to Control in the Military, adopts a simple framework used by the DoD CCRP, by USMC doctrine and by US Army doctrine in order to describe the range of approaches to exercising control and elaborates on some of them to understand their implications. Chapter 3, Arguments for Decentralization, returns to scholarly sources, doctrine and history to demonstrate the advantages gained from decentralizing control and some methods used to achieve decentralization. These arguments center around two concepts which control must enable CJFCs to achieve, as they are emphasized throughout joint doctrine as central to joint warfighting: Unity of Effort[14] and Agility. Chapter 4, US Joint Doctrine on Control: The State of the Art?, describes the status of joint doctrine on control compared to the purpose of joint doctrine against the

[12] DoD, HQUSMC, *MCDP 6 Command and Control*, (1996) 77.
[13] DoD, HQUSMC, *MCDP 6 Command and Control*, (1996) 79-80.
[14] See DoD, CJCS, *JP 0-2 Unified Action Armed Forces* (2001) I-3 to I – 4 which define Unity of Effort and describe its role and DoD, CJCS, *JP 1 Joint Warfare of the US Armed Forces* (Washington, DC: US Government Printing Office, 14 November 2000) III-8 to III-9 which identify it as a "Fundamental of Joint Warfare" and provide further description.

standard set by more recent Service doctrine. This is intended to indicate where improvement of our current joint doctrine can assist us in achieving the decentralization which it frequently but haphazardly endorses. Chapter 5, Recommendations for Institutionalizing Decentralized Control, builds on the aruments presented in Chapters Two and Three to formulate recommendations for US CJFCs. One aspect of this implementation will be to include them in doctrine as discussed in Chapter 4.

The purpose of this introduction has been to present the problem: those pressures and temptations towards control which are inherent in our operating environment, a thesis statement which recommends how to address that problem, some limits on the scope of that recommendation and those concepts essential to the discussion.

CONTROL IN THEORY AND PRACTICE

Purpose of Control

Control is present in almost all our actions, but there is not simply one approach to control, one way in which we exercise it. Even an act as simple as driving a nail provides an instructive analogy. We exercise control of the hammer through the handle. Holding the handle farthest from the head provides the most power. Holding the hammer far from the head provides the driving power, but not much control. If we choke-up, holding close to the head, we can increase our control, but we lose most of the hammer's driving power by doing so. So control, in its most general sense, is necessary to all living organisms and to performing any task. Without some degree of control, there is no direction of actions towards a desired end or specific goal. To continue the hammer analogy: no matter how hard we can swing it, if we cannot control where the hammer goes, then only extraordinary luck will drive the nail.

James Beninger provided a very broad and fundamental definition of control in the last phrase of this statement: "*control* as a concept encompasses the entire range from absolute control to the weakest and most probabalistic form, that is, any purposive influence on behavior, *however slight.*"[15]

Through this definition, Beninger establishes a framework for characterizing control in terms of the degree to which it is exercised. This can be expressed simply as a scale ranging from more to less control. This basic framework is also used by the DoD CCRP[16] in their studies of control and is reflected in the hammer analogy. This framework, as our discussion of control in

[15] James R. Beniger, *The Control Revolution* (1986) 8.
[16] David S. Alberts and Richard E. Hayes, *Power to the Edge* (2003) 18-26.

the military will shortly show, already exists in both US Army and US Marine Corps doctrine. It structures the discussion of control throughout the monograph.

Beninger goes on to describe control in terms of two required fundamental activities:

> "twin activities of information processing and reciprocal communication, complementary factors in any form of control. Information processing is essential to any purposive activity, which is by definition goal directed and must therefore involve the continual comparison of current states to future goals, a basic problem of information processing. … Simultaneously with the comparison of inputs to goals, two-way interaction between controller and controlled must also occur, not only to communicate influence from the former to the latter, but also to communicate back the results of this action"[17]

US military forces' abilities to conduct these two activities have been directly affected by advances in technologies associated with the information age. Chapter One categorizes differences between Industrial Age and Information Age capabilities primarily in terms of these two activities, and they are used throughout the monograph.

Control in the Military

According to FM 6-0, "control is the regulation of forces and battlefield operating systems to accomplish the mission in accordance with the commander's intent. It includes collecting, processing, displaying, storing, and disseminating relevant information for creating the common operational picture, and using information, primarily by the staff, during the operations process."[18] When we recognize that collecting, displaying and disseminating are examples of "reciprocal communications" and storing is an element "processing", we see that the Army's definition very closely mirrors that of Beniger's, cited above.

Although Chapter Four will point to a lack of clarity in US joint doctrine on control, the monograph will use the JP 3-0 definition for a common understanding of the military term: "To control is to regulate forces and functions to execute the commander's intent."[19] This is specific to the military, but is also a perfect example of what Beniger describes as the most general definition of control, "purposive influence towards a predetermined goal."[20] The act of regulating is the purposive influence towards the commander's intent, clearly a predetermined goal.

To understand control itself better within the military realm, a brief description of Beniger's twin activities, in their military form, should be helpful. Reciprocal communication

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[17] James R. Beniger, *The Control Revolution* (1986) 8.
[18] DoD, HQDA, *FM 6-0 Mission Command* (2003) 3-1.
[19] DoD, CJCS, *JP 3-0 Doctrine for Joint Operations* (Washington, DC: 10 September 2001) II-18.
[20] James R. Beniger, *The Control Revolution* (1986) 7.

includes the dissemination of plans and orders to higher, lower and adjacent or friendly commands and agencies, backbriefs, the transmission of periodic and event-driven reports, commander's conference calls, briefings, staff coordination, requests for information and all informal communications, to name just a few. Information processing includes parsing of information in reports into databases, developing and updating estimates, analysis, synthesis, discussion and debate, preparing briefings, quiet reflection on the situation and the mission, again to name just a few. Even these short lists, far from complete, give the impression that these activities are both constant and enormous in volume. In joint doctrine's model of "the decisionmaking cycle",[21] reciprocal communication and information processing both take place throughout the entire cycle, during Observation, Orientation, Decision and Action. The same is true for the Army's operations cycle:[22] Beniger's two components of control are conducted in every step.

So, as in all other organisms and organizations, some degree of control is required in almost all military actions. Marine Corps doctrine makes this point very clearly:

> "Command and control by itself will not drive home a single attack against an enemy force. It will not destroy a single enemy target. It will not effect a single emergency resupply. Yet none of these essential warfighting activities, or any others, would be possible without effective command and control. Without command and control, campaigns, battles, and organized engagements are impossible, military units degenerate into mobs, and the subordination of military force to policy is replaced by random violence. In short, command and control is essential to all military operations and activities."[23]

This passage highlights the one essential characteristic which defines control in a military context, as opposed to any other: its relationship to command. The relationship to command serves as context because in the military realm, control exists to serve command. As mentioned previously, the two terms are used together so universally as to essentially have become one compound term. However, seeing them only as inseparable conceals important aspects of the relationship. One such aspect is the ability to vary the degree of control exercised by a senior commander over his subordinate commanders without control over forces actually being lost. While control is essential to command, this does not imply that any single method or degree of control is necessarily essential. As the analogy of the hammer indicates, both the amount of power desired and one's proximity to the action are factors that affect the amount of control one

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[21] DoD, CJCS, *JP 3-13.1 Joint Doctrine for Command and Control Warfare*, (Washington, DC: / February, 1996) A-1 - A-2 (Figure A-1).

[22] DoD, HQDA, *FM 6-0 Mission Command* (2003) 1-8 (Figure 1-2).

[23] DoD, HQUSMC, *MCDP 6 Command and Control*, (1996) 35.

wants to exercise. An essential step in understanding this relationship and how it is relevant to operations today is an examination of how control became an indispensible element of command.

The Emergence of Control in the Military

The challenge of controlling military forces in the Industrial Age had three important elements: increasing size and distribution of forces, an increasingly complicated operating environment and increasing specialization of military forces. The advent of railroads, then steamships, then automobiles and eventually aircraft each enabled the movement and sustainment of larger military forces over far greater distances with much greater speed than was previously possible. The telegraph, the telephone and eventually various kinds of radios advanced capacity in one of Beniger's components of control: the communication between these forces.[24] However, technology alone could not enable their coordination and cooperation because it lacked the other component: information processing. That would require professional staffs, technical specialists, and information processing and management techniques to process, organize and make sense of the information whose flow was drastically increased by these three types of increases.

Politcally, decolonization in what came to be called the Third World and a rejection of the inequality in the Industrial Age by extremists in the industrializing world, particularly Europe, created opposition amongst those who lost-out against state power. By creating mass production of weapons and technologies for explosives and communications, the technological advancements of the Industrial Age made the tools for warmaking availble to those who opposed state power and sought to become what we call non-state actors. These two ingredients were among those that supported the rise of a new group of non-state actors such as anarchists, insurgents and othe revolutionaries.[25] Although non-state actors existed prior to this age, the technological and political developments of the Industrial Age set the political, economic and physical conditions for a growing number of conflicts involving non-state actors. These various non-state actors are naturally of a different type than states and therefore employed different strategies. This made the military system more complicated, as well as the rest of the systems (political, economic, social, etc.) in the operating environment .[26] Commanders and staffs were

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[24] See James R. Beniger, *The Control Revolution*, (1986) 427-429 and Michael Howard, *War in European History* (New York: Oxford University Press, 1976) 98-99, 102.

[25] Michael Howard, *War in European History* (1976) 118-121, 138

[26] Robert Axelrod and Michael D. Cohen, *Harnessing Complexity: Organizational Implications of a Scientific Frontier* (New York: Basic Books, 2000) 7, 15-16. Axelrod and Cohen define complication as something with many actors, whereas complexity describes a system or environment in which those actors can alter the environment in unpredictable ways, often adding entirely new characteristics to it. This

forced to deal with the complications of both thanks to increasing intersections between the military system and other systems in the operating environment.

The requirement for specialists increased greatly as more new technologies were added to military forces throughout the industrial age.[27] All combat, combat support and combat service support units[28] required specialists for maintenance and operation of new equipment and armaments[29]. Commanders continually required additional specialists to manage the specialized operations throughout their forces and so staffs consistently grew in size and specialization through the nineteenth and twentieth centuries.

The mechanisms which western militaries developed or adopted to cope with the increasing distribution, specialization and complication included changes to organization, doctrine and procedures as well as training and education of officers. They added echelons of command and equipped each with a professional staff. These staffs had little in common with those administrative and personal staffs which previously served primarily to remove any distractions from the mind of the commander. Under Napoleon and his Corps commanders, they took real responsibilities from commanders such as calculating and managing movements and logistics, even reconnaissance.[30] This eventually lead to them becoming full-time organizations which included trained, and experienced professionals. This process of decentralization within a headquarters required almost a century to become institutionalized in western militaries, but it continued until staffs took over planning and coordinating operations themselves.

Among the clearest pieces of evidence that this development consituted a decentralization of control – from one commander to several commanders and staffs – was the development of doctrine to enable them to act in a unified way. The efforts of military forces acting under one commander's will are unified by the singular nature of the will driving them. The strength of will and personality of that commander were critical factors in any army's ability to achieve unity of effort[31] and therefore to prevail. If military forces need other tools to ensure unity of effort, that

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related concept of complexity will be introduced later in this chapter during the discussion of the challenges of the Information Age.

[27] See Michael Howard, *War in European History* (1976) 107, 120 & 122 and Martin Van Creveld, *Command in War* (1986) 235, 238-239

[28] These units were not always called by our category-names; it is clearer and simpler to use familiar terms.

[29] Even a light infantry battalion today requires communications specialists, mechanics & medics.

[30] See Michael Howard, *War in European History* (1976) 100-101 and Martin Van Creveld, *Command in War* (1986) 56, 67, 71 and 74.

[31] "Unity of Effort" is used instead of "Unity of Command" throughout the monograph for two reasons. First, unity of command was already ensured in these cases by the singularity and position of the

is a sign that control has been decentralized from the one to the many. This is why Chapter Four focuses on the question of whether or not our joint doctrine is fulfilling this purpose with regard to control. Prussian military reformers Scharnhorst and Moltke instituted common education, career progression and staff procedures for these new "general staff officers" to ensure highly professional and unified implementation of common doctrine.[32] Training in accordance with doctrine and procedures ensured proficiency in them at the unit level across the entire force. All of these mechanisms are in part measures to retain unity of effort once control took its first step towards decentralization.

In sum, the exercise of control over military operations was for the first time distinuguishable from command. Many responsibilities previously executed only in the brain, or the tent, of the operational-level commander were decentralized across the professional staff and across several echelons of command.[33] Though many failed to understand the nature of this change and still focus their attention on the extreme lengths to which the national political leadership or the strategic military leadership went in attempting to maintain whatever degree of control they could manage, two essential truths remain. First, moving from a model of one man exercising full command at the operational level of war (and sometimes, as with Alexander, Gustavus Adolphus, Frederick II and Napoleon, at the strategic level as well[34]) with control entirely inherent in that commander to a model of multiple men in command of various elements of the armed forces at the operational level, relying on a staff of professionals to assist in exercising the control[35] necessary to command such dispersed, specialized forces, was fundamentally an act of decentralization. Second, no matter what technology supported strategic leaders and operational commanders, explosive growth in the size and distribution of armed forces all but eliminated their ability to exercise direct control over those forces. The introduction of additional echelons of depth in the organization, each with their own commanders, transformed the control exercised at the higher echelons from direct to indirect.

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commander. Second, unity of command is simply one means to the end of unity of effort, as is centralized control and as are the organizational and procedural tools described here as required by the decentralization of control.

[32] See Gunther E. Rothenberg "Moltke, Schlieffen, and the Doctrine of Strategic Envelopment" in *Makers of Modern Strategy* ed. Peter Paret (1986) 301 and Michael Howard, *War in European History* (1976) 95-96.

[33] See Michael Howard, *War in European History* (1976) 83-84 and Martin Van Creveld, *Command in War* (1986) 40, 56 & 263

[34] Martin Van Creveld, *Command in War* (1986) 40, 44 and 57

[35] Using the previously established definitions of control from Beniger (generic) and JP 3-0 (military).

Control in the Information Age

The judgement seems nearly universal today that the technological advancements of the Information Age have radically increased our raw abilities in processing and communications, Beniger's two essential activities of control.[36] Our computers can process information at rates and volumes that were only dreamed possible in science fiction before the late 20th century and we can communicate massive amounts of data in seconds, conduct video teleconferences involving multiple headquarters on all sides of the planet and instantly publish our databases for anyone on our network to access. Reciprocal communication has evolved into a constant and seemingly effortless activity in the "Collaborative Information Environment".[37]

These information-processing computers have become indispensible because the advances which created them have also increased the volume of information we gather. In an objective sense, our forces and sensors (intelligence collectors, gun-cameras on combat vehicles and aircraft, and many others) have the ability to gather far more information about our environment than was possible in any age before our own.[38] In Chapter Three we will examine the question of whether this wealth of information amounts to greater understanding and improved decisionmaking. The amount of data our forces and our environment now generate thanks to Information Age technology may in fact so greatly outstrip both the amount generated in previous ages and the amount we can absorb in the current age, that the amount we understand has actually become smaller in comparison to the total amount we know is available.

The sum of these increased capabilites is presented as a net increase in our capability to make decisions rapidly and collaboratively. However, as in the Industrial Age, the same emerging technologies which increase our capabilities also increase the challenges we must face, and create new ones alongside them. Indeed, one of the distinguishing characteristics of the Information Age is that our operating environment evolves at an increasing pace.[39] The changes that military forces face can still be characterized by the three general increases that occurred in

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[36] See Vice Admiral Jerry O. Tuttle, "C3, An Operational Perspective" in *Science of Command and Control: Part II Coping with Complexity*, ed. Stuart E. Johnson and Alexander H. Levis (Fairfax, Virginia: AFCEA International Press, 1989) 2, 4-5 and DoD, CJCS, *JP 3-13 Joint Doctrine for Information Operations* (Washington, DC: 9 October 1998) I-11 – I-14 and DoD, CJCS, *JP 3-0 Doctrine for Joint Operations* (2001) I-2 and DoD, CJCS, *C2 JIC, Final Version 1.0* (2005) 10 and DoD, CJCS,

[37] DoD. US Joint Forces Command, Joint Warfighting Center Pamphlet #5: Operational Implications of the Collaborative Information Environment (1 June 2004) 1-3, 8-12 and 20.

[38] See DoD, CJCS, JP 3-13 Joint Doctrine for Information Operations (Washington, DC: 9 October 1998) I-11 – I-14 and DoD. US Joint Forces Command, Joint Warfighting Center Pamphlet #4: Doctrinal Implications of Operational Net assessment (24 February 2004) 7-9.

[39] See Alvin and Heidi Toffler, "Foreword: The New Intangibles" in *In Athena's Camp: Preparing for Conflict in the Information Age*, ed. John Arquilla and David Ronfeldt (Santa Monica, California: RAND National Defense Research Institute, 1997) xiv, xvii and xxiv.

the Industrial Age: distribution, complication and specialization. The primary differences being the pace of change mentioned already and the increase in complexity. This model is not meant to minimize the importance of changes in the size, precision and destructive power of military forces, particularly those of the US, during the Industrial Age and into the beginning of the Information Age. Those changes are incorporated as previously described in the increase in distibution of forces.

The increasing destructive power of weapon systems and accuracy of targeting sensors creates a deadly environment. In order to survive, military forces disperse over ever-wider areas seeking cover and concealment as well as avoiding presenting themselves as lucrative group targets. This continues the trend towards larger, more sparsely-populated battlefields which canon and rifles advanced in the seventeenth through the nineteenth centuries.[40] Simultaneously, long-range and stand-off weapon systems become increasingly common with advances in information technology. Our forces now cooperate in supported and supporting operations despite being in separate time zones and on different continents. As this trend continues, commanders must comprehend an ever greater area. On the surface, this growth might seem simple, despite its sheer size. One might think that this growth in the size of the CJFCs area of interest is simply growth in the three spatial dimensions. However this thought would be misleading, the truth is far more challenging. As the CJFC's area of interest grows to spread across multiple regions, it starts to take on more political, cultural, social, linguistic, religious, economic, infrastructure and technological variance. This means that distribution at the CJTF and COCOM levels, those which cross regional boundaries, presents vastly more complicated challenges than at the tactical level.

As our forces' reliance on technology continues to grow, the military must increasingly specialize in order to employ these technologies. High technology equipment requires special skills both to operate and repair. The military must either train and develop soldiers with these skills, or outsource them to civilian specialists. Either way, the commander is faced with a less homogeneous force, one whose skills he largely does not understand. The problem actually surrounds the commander, one of the locations in the battlespace most densely populated with technical specialists is an operational-level headquarters.[41] The irony is that while these specialists are absolutely indispensible to the exercise of control, and therefore command, of

[40] Michael Howard, *War in European History* (1976) 59-61 and 78-79.

[41] Martin Van Creveld, *Command in War* (1986) 264-266. Further, the author has observed this to be the case in 1998 at NATO Stabilizaton Forces (SFOR) HQs in Sarajevo, in 1997 to 1998 and 2000-2001 at USEUCOM HQs, 2003 at US Transportation Command HQs, and in 2004 at CENTCOM (Forward) HQs in Qatar, CFLCC HQs in Kuwait and Multi-National Forces - Iraq HQs in Baghdad.

modern US joint forces, they have the simultaneous effect of increasing the overall challenge of exercising direct control.

Compounding these trends, the Information Age technologies which have enabled our networking have also connected people with information and other resources previously beyond their reach. This access to information and resources has allowed more people to wield more influence, particularly when they network to combine efforts. This influence through interaction is the essential building block of complexity in any environment. An environment is complex when the interactions the actors within it have a strong influence on the evolution of the environment.[42] As the influence of actors and number of interactions (or complexity) increase, so do the speed at which the environment will evolve and the difficulty we will have in understanding it and making predictions about it.[43] Multiple influential, independent actors, of different types with different goals will impact our operations at every turn and will defy control.

These influential actors will not all be enemies, but some will be opposed to our objectives and those who are enemies will be especially dangerous and adaptive. Adaptive enemies use their knowledge of their opponents to outgrow and defeat them, they will be sure to understand our information-based capabilities and reliance on technology. As they are increasingly aware of our conventional dominance and information-gathering capabilities, and because they survive and prevail through adaptation, they place a growing emphasis on evading detection and direct-fire combat. They take steps such as concealing themselves among populations and using remote means of attacking us, for example. Further, a broad array of non-state enemies now have greater access to information-enabled weapons and other capabilities which were previously too expensive for any but high-tech, western military and security forces. Adaptive enemies are most likely to exploit these capabilities.

In summary, a word of caution about the Information Age. As was true for the industrial age, the same technological advances that are enabling our increasing capabilities are also increasing old challenges and creating new ones throughout our operating environments. These rapidly advancing technologies will enable commanders to take either road. They will have the capability to decentralize control, relying on subordinates with greater access to information and better communications to operate with greater independence and self-synchronization. However they will also have the capability to exercise tighter control, intervening in tactical operations to

[42] Robert Axelrod and Michael D. Cohen, *Harnessing Complexity* (2000) 18, 62-63.
[43] Ibid 12-13, 15 and 27-28.

ensure their exact adherence to the operations plan.[44] This creates the temptations described in the monograph's introduction.

Our analogy of the hammer represents the exercise of control in tactical units better than it does that at a CJTF headquarters. It describes a singular task, where an actor immediately involved exercises control of the action, not one who is removed from it and responsible for an array of dissimilar, specialized actions spread over a broad and varied area. There is an immediate, direct relationship between the controller and the action. Extending this analogy to represent the CJTF level would require seeing a much larger picture. A CJFC might be the equivalent of the contractor who employs several teams working on differing projects spread over an entire city or region. Each team might have carpenters like the one wielding the hammer of the original analogy, but could also have masons, plumbers, electricians etc. and each would have its own foreman and supervisors. The contractor would also work with architects and other specialists. Certainly this contractor influences what is done with that hammer, but his hand is nowhere near it. This is the level of command, and the kind of control on which the monograph focuses.

Chapter One has proposed an understanding of control including several characteristics important to military professionals. It is an essential component of any purposive action and therefore essential to all military operations. Within the military, control has an interdependent relationship with command. However, control as a component of command can be exercised in a centralized or decentralized manner. Chapter One has further argued that the trends of distribution, specialization and complication of military operations forced the initial decentralization of control. These trends continue and are compunded by a trend of increasing complexity in our operating environment. Since at least the Industrial Age, technological advances have increased the capabilities which enable centralized control, but at every step, those same advances have also created increased challenges to the exercise of control.[45] This double-edged sword is not always seen for what it is. It can sometimes seem as if the new capabilities will trump the new challenges and we can centralize control and impose order on our environment. This is what led to the problem which the monograph addresses. How should we employ the new military capabilities for exercising control which the technologies of the information age have provided us?

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[44] DoD CJCS, *JP 0-2 Unified Action Armed Forces* (2001) III-1, III-13 and III-17.

[45] See Michael Howard, *War in European History* (1976) 133, 138 and Martin Van Creveld, *Command in War* (1986) 264-266 and 267-268.

APPROACHES TO CONTROL IN THE MILITARY

Chapter 2 uses Service doctrine and contemporary scholarly writing on control to elaborate on the approaches to CJFC's exercise control over land forces during the execution of operations. The chapter builds on the "C2 Spectrum" introduced earlier. The version of the framework found in doctrine is binary, describing two sides of the spectrum: Detailed Command and Mission Command.[46] The DoD CCRP elaborates that framework by describing six approaches falling along that spectrum, demonstrating that there are many more options available. Based on the conclusions of Chapter One, Chapter Two focuses on those approaches which decentralize control and gives the reader a more detailed picture of them.

The Command and Control Spectrum

A brief description of CCRP's six approaches follows. In the Cyclic approach, CJFCs[47] provide highly detailed and specific orders on a regular timetable. Alberts characterizes this approach with examples such as the USAF Air Tasking Order (ATO) cycle and control of Soviet forces from the operational level of command during World War Two.[48] In the Interventionist approach, CJFCs also issue specific orders but not limited to a regular timetable. During the Cold War, Soviet Army doctrine included the equivalent of a sports-team play-book with pre-arranged "plays" which were to be executed exactly as developed, taught and rehearsed. In the Problem-Solving approach, just on the detailed-command side of the middle of the spectrum, CJFCs provide objectives, milestones, sequencing and constraints and intervene as necessary to ensure commanders adhere to them. In the Problem-Bounding approach, senior commanders provide subordinates with resources and objectives, while imposing minimum milestones and constraints. The CJTF staff focuses on identifying and bounding or describing problems and contingencies for subordinates without dictating details of how the problems are to be solved. In the Selective Control approach, further into the mission-command side of the spectrum, CJFCs set conditions for success in terms of forces and missions and then monitor the situation to ensure no major threats or opportunities go undetected. This approach requires considerable independent capabilities, particularly for situational understanding in tactical units and considerable trust in

[46] See DoD, HQUSMC, *MCDP 6 Command and Control*, (1996) 77-80 and 81 (Figure 4) and DoD, HQDA, *FM 6-0 Mission Command*, (2003) 1-15 (Figure 1-4).

[47] The CCRP refers to "theater-level" commanders and headquarters throughout their description of these approaches, with few exceptions this corresponds closely enough to the three levels of CJFCs that this discussion will continue to use CJFC as the common term, for clarity and consistency.

[48] David S. Alberts and Richard E. Hayes, *Power to the Edge* (2003) 20-26 covers this and the subsequent characterizations in this paragraph.

them by the higher headquarters. Finally, in the Control-Free approach, CJFCs provide support only: they set conditions for success, task organize forces, provide information and describe desired end states or results. These six approaches, like doctrine's two, are labeled as applying to command and control as a whole. As the interdependence of command and control indicate they should, each does contain an approach to control itself.

Martin Van Creveld links centralization of control to the attempt to cope with uncertainty, a constant in warfare. He argues that, across 2500 years of history, regardless of the technology available to support the exercise of control, uncertainty persists. This uncertainty is always distributed across various echelons of command and the distribution can be shifted. Senior commanders can reduce their uncertainty by placing tight restrictions upon their subordinates, by intervening in operations, by centralizing reserves, combat multipliers and other assets under their own control rather than distributing them among subordinate units. Van Creveld argues that while this may reduce the centralizing commander's uncertainty, it does nothing to reduce uncertainty overall, it simply shifts more uncertainty onto the subordinate commanders. A tactical commander with strict limitations placed upon him has fewer options and therefore less ability to cope with uncertainty. A tactical commander with few combat multipliers or other assets, because control of them is centralized at a higher level of command, is similarly burdened with an inability to cope with uncertainty.[49] So using Van Creveld's model, this entire set of approaches on the command and control spectrum is seen not only to represent a choice among degrees of centralization or decentralization of control, but also a degree to which a commander accepts uncertainty and commands despite it or shifts it onto others. The methods of centralizing or decentralizing control and of coping with or shifting uncertainty are found in every military organization. They are so common that they can easily go unrecognized for what they are. Just a few of these mechanisms, organizational and procedural in nature, are described below in order to identify which ones decentralize control and which ones lead to centralization.

Decentralized Control and Mission Command

The FM 6-0 definition of mission command includes the phrase: "the conduct of military operations through decentralized execution based on mission orders for effective mission accomplishment".[50] This often-used expression "decentralized execution"[51] does not increase

[49] Martin Van Creveld, *Command and War* (1985) 274.

[50] DoD, HQDA, *FM 6-0 Mission Command*, (2003) 1-17.

[51] See DoD, CJCS, *JP 0-2 Unified Action Armed Forces* (2001) xvi, III-13, III-16 and V-2 and DoD, CJCS, *JP 1 Joint Warfare of the United States Armed Forces* (2000) V-10 – V-11 and DoD, CJCS, *JP 3-0 Doctrine for Joint Operations* (Washington, DC: 10 September 2001) x and II-12.

our understanding, it is simply redundant. Execution of military operations generally takes place across an enormous area, involving thousands or hundreds of thousands of personnel; it is decentralized by definition, and has been for over two centuries. What mission command represents is not simply decentralized execution but decentralized control, authority and resources. MCDP 6 uses the term "Mission Command and Control" and provides a useful description of this rather than a definition:

> "Mission command and control can be described as *spontaneous*: unity of effort is not the product of conformity imposed from above but of the spontaneous cooperation of all the elements of the force. Subordinates are guided not by detailed instructions and control measures but by their knowledge of the requirements of the overall mission. In such a system, the commander holds a loose rein, allowing subordinates significant freedom of action and requiring them to act with initiative. "[52]

Organization for decentralized control

Because decentralized control relies on mutual trust between commanders, it will be fostered by arrangements and structures which facilitate the growth of that trust. Longstanding, habitual relationships between command groups and key staff officers of cooperating units and headquarters should contribute to that. Command tours which are long enough for commanders to develop deeper trust through greater mutual experience could also contribute. These longer command tours as well as CJTF headquarters organizations which ensure a focus on the whole environment will increase competency in the roles of the CJTF and should therefore increase trust. The new Standing Joint Task Force HQs – Core Elements (SJTFHQ-CEs) could contribute to this so long as their commanders remain in that position long enough to establish familiarity with their region and if they are given opportunities to train with those habitually associated units.

Organizations which support decentralization of control also require procedures which foster it. MCDP 6 describes the exercise of control under "Mission Command and Control" as absolutely minimal, almost as a last resort:

> "…seniors assign missions and explain the underlying intent but leave subordinates as free as possible to choose the manner of accomplishment. Commanders seek to exercise a sort of *command by influence*, issuing broad guidance rather than detailed directions or directives. The higher the level of command, the more general should be the supervision and the less the burden of detail. … Orders should include restrictive control measures and should prescribe the manner of execution only to the degree needed to provide necessary coordination that cannot be achieved any other way. … we seek to decrease the

[52] DoD, HQUSMC, *MCDP 6 Command and Control*, (1996) 79.

> amount of command and control that we *need*. We do this by replacing coercive command and control methods with spontaneous, self disciplined cooperation"[53]

Both of the last two excerpts from MCDP 6 call the lateral cooperation and self-synchronization in mission command spontaneous. It is not at all spontaneous in the sense that it has no discernible origins or conditions that facilitate and foster its emergence. While these passages describe the procedures of decentralized control quite well, they miss the point that it is the decentralization of control that brings them about. When analyzed using Beniger's twin activities of control[54], decentralization reduces the requirement to conduct them vertically[55] because the CJFC does not direct operations so much. The fact that the CJFC does not impose methods on operations, however, requires the methods to be determined by subordinate commanders. This requires more reciprocal communications laterally because the subordinate staffs must coordinate their locally-determined methods. This also requires them to conduct more processing of information to support this decisionmaking. So these specific procedures which constitute cooperation and self-synchronization are not spontaneous. Spreading the two activities that comprise control across more headquarters increases them.

Defining problems, a procedure called for in the Problem-Bounding approach to command and control requires the operational headquarters to harness its broader staff and other information gathering and processing capabilities to support and inform planning and execution at the tactical level, not to actually conduct those activities themselves. Identifying and describing problems requires the CJFC to focus his staff on understanding the operating environment holistically. This is consistent with joint doctrine, which states that JTF headquarters think in terms of campaigns with their broader scope and longer duration than operations.[56] CJTFs using a Problem-Bounding approach to control will remain somewhat removed from execution of specific operations. For these two reasons a CJTF headquarters has an opportunity to study its operating environment and its opponents over time. Under this approach, the CJTF monitors subordinate commands, friendly and enemy tactical actions and other events in order to further its study. The CJTF focuses on improving their own understanding in order to update the operational design, adjusting milestones and constraints if necessary. An equally important responsibility of the CJTF is to pass this improved understanding of the evolving environment on

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[53] DoD, HQUSMC, *MCDP 6 Command and Control*, (1996) 109-110.

[54] Information processing and reciprocal communications, as described in Chapter One.

[55] Meaning between higher and subordinate headquarters. Lateral or horizontal is used to represent any set of cooperating headquarters of similar echelons, without a specified command or control relationship.

[56] See DoD, CJCS, JP 0-2 Unified Action Armed Forces (2001) I-10 and DoD, CJCS, JP 3-0 Doctrine for Joint Operations (2001) II-4.

to its subordinates, refining the Problem-Bounding so as to enable them to accomplish their assigned missions. Through these general procedures, the CJTF staff helps the CJFC to exercise that control deemed necessary by ensuring a common and up-to-date understanding of the environment, the problems to be solved by subordinates and any potential contingencies.

Contingencies are unexpected developments but are not necessarily entirely unforeseen. Nor are they necessarily negative. Unexpected success and opportunity are also contingencies that invite action. In the Problem-Bounding approach, the CJTF staff identifies and describes multiple contingencies for subordinate commands so that they have greater readiness and flexibility in execution. This implies a belief that events on the battlefield defy reliable control from the CJTF level, but that preparation is possible. In this approach, those milestones and constraints imposed by the CJFC, described as the minimum, represent only those absolutely required to ensure that the response to contingencies remain within the broad bounds of the CJFC's intent and within the bounds of what the components have the resources to handle. While bounding problems and creating common understanding and are the primary procedures of control here, the CJFC will still intervene if the situation develops outside those bounds or he believes that missed milestones or violated constraints require his intervention.

The 1999 RAND Corporation study *Command Concepts* recommends that commanders limit themselves to developing a vision of an operation and communicating it to subordinate commanders who then exercise initiative individually and self-synchronization collectively to realize that vision.[57] This approach can be placed at, or close to the Control-Free approach on the C2 Spectrum. It recommends a role for the commander, supported by his staff, as a visionary who looks ahead to develop a concept for the overall campaign or operation. His only concern during execution of any single operation is information that would invalidate the concept he provided to his subordinates and therefore would call upon him to develop a new one. Large amounts of vertical communication between CJFCs and Components would be seen as evidence of a failure to develop an applicable and effective "command concept" for the ongoing operation.[58] Well-conceived concepts obviate the need for much communication, especially from higher to lower. This adds another procedure that fosters the decentralization of control by specifying the role of the CJFC and leaving the rest spread among subordinate commands.

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[57] Carl H. Builder, Steven C. Banks and Richard Nordin, *Command Concepts – A Theory Derived from the Practice of Command and Control* (Santa Monica, California: RAND Corporation, 1999) 120-121, 123.

[58] RAND's Command Concept contains less detail than "Concept of the Operation" as defined in DoD, HQDA, *FM 3-0 Operations* (2001) 6-5 – 6-6, it is similar to the description of "Operational Concept" offered in the DRAFT: DoD, CJCS, *JP 3-0 Doctrine for Joint Operations, Revision 2nd Draft* (29 April, 2005) IV-7.

Viewing this approach through Beniger's framework of the elements of control clearly demonstrates how it falls into the Control-Free region of the spectrum. The two activities are minimized in the procedures of the CJTF headquarters because the CJFC has narrowed his requirement for information to a very specific set: that which would indicate he developed an unsuitable concept. This concept applies even more aptly when we assume that in the information age, all these headquarters will have access to the same data and analysis for shared situational understanding. This being the case, if the command concept is sound and the components are operating in accordance with it, then there is far less need to communicate with them, as there is no need to direct them any further. Explaining his concept clearly is all the control that the commander needs to exercise:

> "Commanders at all levels should be evaluated by the quality of the command concepts they develop and promulgate *before* battle, not just by their abilities to improvise and orchestrate actions in response to the unforeseen *during* battle. History—and not just the six cases examined here—suggests that preparation, not improvisation, and vision, not orchestration, are the qualities that have most often carried the day in battle."[59]

Although RAND asserts the applicability of this concept to all levels of command, it applies particularly well to the various CJFCs. It is here that a commander has the most freedom and scope of responsibility to develop a comprehensive command concept for the operation. Above this level, there is no concept of operations, only strategic guidance, goals and political limitations, below this level, commanders and staff plan specific operations to support the overall concept. This approach places a premium on the commander's responsibility to develop and explain a concept for them and then to employ procedures for confirming or denying and revising it during execution as the situation requires.

This approach also explicitly requires the CJFC and his staff to monitor the execution of the operation, but not to interfere with how it is executed. It requires them to be positioned to learn from unfolding events and to adapt the command concept to the new or newly understood situation. Their monitoring of the situation must be focused not on the details of current situation, but on the interactions, influences and trends which reveal how and why the environment functions the way in which it does. Their procedures must ensure that their scope of vision is not just limited to military forces but takes in all the relevant aspects of the operating environment and the organizations, agencies and other actors in it, opposing, cooperating and neutral. Most importantly it requires the CJTF headquarters to be able to identify and learn from the constant changes in the environment or their own misperceptions of it. Chapter One

[59] Carl H. Builder, Steven C. Banks and Richard Nordin, *Command Concepts* (1999) 121-122.

explained how change is accelerated in the Information Age. The CJTF headquarters, in its continual learning about the environment must be constantly searching for the indications and implications of these changes and the enemies' adaptations and pushing their conclusions out to their subordinates and cooperating forces to enable them to keep up.

Centralized Control And Detailed Command

The opposite of the approach described above is detailed command. This approach reflects a deterministic belief that with enough, knowledge one can reduce uncertainty in war to a degree at which it is mastered and commanders feel a comfortable degree of certainty in their decisionmaking. As Van Creveld explained, the quest for this certainty leads commanders to seek a high degree of centralized control over their subordinate military forces.[60] Setting aside the question of imposing order and achieving certainty over other elements of an operating environment, there are organizational and procedural methods for centralizing control.

Organizations optimized to centralize control, be they large or small, hierarchical or flat essentially revolve around one person. As Chapter One described, this was the model of command through ages when the political leader was also the field commander of all military forces. Distribution and specialization of forces eventually overwhelmed any one man's ability to exercise this control. A staff which functions simply as an extension of its commander's will is an organization for centralized control. Today centralized control requires a "powerful, efficient C2 system able to process huge amounts of information"[61] to support these organizations. CJTF staff manning and organization documents which emphasize military functions over breadth of expertise will tend to centralize control as a result.

One typical organizational and physical tool of centralized control is the grandstand-style combined/joint operations and intelligence center (CJOIC). Several enormous video screens feed information from various sources into the front of an even larger room containing rows of workstations arranged on a stair-step grandstand manned by watch officers from every staff section and combat function. At the center is usually the Chief of Current Operations, a "Battle Captain", one of each or even several[62] to supervise and ensure the focus of the various staff representatives in the CJOIC. This physical structure and organization of the CJOIC serves to

[60] Martin Van Creveld, *Command in War* (1986) 274.
[61] DoD, HQDA, *FM 6-0 Mission Command* (2003) 1-16.
[62] As observed by the author at Camp Arifjan Kuwait in summer 2004, USARCENT/CFLCC headquarters C3 section alone had 2 Colonels, 3-4 Battle Majors and Battle Captains (with some variance based on gains, losses and rotations), plus additional captains and lieutenants specifically to handle message release and tracking.

focus attention on whatever is on the video screens at the front of the room. These often display multiple information sources that are focused on current events or the recent past. Among these are the Common Operational Picture, which is inherently a picture of the current battle, the slides for the upcoming or previous Battle Update Briefing, a 24-hour news channel, a video feed from an unmanned aerial vehicle often not even one under the control of that headquarters. The tools that serve situational awareness and battle tracking at the tactical level do not translate well to the responsibilities and functions of the CJTF HQs. At this level these tools can easily contribute to a short sighted focus on current and recent events, the "tyranny of today" and draw a JTF HQs into focusing on, or even to intervene in the execution of an ongoing operation.

The ready availability of this tool, and its focus on the current situation make it extremely useful and efficient in responding to immediate problems at a senior headquarters. However the very competency and capability of this tool in solving problems tempts CJTF leadership into using it to intervene, often with the most helpful of intentions, in the business of tactical organizations: the execution of operations. While this element of the CJTF HQs may be efficient in solving the problems of tactical operations, it does not contribute to the HQs' effectiveness in fulfilling its own roles and responsibilities. It can in fact become a major distraction from essential activities such as: analyzing long-term trends, conducting campaign assessment, identifying best practices from across the force and disseminating those, re-evaluating the vision or concept for the campaign and designing future operations. It distracts from these by drawing ever more attention of the senior leaders and the JTF staff into a focus on current operations. It can further damage the effectiveness of the overall force by creating redundancy with subordinate headquarters or preventing the development of the necessary competencies at subordinate HQs because "the CJOIC will handle it, they always do" or "we don't make a move without consulting the CJOIC first".

Organizational models alone, however, do not dictate centralized control. The way any organization functions is strongly influenced by the procedures which it employs. Procedures which ingrain centralized control include "vertical, linear information flow"[63] As examples from the C2 Spectrum indicate, detailed and explicit orders or directives and strict timetables are methods for centralizing control.

A typical procedural tool of detailed control, which is often used twice a day is the "Battle-Update". This briefing's focus on the events of the past 12 to 24 hours and the next 24-72 hours is definitively tactical and detailed in orientation. Even when senior leaders demand that

[63] DoD, HQDA, *FM 6-0 Mission Command* (2003) 1-16.

the briefing focus on analysis and conclusions rather than on raw reporting and battle-tracking, the tempo of holding the briefing twice daily and the time-period it covers forces a tactical and detailed view of the operation.[64] This focus naturally draws a CJFCs attention to his own tactical forces and the details of current operations and invites a commander to deal with them rather than with the entire breadth of the environment and long-term trends. So procedures which focus our attention primarily on the immediate and near-term tend towards centralized control, and procedures which focus on details of our own forces rather than on the environment as a whole do the same. The truly insidious danger comes from adherence to a repetitive procedure that focuses a powerful and central element of the CJTF staff on immediate details so frequently and absorbingly as to prevent them from even considering the purpose and results of their actions.

Conclusions

As we established in Chapter One, control in some form is necessary to command. Therefore every doctrinal, CCRP-identified, or other "approach" to command has a corresponding degree of control exercised within it. The purpose of this chapter has been to describe some of the options open to CJFCs in the exercise of control within the context of these approaches to command. It remains important to respect that CJFCs and indeed all commanders must choose to adjust from their preferred degree of control in order to meet varying situations. Every commander makes choices, either consciously or unconsciously, either intentionally or by default, to exercise a degree of control which exists somewhere along that spectrum. As that theory describes, this exercise of control is ongoing constantly to one degree or another. Therefore this choice is being made or revisited almost perpetually throughout all military operations at all levels of command. This testifies to the importance of developing doctrine, organization, training and leader development to support commanders in making these choices.

The exercise of control uses not just communication systems, but tools such as organizations, doctrine and procedures. Just as there is a spectrum of approaches to command, there is a corresponding range of these tools, some of which support centralized control and therefore ingrain detailed command and similar approaches. Others support decentralized control and so foster mission command and similar approaches. The description of control within each approach has included some examples of these tools. The purpose of including these is to suggest

[64] As observed by the author at USAREUR Forward HQs, Taszar, Hungary in October of 1996, at SFOR Headquarters, Ilidzja, Sarajevo in the winter of 1998-1999 and at USARCENT/CFLCC HQs, Camp Arifjan Kuwait in summer 2004. The briefings were professional and informative, but they were almost always focused on a tactical time frame and level of detail and they were always repetitive, because their format and frequency forced them to be so.

that our military can foster an approach or focus on a range of approaches by institutionalizing those tools which correspond to its associated degree of control. In choosing which we should foster, it is difficult to find any scholars or military professionals openly advocating detailed command or a centralization of control in writing or in professional discourse.[65] Yet the pressures and temptations described in the introduction are clearly present and powerful. So why this virtual unanimity over decentralization of control? The purpose of Chapter Three is to address this question.

ARGUMENTS FOR DECENTRALIZATION

Chapters One and Two set the stage for a deeper understanding of the nature of control, particularly in military operations. The arguments in those chapters were more descriptive than those to come. The Chapters that follow make normative arguments, culminating in specific recommendations. Chapter Three's arguments have two purposes. The first is to answer the question with which Chapter Two's elaboration on the approaches to command and control concluded. The second is to deepen the description of decentralization in order to form a basis for the conclusions in chapter Four and the monograph's recommendations, which comprise Chapter Five.

All our relevant doctrinal publications call for agility of our forces.[66] JP 1 emphasizes its great importance by locating it among the fundamentals of joint warfare.[67] More recent Joint Staff writing draws the link between decentralizing Beniger's two activities of control as a requirement for achieving agility.

> "To promote agility in response to changing situations, future C2 capabilities must enable subordinate forces to synchronize among themselves when appropriate, without detailed direction from above. Self-synchronization will require that subordinate commanders be able to act on their own initiative and collaborate effectively. They must share SA, trust in their information and in each other, and have a clear understanding of the commander's intent."[68]

This passage indicates how decentralizing control leads to agility. Decentralization of control over how forces execute operations should lead to a diversity of methods or tactics across the CJOA because it allows tactical commanders the freedom to adapt their methods to localized

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[65] Politicians advocating centralization on specific occaisions, by contrast, are easier to find. Only one historian, Eliot Cohen, even nears this position. Both, however are more focused on strategic command and military-civilian relations, not the CJFC-level.

[66] See DoD, CJCS, *JP 0-2 Unified Action Armed Forces* (2001) xiv, III-16 and DoD, CJCS, *JP 1 Joint Warfare of the United States Armed Forces* (2000) ix, x, III-8, 10, 11 and III-12, and DoD CJCS, *JP 3-0 Doctrine for Joint Operations* (2001) IV-8, IV-10 and V-8.

[67] DoD, CJCS, JP 1 Joint Warfare of the United States Armed Forces (2000) ix, III-8.

[68] DoD, CJCS, Command and Control Joint Integrating Concept (2005) 18.

conditions and to the strengths of their units while remaining focused on achieving a unified overall intent and end state. The self-synchronization among "subordinates" is based in situational awareness, trust and collaboration. So these tactical units, aware of the diversity of methods among them and trusting in the soundness of those, can collaborate to rapidly adopt any of them which seems most appropriate to a new situation. This is the freedom of action which enables agility of the force, each unit selecting, from among an array of methods, those with which the enemy cannot cope and those most likely to achieve mission success in a given situation. We should therefore decentralize control to ensure that our methods are so diverse that any strategy selected by the enemy will be incapable of coping with at least some of our methods. In this diversity we will preserve our freedom of action while frustrating our enemy. If we use a centralized approach the opposite will result. If our operations employ few methods, so that one commander could control it all, then the enemy would also find it easy to comprehend and would easily adapt to it, creating a way to defeat it. Limiting the freedom of action of our tactical commanders in order to simplify centralized control would stifle their initiative, prevent them from adapting and leave them at the mercy of an enemy possessing agility unconstrained by any centralized control.

Closely linked to the role of agility in overwhelming the enemy's ability to cope and frustrating his freedom of action is the unique role of the CJFC. Centralization of control over execution of land forces distracts the CJFC from filling that role. JP 3-0 describes this role:

> "Combatant commanders play a pivotal role in unifying actions (all of the elements and actions that comprise unified actions are normally present at the combatant commander's level). Subordinate JFCs also integrate and synchronize their operations directly with the activities and operations of other military forces and nonmilitary organizations in the operational area. … The integration of all US military capabilities — often in conjunction with forces from other nations, other US agencies, NGOs, and UN forces and capabilities — is required to generate decisive joint combat power. JFCs integrate and synchronize these capabilities and contributions in time, space, and purpose."[69]

One important element of this description is found in its second sentence: subordinate JFCs must self-synchronize with other forces and agencies. The word "also" further implies that the combatant commanders, as JFCs themselves, do this as well. Integrating and synchronizing with cooperating and adjacent units is a lateral orientation of a commanders attention, as opposed to a downward focus on subordinates. While the CJFC must be aware of his own forces in order to integrate and synchronize their efforts with the other entities listed, the focus is on integrating them with others, not on controlling them. The fact that the word method does not appear in the

[69] DoD CJCS, JP 3-0 Doctrine for Joint Operations (2001) II-4.

last sentence reinforces this point. The CJFC ensures that they are acting in the appropriate time and space with complementary purposes but has no concern for their methods of execution, only the results of it. This describes a decentralization of control.

Indeed this decentralization of control is absolutely necessary in order to free the CJFC and his HQs to handle the extremely challenging responsibility of fostering unified action among these diverse organizations and agencies. Reinforcing its emphasis on this particular responsibility, JP 3-0 goes on to explicitly differentiate the activities of the components from the role of the JFC:

> "To achieve assigned objectives, joint forces conduct campaigns and major operations. Functional and Service components of the joint force conduct supported, subordinate, and supporting operations, not independent campaigns. … JFCs integrate and synchronize the actions of air, land, sea, space, and special operations forces to achieve strategic and operational objectives through integrated, joint campaigns and major operations. The goal is to increase the total effectiveness of the joint force,"[70]

The campaign, that which links the subordinate operations together over time, space and purpose, organizing them coherently to meet the political goals, is the responsibility of the JFC. Components are kept separate from engaging in this unifying action independently. The last sentence calls to mind Moltke's approach to strategy: "a system of expedients" which maximized both the preparation for and use of the outcome of every battle, but sharply reduced the role of the operational commander in the conduct of the battles themselves.[71]

The terms integrating and synchronizing are repeated several times in this section of JP 3-0, and they also appear throughout relevant sections of JP 0-2 and JP 1. Their exact meaning deserves close attention. Integration is "The arrangement of military forces and their actions to create a force that operates by engaging as a whole."[72] Synchronization is **"**The arrangement of military actions in time, space, and purpose to produce maximum relative combat power at a decisive place and time"[73] mirrors that of integration particularly in the use of the term "arranging" instead of one like "employing" or "directing", again reinforcing the decentralization of control. Arrangement means the JFC determines when and where, only in a sense of relation to other forces and actions, not in more specific ways, and it does not include determining how forces act. Further, the definitions are similar in that both arrange forces to "produce" or "create"

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[70] Ibid, II-4 (bold in original).

[71] Gunther E. Rothenberg "Moltke and Schlieffen" in *Makers of Modern Strategy: from Machiavelli to the Nuclear Age* ed. Peter Paret (Princeton, New Jersey: Princeton University Press, 1986) 297.

[72] DoD, CJCS, *JP 1-02 DoD Dictionary of Military and Associated Terms* (2001, as Amended through 31 AUG 05) 266.

[73] Ibid, 520.

something. That something: "combat power" or "forces which engage as a whole" executes supporting operations to accomplish the mission.

As an example of this, in operation Allied Force, General Wesley Clark (SACEUR, and here also acting as the CJFC) exercised almost no control whatsoever over the land forces in the operation because they were composed almost entirely of Kosovo Liberation Army (KLA) guerrillas. NATO land forces in Bosnia and Macedonia already had other primary missions and could only influence the campaign peripherally. US European Command land forces in Albania and other efforts to develop a land component served largely as a threat of force to influence the political negotiations which demanded far more of General Clark's attention.[74] US Special Forces teams working with the KLA achieved unity of effort between the air forces of the CJFACC and the KLA on the ground. While this did not destroy much of the Serbian ground forces, it eventually rendered Yugoslav Army and Serbian internal security forces unable to continue their offensive under pressure of the diversity of means and methods arrayed against them. This success also owes much to the CJFC's efforts to integrate the efforts of international actors in the diplomatic, military, information and law enforcement dimensions. General Clark describes a "combination of factors at work"[75] in Milosevic's decision to surrender:

> "the impact of air campaign … the threat of a ground invasion, which the Serbs could see rapidly building around Yugoslavia, … A ground invasion would have destroyed large portions of the Yugoslav military and police, weakening the final bastions of Milosevic's power, and made his efforts to disguise defeat impossible. For Milosevic, a final factor must have been the lack of any significant outside assistance, as Serbia was surrounded by increasingly hostile neighbors and without any material support from Russia. … The Russians, of course, did their best to claim credit for Milosevic's change of heart. But the settlement was in their interest, too, for they needed a more constructive relationship with the West. They had been unable to help Serbia resist, and the prospect of seeing NATO forces destroy the Serb Army and smash its (sic) way into Yugoslavia would have been an even deeper blow to Russian geostrategic interests and wounded pride than the agreement they helped encourage."[76]

So the CJFC believed that diplomatic influence wielded by an alliance and individual nations (all of which had to appear sufficiently strong) isolated the enemy. This diplomatic isolation, the arrangement of allied ground forces in the region and the allied air campaign added to the credibility of the threat of a ground invasion that threatened to destabilize Milosevic's regime. It capitalized on two pre-existing non-military conditions: the arms embargo which

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[74] General (R) Wesley Clark, *Waging Modern War: Bosnia, Kosovo and the Future of Combat* (New York: Public Affairs, 2001) 236, 239, 314, 339. The primacy of political concerns permeates the entire book.

[75] Ibid 405. See also 270-271 in this source.

[76] Ibid 405-406

weakened his military and the threat of international legal action if Milosevic lost power. This focus on, and responsibility for, understanding the whole environment (i.e. Russia's situation and the appearance of NATO unity) and integrating the full array of sources of power is certainly common to both senior civilian officials CJFC. While the CJFC is not likely the senior authority involved, he is central to it, and as this example demonstrates, its importance means that it is among his most important roles.

Another argument for decentralization of control lies in contrasting the challenge of unifying action with civilian organizations against that of synchronizing and integrating the actions of subordinate military component commands. As both the joint doctrine cited above and the associated argument make clear, JFCs must unify the actions of his forces with the non-military organizations and agencies with which we must cooperate to achieve unity of effort. To achieve unity of effort in modern operations is an enormously challenging task. The CJFC can expect the entire array of types of organizations that exist on the planet to be represented in his CJOA. This will include government-sponsored aid and development programs from allied, neutral and even adversary countries, NGOs of all types with different agendas and different policies about working with military forces, International Organizations such as various UN agencies, the World Bank and the IMF. Maintaining positive and productive communication with such an array is challenging and requires several key resources. These include robust and broad expertise in dealing with non-military organizations, a large liaison capability, a technical ability and a mental readiness to share military information with such organizations to the maximum degree possible and finally a command emphasis on building relationships with all relevant players. In SRO, COIN and similar operations, the CJTF will also have to achieve unity of effort with national, regional and local authorities. This again includes military and other security forces, multiple government ministries, and non-governmental figures with authority or influence such as religious leaders, tribal elders, union leaders and businessmen.

Even among his "own" force, the CJFC will have allies and coalition partners. In anything other than a CJTF composed of forces from a long-standing military alliance such as NATO, US-Japan or US-ROK, this will mean significant interoperability challenges which the CJTF and subordinate staffs will have to overcome in one way or another. Even within such alliances, the domestic political climates, cultures and national interests of the troop-contributing nations will ensure that the CJFC has forces with differing ROE, Force Protection postures and tactical doctrine over which he does not exercise full command as per US joint doctrine.[77]

[77] General (R) Wesley Clark, *Waging Modern War* (2001) 397-400 for one recent example.

Adding further complication, US forces will be reliant on contractors for several significant functions for the foreseeable future. Achieving unity of effort among these forces and organizations in such an environment is clearly more difficult than simply exercising control over those US land forces that are already subject to his command authority. Commanders at any level should always focus their attention on the hardest tasks rather than on those which are more routine. As leaders we must all always guard against focusing purely on that which is familiar and comes easily to us.

As stated in the introduction, the main focus of this monograph is the CJFC's exercise of control over US land forces, not over multinational forces. The above conclusion may seem paradoxical, but it is completely consonant with that focus. We must take into consideration the complexity of the environment in which CJFCs exercise control over US land forces as described in Chapter One. The importance of this argument is to demonstrate that there are much greater challenges within CJTFs than the control of US land forces. Many of these challenges, including those described here, can best be addressed by a CJFC with the support of a robust interagency staff. Only the CJFC has the clout, resources, and position to address them.

> **"CCDRs and subordinate JFCs must work with US Ambassadors, the Department of State, and other agencies** to best integrate the military actions with the diplomatic, economic, and informational instruments of national power to promote unity of effort."[78]

Certainly tactical commanders must also deal with the local representatives from this broad array of organizations as part of their execution, and the authority to create cooperative efforts with such organizations must be decentralized to these "junior" leaders. However, the conditions for this must be set at the CJTF level. There will never be enough regional, economic, cultural experts etc. to provide them to all headquarters in the CJTF. The CJFC must use them to set conditions for his subordinates to succeed without the benefit of having these experts on hand. If senior leaders such as the CJFC have not already created some degree of unity of effort among this diverse group, then tactical commanders, with far fewer resources and less of the clout and influence which the CJFCs position carries, will find it almost impossible to do so.

Another argument for decentralizing control to achieve agility addresses variations of operational tempo across a complex environment. LTC (R) Bob Leonhard proposes a framework for understanding what we generally call operations tempo in a more revealing and useful way. He uses the term frequency, which he defines as the rate at which a force takes actions.[79] Speed

[78] DoD, CJCS, JP 3-0 Doctrine for Joint Operations, Revision 2nd Draft (29 April, 2005) I-16.

[79] Robert Leonhard, "From Operational Art to Grand Strategy" in *Rethinking the Principles of War*, ed. Anthony D. Mc Ivor (Annapolis, Maryland: US Naval Institute Press, 2005) 218.

and simultaneity are both descriptions of a high operating frequency, overwhelming an adversary command and control capability with rapid, simultaneous actions throughout the depth of the battlefield is one objective of high operating frequency. Leonhard reminds us that the race, however, is not always to the swift.

Forces acting at an extremely low operating frequency take fewer actions over a given time period. This means they create fewer signatures for our soldiers and intelligence systems to collect. Such adversaries will be very hard to detect, and therefore very difficult to target. It is particularly difficult for us to cope with adversaries operating at a low frequency. Therefore, irregular and adaptive enemies will be particularly likely to use our tendency towards high operating frequency against us by operating at an extremely low frequency.

In the US, both joint and Service doctrine almost universally seek a high operating frequency. Forces that constantly train for a high operating frequency and approach conflict with a high-frequency mentality will have the hardest time coping with low-frequency strategies. High frequency forces can easily be frustrated by the friction between their constant sense of a need to act and the scarcity of targets generated by a low-frequency adversary. This frustration can drive the high-frequency force to desperation, striking at unconfirmed targets and causing a higher degree of collateral damage. Depending on their leadership, it could also drive them to burn-out, causing soldiers to become complacent, drop their guard or lower their standards of vigilance. To defend against a low-frequency strategy, the leadership must therefore be extremely vigilant in fighting both the boredom and complacency or the tendency to rash actions that can set-in among their troops. However, to go on the offensive against a low-frequency enemy, tactical leaders must focus their efforts on carefully gathering, confirming and analyzing intelligence on the one hand, and on using the initiative surrendered by a low-frequency enemy to shape the environment non-kinetically instead of on conducting kinetic operations. Therefore they will need the freedom and flexibility to reduce their own operational frequency. This requires decentralization of control over frequency to some tactical level of command.

Any Western-led CJTF facing irregular or adaptive enemies is very likely to face this strategy. The Army or land component will need enough flexibility to allow some tactical units to operate with great speed and others to simultaneously operate at a slower, deliberate pace. Although a CJFC could potentially support such diversity while still retaining tight control over execution of operations, it would require significant additional agility on the part of that CJFC to do so. The CJFC and his staff, in exercising that control, will have to constantly adjust expectations and sense of time when shifting attention from a high-frequency tactical operation within his CJTF to a simultaneous low-frequency operation elsewhere within it, or risk directing

counterproductive tactical actions. This reinforces the argument made earlier that a CJFC and staff already have their hands full integrating and synchronizing ongoing efforts of the diverse organizations over which they do not exercise command authority. Adding the burden of controlling tactical military operations unnecessarily taxes the CJTF headquarters and likely leads to handling more responsibilities, each at a lower quality.

A frequent assertion made in describing the nature of warfare in the information age is that CJFCs and their staffs will be better able to handle more responsibilities without reducing effectiveness. They will be "knowledge-enabled: benefiting from an enhanced understanding of the environment, potential adversaries and cultures".[80] However, this assertion may in fact be the opposite of what actually happens to staffs. The Network Centric Environment Joint Functional Concept defines the understanding which is enhanced in a knowledge-enabled force as "Knowledge that has been synthesized and had judgments applied to it in the context of a specific situation. Understanding reveals the relationships among the critical factors in any situation."[81] So understanding is built on knowledge.

If we understand knowledge as the meaning that we derive from data, then analysis can increase information without any increase in data. So at one extreme, unprocessed and unanalyzed data yields no knowledge. Overall, given a fixed amount of data, more and better processing and analysis of that data produces more knowledge from it than less or poorer processing and analysis does. So even if the amount of data in our operating environment is finite, the better our processing and analysis become, the more knowledge we have, because we create it. Even more extreme growth of knowledge is now possible in this more data-rich environment thanks to our Information-Age sensors which collect more data to feed the network of processors supporting increased analysis of that data.

Complexity theory explains how an operating environment can experience a growth in raw data, particularly as a result of military intervention and especially in this Information Age. The introduction of military forces means more actors in the environment, and therefore more interactions. Interactions of actors in any environment create data: who or what interacted where, when, how, and most importantly, why and to what result the interaction led. While some interactions will be suppressed due to the destructive nature of military operations, those who are most likely to be deterred from action are likely the least influential actors, the ones we were least concerned with anyway. So we should expect there to be more data about the same environment

[80] DoD, CJCS, Capstone Concept for Joint Operations, Version 2.0, (2005) 21.

[81] DoD, CJCS, *Net-Centric Environment Joint Functional Concept* (Washington, DC: 7 April 2005) B-4.

on D+1 than there was on D-1[82]. This is only one example of an environment whose increased complexity creates an increase in data. There are naturally many more such examples; the importance of this one is its universal relevance to all expeditionary forces, which most CJTFs are.

Information Age technologies exacerbate all this because they are increasingly cheap and therefore widespread, enabling more actors in an operating environment to influence events.

> "The exploitation of new information technology to create desirable adaptation increases the linkages that foster systemic complexity. … The gain in the breadth and depth of interaction that results allows a large diversity of actors to be part of the same Complex Adaptive System, thereby increasing the opportunities for adaptation and the level of interdependence."[83]

Applying the same rules as used in the example of military intervention, the introduction into any environment of new actors capable of influencing others through interaction with them will also increase the complexity of that environment. This means more data available in the environment and yet more difficulty in creating understanding and making predictions about it. So, having expanded briefly upon how military intervention specifically and Information Age technologies in general render the process of building understanding much more difficult, we can return to an overview of it.

Developing enhanced understanding is a process that proceeds from gathering data to processing that data into knowledge, then synthesizing that knowledge and applying judgments to it. This is how the process flows when events proceed as intended. That events will reliably proceed as intended may be a safe assumption in Information Age business, but in warfare, struggle and crisis of any age, that assumption is unreliable and dangerous. In conflict, there is obviously a series of opportunities for significant setbacks in this process. However the problem is challenging enough to cast some doubt upon the original assertions even in their absence. So without demeaning the potentially enormous impact of actions like deception, disruption or destruction of communication and processing capabilities, etc., especially on a centralized control system,[84] the discussion will consider only the challenges without them.

To consider these factors working in combination, as they are when found in the operating environment, can be daunting. Military operations will take place in an environment that, thanks to the spread of Information Age technologies, carries a degree of complexity

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[82] Here D+1 and D-1 refer to the doctrinal definition of D-Day as the start of a military operation.

[83] Robert Axelrod and Michael D. Cohen, Harnessing Complexity: Organizational Implications of a Scientific Frontier (New York: Basic Books 2000) 28.

[84] See Milan N. Vego, *Operational Warfare* (Newport, Rhode Island: US Naval War College, 2000) 189 and Martin Van Creveld, *Command in War* (1986) 231.

previously unknown. This complexity creates more data about the environment over time. The complexity itself can grow over time as well, again increasing the rate at which data is produced. The CJTF attempts to plan for this, collecting data and processing it into knowledge and then understanding even before deployment. The deployment of the CJTF immediately increases the complexity of the environment and the amount of data about it, as well as the CJTF's ability to collect data. Any operations the CJTF conducts increase it as well. Some of this data now alters, contradicts or replaces the pre-deployment data that led to the original understanding of the situation. A changed situation requires a changed situational understanding, but abandoning an old model with which we have grown familiar for a new, unfamiliar one is more difficult than creating the first model was.[85] On top of this reluctance to abandon something familiar is the hard work of applying judgments in the context of the new situation in order to turn knowledge into understanding. First of all, there is more data available to process into knowledge. Even if the CJTF headquarters maintains its full original processing capability after deployment, which is not guaranteed, processing more data requires more time. Processing new data also results in new knowledge. Applying judgments to knowledge in order to create understanding is a human activity, generally involving multiple personnel, and so it takes time. Applying judgments to more knowledge should also take more time, so increased data and increased knowledge could actually slow the human activity of decisionmaking rather than speed it.

Commanders can easily find themselves caught between the pace of events in the environment and the limited speed of their own and their staff's ability to apply judgments to knowledge in order to build the understanding required for decisionmaking. If the amount of knowledge increases beyond the commander and staff's ability to apply judgment to all of it in the time required for timely decisions, they will face a special frustration. They will know that there is more data and knowledge available to them than they can consider in time to make their decision. At this point, the slowness of human thinking relative to a computer's processing can become information overload and lead to hesitation. The CJFC and his staff might hesitate because the Information Age technology has made them aware of their lack of understanding relative to the amount of relevant knowledge or data available. One case where a great deal of information about our enemy was available and may have lead to a CJFC losing full understanding as a result of information overload might be found in OPERATION DESERT STORM.

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[85] Dietrich Dörner, *The Logic of Failure* (Cambridge, Massachusetts: Perseus Books, 1997) 91-92, 188.

One might argue that GEN Schwarzkopf succeeded in acting simultaneously as COCOM, CJFC and CDR, CJFLCC for OPERATION DESERT SHIELD/DESERT STORM. The CJFC[86] wearing the hat of the CJFLCC commander certainly reflects a method of exercising great control over land forces from the CJTF headquarters. That the campaign was deemed an overwhelming success could at first glance undermine the assertion that decentralization of control is the preferable method. Indeed the campaign was a victory in that it achieved the political objective of restoring the sovereignty of Kuwait fully and reducing the offensive threat that the Iraqi regime posed to US allies and interests in the region. However a closer look provides a less clear-cut view of the success of DESERT STORM in particular. The shortcomings identified below are in no sense meant to imply that the campaign was a failure, but that there may be a link between what it did not achieve and GEN Schwarzkopf's attempt to function simultaneously as COCOM, CJFC of the operation and "to retain the function of land force commander over Army and Marine ground forces"[87], known today as a CJFLCC.

Schwarzkopf's clearly stated intent for the ground operation included the destruction of the Republican Guard, its "elimination as a fighting force".[88] The method he chose was for US VII Corps to maneuver behind the Republican Guard so that it would be enveloped and destroyed by US VII and III Corps. This was never accomplished. Significant elements of the Republican Guard withdrew before the envelopment could be completed. Western media reported the elements of the Republican Guard, including 700 tanks and 1400 armored vehicles, withdrew from the Kuwaiti Theater of Operations before the cease-fire.[89] This equates to at least two heavy divisions' worth of equipment. As early as 14 March 1991, Republican Guard forces were employed against the Iraqi Shia uprising.[90] Later in the summer, as the Iraqis were crushing the Kurdish uprising, the US considered the use of military force to cut Iraqi supply lines to the Republican guard forces conducting the attack.[91] These are not the actions of a destroyed force. It seems clear that US declared a unilateral cease-fire before coalition ground forces met their commander's intent of destroying the Republican Guard.

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[86] GEN Schwartzkopf was a CJFC in that he exercised OPCON or TACON (variously) of British and French ground, air and naval forces. The Kingdom of Saudi Arabia provided another CJFC, for Arab forces, who worked parallel with GEN Schwartzkopf.

[87] DoD, *Final Report to Congress: Conduct of the Persian Gulf War* (Washington, DC: US Government Printing Office, April 1992) 229, and also 232 (figure), 501 and 547-548.

[88] DoD, Final Report to Congress: Conduct of the Persian Gulf War (1992) 231.

[89] Hiro, Dilip, *Desert Shield to Desert Storm* (New York: Routledge, 1992) 401

[90] Ibid, 402

[91] Ibid, 405-406

One reason cited for their escape is that the advance through Kuwait on the right flank, led by US Marines, met with unexpected success and drove the Republican Guard out of the trap being sprung by US VII Corps. If the CJFC communicates to his CJFLCC commander that his intent is destruction and the CJFLCC develops a plan to accomplish that through envelopment, then the coordination of the dispersed Corps maneuvering to envelop is essential. It can be the responsibility of the CJFLCC to ensure this coordination or the Corps commanders can be require to self-synchronize in order to ensure it. Since Schwarzkopf, as CDR, CJFLCC, chose the method by which ground forces would accomplish his (CJFC) intent, and since he ordered the acceleration of the attack by VII Corps[92], it is clear that he involved himself in personally in controlling execution and ensuring coordination of his dispersed Corps. The escape of much of the Republican Guard shows that this coordination did not achieve COMCENT's own intent.

At the intersection of the military and political realms the President, SECDEF and CJCS reacted to images of the "highway of death" by reaching a political decision in anticipation of Arab reaction to the carnage of this overwhelming victory. Understanding the reaction across the theater to operations within it and setting the conditions for success of those operations is the responsibility of the COCOM. If those reactions or conditions are political or require diplomatic means, the COCOM must convey this understanding to the SECDEF, the State Department and the President and request the support he requires in order to accomplish his mission. Additionally, operating at the military-strategic level of war, working directly for political leaders, the COCOM must focus his attention on ensuring that military operations do not actually detract from reaching the political goals. Clearly, Schwartzkopf recognized the destruction of the Republican Guard as necessary to achieving the political goal of reducing Iraq's ability to threaten US allies and interests. As the COCOM, during execution of Operation DESERT STORM he should have been focused on maintaining conditions across his Theater to support success of the operation. This is no small task in COMCENTs Area of Responsibility, and requires great effort by the COMCENT and his staff due to the complexity of the environment. If COMCENT focuses his attention, staff and assets on the coordination between ground maneuver elements, the responsibility of the CJFLCC commander and the Corps commanders, then who is focused on the responsibilities of the COCOM?

Schwarzkopf was not forced into this arrangement. GEN Powell, as CJCS, provided him with far more forces than he requested and made a policy of being the COCOMs advocate and never questioning his decisions or methods. Powell told Schwartzkopf directly, "Tell me what

[92] DoD, Final Report to Congress: Conduct of the Persian Gulf War (1992) 243 and 262.

you need for assets. We will not do this halfway. The entire United States military is available to support this operation".[93] A request to constitute a subordinate headquarters to fill the role of CJTF or CJFLCC would certainly not have been refused. Attempting to focus on executing three sets of very different responsibilities simultaneously, centralizing control across three distinguishable echelons of command was GEN Schwarzkopf's decision. This was clearly stated in the DoD final report to Congress on the war,[94] and it contributed to preventing the force from meeting an intent that he himself set and clearly understood. Wearing two hats, those of COCOM and CJFC might have been manageable, considering that this was the only major operation in CENTCOM at the time, but wearing three stretched the commander beyond the human limits described earlier in this chapter.

Conclusions

This chapter has examined only a few key arguments for decentralizing control. Many more are available in modern scholarly work on the military in the Information Age, in US joint and Service doctrine, emerging doctrine and in scholarly work on our interaction with our environment in general. Others include the vulnerability of centralized control to disruption and enemy attack, the capabilities of Component commanders and their staffs, the impact of excessive control on innovation and leader development in an organization to name just a few. There are so many that nowhere near all can be covered within the scope of a monograph. Those arguments developed in this chapter are included because they highlight some considerations which we see or accept less readily. They are those which need additional emphasis in our decisionmaking about centralization of control.

The US military is a force trained and equipped for high-frequency operations, part of a larger a culture which is focused on both mission accomplishment and on timeliness and swiftness in action. Both of these characteristics are positive and useful in warfighting, but they can become a liability if we adhere rigidly to them and become inflexible and predictable. Additionally, we are not inclined to believe that we can suffer a decrease in relative understanding as a result of increasing capabilities. The theories which explain it sound academic and complicated, it is not immediately clear how they help us solve our problems. They tend to lose out to the technological solutions which are always advertised as making our jobs easier and increasing our capabilities. The way such technologies contribute to complication, specialization and even information-overload in our headquarters is never part of the advertising pitch. Finally,

[93] DoD, Final Report to Congress: Conduct of the Persian Gulf War (April 1992) 230.
[94] Ibid, 547-548.

when faced with this complex and difficult environment, it is difficult not to fall back on those skills in which we are most competent and confident, such as tactical warfighting.

So commanders such as GEN Schwartzkopf and other CJFCs continue to seek control over the execution of operations on land. Indeed, GEN Clark was not immune to the pressures identified in Chapter One, and he writes of exercising such control over SFOR despite objections from the SFOR Commander, US General Shinseki.[95] Information Age pressures and temptations clearly need no scholarly arguments in order to exert influence over our decisions on the exercise of control. Many of the reasons for centralizing control seem reasonable at first glance. GEN Schwartzkopf believed that centralizing control of land operations at his headquarters would allow him to ensure a high degree of synchronization among the ground manuever elements. He is not the only commander to do so. The pressures from politicians and the media rightly deserve attention both because our Constitution enshrines civilian control of the military and because the power we wield is enormous and always has serious effect. This does not imply, however, that centralized control is a realistic way to respond to these pressures. The environment described in Chapter One and the arguments presented above demonstrate the severe limitations to achieving truly centralized control. Furthermore, Chapters One through three have demonstrated that there are other, real challenges in our operating environment which the CJTF must address if it is to accomplish its missions. So centralized control remains not only unattainable and even undesirable because of its effects on the rest of the force, then the effort to achieve it is a distraction from our duties to cope with those real challenges. We must offer a solution which avoids this distraction and allows the CJFC and his staff to focus their attention where it is truly needed.

Because many of the most powerful arguments are not easy to accept, and because the pressures and temtpations toward centralization are so strong, we need strong mechanisms to foster the decentralization which both theory and history teach us is more successful. One of these mechanisms should be our joint doctrine. Chapter Four investigates whether our joint doctrine takes a clear stand on the struggle between these pressures and temptations on the one hand and the recommendations of theory and history on the other. Theory and history are the building blocks of doctrine, and Chapters One through Three seek to demonstrate that they make some clear recommendations for the exercise of control in the complex environment of military operations on land. Doctrine can therefore be very clear on this subject. The challenges to these recommendations stemming from Information Age pressures and temptations are formidable, and

[95] General (R) Wesley Clark, *Waging Modern War* (2001) 100-101, 105.

therefore our doctrine needs to be equally formidible in its clarity and conviction on decentralizing control.

US JOINT DOCTRINE ON CONTROL: THE STATE OF THE ART?

Chapter Three led to the question of why US Joint Force Commanders do not decentralize control despite the fact that our doctrine calls for it. Certainly there are many factors which pressure or tempt JFCs into centralizing control, as mentioned in the Introduction. Many are elements of the environment described in Chapter One and the military cannot change them. Chapter Four focuses on one answer to the question which the military can address. It describes the status of joint doctrine on control compared to the purpose of joint doctrine against the standard set by more recent Service doctrine. This is intended to indicate where improvement of our current joint doctrine can assist us in achieving the decentralization of control called for in joint doctrine. Chapter Five will then propose one solution and identify some of the resources which are readily available to help us to implement it. Along the way, Chapter Four also furthers the monograph's discussion of control as a military term by offering a way to unify and clarify competing definititions taken from US joint doctrine.

What Doctrine Should Do For The Joint Force

One function of joint doctrine is clearly expressed in GEN Shelton's Cover Letter of the 2000 edition of the Joint Doctrine Primer: "It provides a common framework and approach to warfighting from which game plans can be developed — and successfully executed through the universal practice of joint doctrine".[96] A second is explained in JP 1, Joint Warfare of the US Armed Forces:

> "Joint doctrine — an "engine of change" — serves as an important method for implementing change as forces train and build effective joint teams. **…** This process of deliberate and experience-based doctrinal change is crucial for the present and future effectiveness of the Armed Forces of the United States."[97]

These two functions provide clear tasks in which we can measure the utility of existing joint doctrine. This chapter applies them to our current joint doctrine on command and control and refers to them as the unifying function and the guiding function. To organize our thoughts towards these two functions, joint doctrine is arranged into a hierarchical structure. Capstone and Keystone publications serve to explain fundamental concepts which inform our common

[96] DoD, CJCS, *Joint Doctrine Capstone and Keystone Primer* (Washington DC: 10 September 2001) Chairman's Cover Letter

[97] DoD, CJCS, JP 1 Joint Warfare of the Armed Forces of the United States (2000) I-9

understanding of more detailed and complicated aspects of our joint operations and guide us when we must update or apply those specifics to a broad variety of challenges. Subordinate publications are intended to expand and build upon these keystones with more detailed, specific or technical doctrine.

JP 1 states: "Joint doctrine takes precedence over individual Service doctrines, which must be consistent with joint doctrine."[98] In order to live up to this, joint doctrine must be tied to fundamental concepts of broad applicability. Only fundamental concepts can remain relevant through the multitude of rapid innovations brought on by the information age. Nevertheless, no matter how enduring and fundamental its basis, in order for joint doctrine to maintain actual precedence over Service doctrine instead of just titular precedence, joint publications must be at least reasonably up-to-date. Responsibility for coordinating the development of joint doctrine, and therefore for ensuring that it fulfills these functions, rests with the J7 of the Joint Staff.

Current Status of Doctrine on Control

Joint doctrine is inconsistent in its description of control, particularly in characterizing its relationship to command. On one hand, the definition of control reads as if it were simply a lesser degree of command, a reduced authority, not a complementary and essential function: "Authority that **may be less than full command** exercised by a commander over part of the activities of subordinate or other organizations".[99] On the other hand, the definition of command reads as if control is an element of command:

> "Command includes the authority and responsibility for effectively using available resources and for planning the employment of, organizing, directing, coordinating, ***and controlling*** military forces for the accomplishment of assigned missions."[100] (bold italics added)

The two can be reconciled if one applies two ideas from the monograph's introduction: first, Beniger's and MCDP 6's description of the how control is necessary to almost all actions including military ones and second, the analogy of the hammer. These contribute to understanding control as a perpetually necessary component of command, but that in order to exercise it at any echelon above the lower tactical, one must delegate it. This would be consistent with control theory as well as with existing Service doctrine on command. It would further be expressed practically in the way a commander can delegate Operational Control, Tactical Control

[98] Ibid I-9

[99] DoD, CJCS, JP 1-02, DoD Dictionary of Military and Associated Terms (2001, as Amended through 31 AUG 05) 119.

[100] Ibid 101.

and Administrative Control to subordinate commanders without granting full command of the forces in question. Though doctrine does not explicitly state it this way, this understanding of them is consistent with both JP 1-02 definitions, with our use of command relationships, with Beniger's description of control and with Service doctrine. However, the search for a clear definition has led to several indicators that joint doctrine on control and indeed on command as a whole, is lacking in organization, consistency, depth and relevance.

One major problem which has contributed to the existence of competing definitions is that joint doctrine on command and control is simply disorganized: spread across several publications without a single, clear unifying structure. There is no publication on command and control which fulfills the role of a Keystone document. JP 6-0 is devoted entirely to communications systems.[101] It does not address fundamental concepts of command of joint forces or how control is necessary to command. However, JP's 1, 0-2, 3-0, 3-13, 3-13.1, 3-30, 3-31 and 6-0 all contain some scattered information on the subject.[102]

JP 1's discussion of Command and Control focuses entirely on systems supporting command and control, not the underlying concepts about command and control which would serve to enable productive thinking about control, unify understanding and guide innovation. The concepts touched on in JP 0-2 also deserve an in-depth explanation in a Keystone document, as they should form the foundations for more detailed doctrine. The Decision Cycle, a fundamental framework for understanding how commanders exercise control is only referenced in JP 0-2.[103] The actual description of this essential building-block of joint doctrine on command is buried in an appendix to JP 3-13.1, which is a sub-manual.[104] This framework for understanding how commanders reach decisions certainly deserves to be placed in a keystone document on command and control. JPs 3-30 (Command and Control for Joint Air Operations), 3-31 (Command and Control for Joint Land Operations) and 3-32 (Command and Control for Joint Maritime Operations) do not belong in the Operations (JP 3-XX) series, these publications are about command, not operations.

This is not to say that those manuals should not contain any mention of the exercise of control over joint forces, or of command. They most definitely should each contain a discussion

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[101] DoD, CJCS, JP 6-0 Joint Communications Systems (2006) i and xiv.

[102] See DoD, CJCS, *JP 3-13 Information Operations* (13 February 2006) I-1 – I-6 and DoD, CJCS, *JP 6-0 Joint Communications Systems* (2006) I-1 – I-3. JP 3-30 and 3-31 are entirely focused on command and control, within their own scope. Relevant sections of JP's 1, 0-2, 3-0 and 3-13.1 are cited throughout the monograph.

[103] DoD, CJCS, JP 0-2 Unified Action Armed Forces (2001) III-17.

[104] DoD, CJCS, JP 3-13.1 Joint Doctrine for Command and Control Warfare (C2W), (Washington, DC: 7 February, 1996) Appendix A.

of them which is relevant to the subject and intended audience of that particular publication. However, those discussions should not be our only way of finding any joint doctrine on control and on command in general. They should reflect a wholistic, organized philosophy of command and of control as an element of it which should be found in one document and which should have enough depth to achieve the unifying purpose of doctrine emphasized by GEN Shelton and to support the guiding function described in JP 1.

JP 0-2 provides a typical example. It spreads the description of command across several separate paragraphs of Chapter II, Section D and Chapter III, Section B. The latter is entitled "Command and Control Theory". This section mentions the fundamental tension which is the reason for this monograph: "These technological advances increase the potential for superiors, once focused solely on the strategic and operational decisionmaking, to assert themselves at the tactical level."[105] Unfortunately, it does not discuss this tension in any depth or detail. It asserts only that decentralized execution is a basic command and control tenet of joint operations and that it is a superior commander's prerogative to assert himself at the tactical level. However, decentralized execution, while a commonly used expression, is redundant. By definition, execution of plans occurs across the entire Area of Operations. It is by definition distributed, not centralized. Such statements, therefore, do not take a clear stand on the importance of decentralizing control and so do not perform the unifying and guiding functions of doctrine. Service doctrine, MCDP 6, for example, does:

> "While detailed command and control may be appropriate in the performance of specific tasks of a procedural or technical nature, it is less than effective in the overall conduct of military operations in an environment of uncertainty, friction, disorder, and fleeting opportunities, in which judgment, creativity, and initiative are required. Militaries have frequently favored detailed command and control, but our understanding of the true nature of war and the lessons of history points to the advantages of mission command and control." [106]

As this example indicates, joint doctrine on control is currently not only disorganized, but also not as in-depth or as clear as Service doctrine. While an in-depth examination of all the Services' doctrine is beyond the scope of this monograph, a brief review can demonstrate the advanced state of Service doctrine on command and control relative to joint doctrine. This situation, combined with JP 1's mandate that joint doctrine supercedes Service doctrine, provides both the necessity for a rewrite of joint doctrine and the material with which joint doctrine can meet that necessity.

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[105] DoD, CJCS, JP 0-2 Unified Action Armed Forces (2001) III-13.
[106] DoD, HQUSMC, *MCDP 6 Command and Control* (1996) 80.

Once again, JP 0-2's discussion of command and control theory provides an example. It has three "paragraphs", the first is a definition of command and control. The inconsistency among definitions in joint doctine has already been addressed in this chapter. The second consists of description of the "tenets" of joint command and control and a very brief (less than half of a page) description of the Joint Operational Planning and Execution System (JOPES) as the DoD's model for decisionmaking. The command and control tenets described in JP 0-2 include: (1) Clearly Defined Authorities, Roles, and Relationships, (2) Information Management, (3) Implicit Communication, (4) Commander's Intent, (5) Mission-type Orders, (6) Timely Decisionmaking, (7) Robust Integration, Synchronization, and Coordination Mechanisms, (8) Battle Rhythm Discipline, (9) Responsive, Interoperable Support Systems. (10) Situational Awareness and (11) Mutual Trust.[107] While using lists of tenets to organize doctrine is a common and sometimes necessary method, such lists require an overarching framework to describe why, when and how they are important as well as how they relate to one another. A simple list without such a framework lacks depth, structure and coherence. JP 0-2's description of the tenets of joint command and control currently lacks such a framework, whereas both Marine Corps and Army doctine are built on frameworks which are thorough and nearly identical. This constitutes a further example of how joint doctrine on command and control lacks the organization and depth of current Service doctrine.

The third section is an equally brief definition of three principles for organization for joint command and control after which the publication turns back to technical matters such as the physical support systems for command and control. This reflects disorganization and lack of depth in that these three discussions are squeezed into one short section. Each is a distinct topic: "tenets" – the fundamental concepts that theory provides to doctrine, JOPES – a network and a process, not just a model[108], and organizations – a complementary topic and complicated in its own right. JOPES, both the process and the network, are a very challenging and unfamiliar subjects which confront staff officers who often have no familiarity with either upon their arrival at a JFC or Component headquarters.[109] A treatment which performs both the unifying and guiding functions of doctine could easily fill a chapter for each topic in a Keystone document or other joint publication.

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[107] DoD, CJCS, *JP 0-2 Unified Action Armed Forces* (2001) III-14 through III-16.

[108] Ibid, III-17. Model is the term that JP 0-2 uses.

[109] As observed by the author at HQs, US Army, Central Command, in 2003 and 2004. A majority of officers arrving to the staff and the operational planning group knew very little about the JOPES process or the JOPES system.

This insufficient treatment of these three topics raise the question of how much attention command and control receives in joint doctrine at all. This chapter has already demonstrated that there is no Keystone document on it, that the discussion of it is scattered across several publications and has argued that it does not provide a depth of discussion necessary to perform the two functions of doctrine. These are all qualitative arguments. One quantitative metric, never to be used in isolation, but when combined with these three qualitative arguments and when measured against the standard of Service doctrine on the same subject, can provide a sense of how much treatment it receives. This simple quantitative metric is the number of pages. As stated previously, JP 1 devotes only a few scattered lines to the subject of command and control, including the paragraphs entitled "Enduring Concepts" and "Enabling Concepts" and the chapter entitled "The Fundamentals of Joint Operations".[110] JP 0-2's discussion of command and control encompasses less than two dozen pages,[111] plus less than two pages buried in JP 3-13.1, to which JP 0-2 refers diligent searchers. Joint doctrine must be more broadly applicable than service doctrine, and could therefore be justified in being more brief, so long as it performed doctrine's functions. However, if the previous arguments pointing to lack of organization and depth demonstrate that it does not currently perform the unifying or guiding functions identified above, then the brevity can reasonably be seen as a third indicator that the subject needs a thorough, thoughtful, organized rewrite.

A quick overiew of Service doctrine on command and control clearly shows that it has received far more attention in those circles. The Army's FM 6-0 has 83 pages dedicated entirely to the fundamental concepts of command and control together and then treating each individually. Another 92 pages are devoted to more specific methods and roles based on those concepts.[112] The Marine Corps' MCDP 6 contains 68 (admittedly smaller) pages devoted to "the nature of command and control" and "command and control theory". It has another 32 pages describing resources and concepts which support command and control.[113] The Air Force's AFDD 2-8 (Command and Control) contains 19 pages on the fundamental concepts of command and control in the aerospace environment and another 23 pages on applying these concepts to specific missions and on support requirements such as training and equipment.[114] The difference in attention devoted to this important aspect of military operations is then clear. Returning again to

[110] DoD, CJCS, JP 1 Joint Warfare of the Armed Forces of the United States (2000)
[111] DoD, CJCS, *JP 0-2 Unified Action Armed Forces* (2001) III-1 – III-10 and III-14 – III-20.
[112]DoD, HQDA, FM 6-0 Mission Command (2003)
[113]DoD, HQUSMC, MCDP 6 Command and Control (1996)
[114]DoD, Headquarters, US Air Force, *Air Force Doctrine Document 2-8 Command and Control* (Washington, DC: 2001)

our qualitative argument about organization, in every one of these cases, an entire manual is devoted just to command and control, providing a single document for servicemembers to reference, ensuring a level of clarity, organization and simplicity to support the unifying and guiding functions which joint doctrine currently does not offer.

Joint Concept Development Efforts

The Joint Staff (JS) is currently engaged in a vigorous process of developing Joint Functional Concepts and Joint Integrating Concepts to supplement and expand upon recently developed Joint Operating Concepts for future joint operations. The JS J7 has staff responsibility for this process, known as the Joint Capabilities Integration and Development Sysem (JCIDS).[115] The JS has developed four Joint Operating Concepts (JopsC's). All are focused on operations 7 to 15 years in the future. They have developed multiple Joint Functional Concepts and Joint Integrating Concepts to support the four JopsCs. These inter-related and hierarchically organized concepts are designed to drive the development of doctrine from the top-down. Currently, they constitute a significant portion of the body of material referred to as "emerging doctrine". This has some consequences for our study of doctrine on control when it addresses command and control.

The Command and Control Joint Functional Concept and Joint Integrating Concept together provide an in-depth discussion of the Joint Staff's vision of command and control in future joint operations which analyzes the forecasted requirements in light of enduring fundamental principles. Following the same format as all the concept papers, they describe the elements of the operating environment relevant to command and control, the purpose it serves, the central idea and supporting ideas, the risks involved with this particular concept and the implication for other relevant concepts and for experimentation. Implications could also be drawn from this work for doctrine, organization, procedures, etc. Much of the thinking that went into these concept papers could be of value in deepening the explanation of control and its relationship to command in joint doctrine. For instance, the concepts emphasize that command and control must support agility of forces, and must be agile itself through collaboration and decentralization.

Unfortunately, the JCIDS process is not primarily intended to contribute to doctrine development. The document which chartered the process, states that these "may lead to

[115] DoD, CJCS, Chairman of the Joint Chiefs of Staff Instruction (CJCSI) 3010.02b (Washington, DC: CJCS, 7 December 2005) E-2 – E-3.

DOTLMPF changes",[116] it does not require that they do. Briefings dated August 2005 mention a milestone for migrating terminology from JCIDS concepts into doctrine in 2006.[117] However, much more effort has gone into developing these concepts than simply clarifying terms. If these efforts were directed at filling the gap in joint doctrine on control theory and the joint community's practical philosophy of control, it could clear-up many of the problems which will be identified in this chapter. If they simply introduce new terms into an already confusing and overcrowded lexicon, they will only exacerbate these problems.

While this effort is ongoing, some joint doctrine publications, relevant to control, have been awaiting update for years or were updated only recently after being long out of date. As the most extreme example, JP 6-0 which was just revised and republished as of March of 2006. It was last published in 1995. Its extreme age provided an excellent opportunity to conduct a complete rewrite, on the model of the other Keystone publications, to correct the problems identified earlier in this chapter, but this opportunity was not taken. JP 6-0 remains focused on communications systems as previously noted. While this opportunity was missed, it may not be the only one available. JP 1 (2000) and JP 0-2 (2001) are not terribly out of date in terms of number of years, but events have moved quite rapidly since their publication. They pre-date Operation Enduring Freedom, Operation Iraqi Freedom and other elements of the global war on terror. The lessons of Operation Anaconda, and of counterinsurgency operations in Iraq have generated new insights into the role of the CJFC. The "Thunder Run" to Baghdad in March of 2003 and the exercise of control by our division headquarters in Iraq reaching to over 60 battalions including active and reserve component, coalition and host-nation forces[118] enormously expand and could completely redefine our concept of decentralization at echelons previously considered clearly tactical. Meanwhile research has also taken significant strides since then. Specifically regarding control, DoD's CCRP has published several books on Netcentric Warfare and command & control since 2001. For all these reasons, and because the opportunity to fill the role of a Keystone document on command and control was missed in the recent rewrite of JP 6-0, the sections on control in JP 1 and JP 0-2 are also growing increasingly due for an update. JP 0-2, carrying the title of *Unified Action Armed Forces*, is already oriented on one of

[116] Ibid, 1.

[117] DoD, CJCS, *Joint Capabilities Assessment Vision Briefing* (Joint Staff J7, Joint Experimentation Transformation Concepts Division, 24 August 2005) Slide 11. Available at http://www.dtic.mil/futurejointwarfare/ as of 31 March 2006.

[118] Major General Peter W. Chiarelli (now LTG) and Major Partick R. Michaelis "Winning the Peace: The Requirement for Full-Spectrum Operations " *Military Review* (July-August 2005): 5.

the purposes of command and control, it could be rewritten to fill this role in a comprehensive and coherent method as described above.

Conclusions

Doctrine should unify through common understanding. However, joint doctrine on control – and on command as a whole – currently suffers from a lack of organization, consistency, depth and relevance. This chapter has shown how it lacks these qualities in the following ways. It lacks organization in that there is no Keystone document on command and control, and elements of the doctrine are spread across multiple documents in an ad-hoc fashion. It lacks consistency in its definitions and its position on decentralization of control. It lacks depth in that it does not discuss the sources of its concepts or their relationships and does not devote the degree of attention to this which Service doctrine publications have. It lacks relevance for all these reasons summarized above and in that it is out of date. The current state of jont doctrine on these essential concepts detracts from clarity and therefore from Unified Action based on common understanding.

When seen in light of the comparatively advanced state of Service doctrine, it creates a requirement to update joint doctrine on this subject. Current efforts associated with the JCIDS program, while not necessarily directed towards updating doctrine, do include the possibility of doing so. This provides the opportunity to effect some sorely needed revisions. Service doctrine and scholarly research, both within the DoD and outside it, provide an abundance of valuable material with which to do so. Chapter Five includes some specific recommendations for such an effort.

RECOMMENDATIONS

The recommendations are made based on the conclusions from the preceeding four chapters. Those conclusions are generally referenced rather than repeated here. One, however, bears repeating, as it is returns to the thesis statement and further, leads to the recommendations below. CJFCs should not attempt to exercise control over the execution of operations. Such an attempt, particularly as regards our increasingly complicated, distributed and specialized land forces, only distracts the CJFC from the proper focus on his essential role. That role is holistically understanding our increasingly complex and rapidly evolving operating environment, fostering constant learning about it and achieving Unity of Effort among all the cooperating entities within it. As indicated in Chapter One, and in this reaffirmation of the thesis, the

understanding of control presented in this monograph carries broad implications for our joint doctrine, organization and procedures. They are offered here.

Recommendations for Joint Doctrine

The entire JP 6-0 series should be reorganized so that it serves the unifying and modernizing purposes of doctrine, as stated in Chapter Four. The organization of joint doctrine into capstone, keystone and subordinate documents provides clarity and helps us ensure that the specific recommendations and guidelines in doctrine are consistent with each other and with the lessons of history and the application of theory. Without a set of guiding ideas, coherently organized, we cannot expect to achieve unity of understanding about control, much less command. This reorganization should consist of several actions including rewriting some existing publications, redesignating others and writing some new publications. Specific recommendations follow.

We[119] should completely rewrite JP 6-0 itself. As argued in Chapter Four, common understanding is easier to achieve when all professionals can find fundamental guiding principles, clearly stated, explained in the necessary depth, and well organized in a single source. We should base this doctrine on a comprehensive theory of control and of command in general to ensure it both contains the necessary depth of explanation and remains broadly applicable despite rapidly changing circumstances. To ensure consistency and clarity when they are next rewritten, our capstone documents: JP 1 and JP 0-2 should reflect a summary of concepts discussed in depth in this new JP 6-0. Alternatively, JP 0-2 could be rewritten to serve as a Keystone document on command and control and could still emphasize unified action and unity of effort. In this case, all the following recommendations for JP 6-0 and a JP-6 series should be applied to a JP 0 or JP 0-2 series of supporting publications.

JP 6-0 should focus on command by CJFCs and above because it is joint doctrine. Command at the tactical level should be addressed by Service doctrine. Per existing joint doctrine[120], JFC responsibilities lie in the areas of designing operations and campaigns, integrating and synchronizing the operations of subordinate forces and unifying the efforts of diverse agencies in order to fully resource operations. The execution of those specific operations

[119] The Joint Staff J7 leads joint doctrine development. "We" here reflects the shared responsibility of all military professionals to contribute to our doctrine. Further, because the topic is command and control, not computers and communications, the task of rewriting JP 6-0 is broader than the J6 should handle alone.

[120] See DoD, CJCS, JP 3-0 Doctrine for Joint Operations (2001) III-1 to III-5 and III-10 to III-11 to add to previous citations on this point of joint doctrine.

is rightly the business of tactical commanders. Therefore, exercising control during the execution of those operations should be the business of tactical commanders, not CJFCs. Tactical commanders and small-unit leaders, closer to the action, are best able to exercise the control necessary to ensure that execution conforms to the operational design and fulfills the JFC's intent. JP 6-0 should specify that JFCs themselves should focus on achieving Unity of Effort in a complex, combined, interagency environment not on centralizing control over diverse military forces. Several CCRP publications including Power to the Edge, the Rand Corporation study Command Concepts, the scholarly work of Martin Van Creveld, Kenneth Allard and many others provide a wealth of potential material to support this aspect of the rewrite.

A new JP 6-0 should also cover the environment in which command operates in the Information Age. This should include a discussion of political direction of the military which describes the role of strategic guidance in CJTF operations. It should describe the pressures towards centralization of control mentioned in the Introduction, as well as the challenges of complexity, distribution and specialization described in Chapters One and Three. As argued in Chapter Three, the rapid pace of technological change can be overwhelming and can distract from the enduring principles the which guide commanders in the exercise of control. JP 6-0 should clearly state the US military's understanding of those principles which are enduring and how they apply to CJFCs in conflict and other operations in the joint operating environment. Much of this material has already been produced by the Joint Staff to support the JCIDS, but LTC (R) Robert Leonhard's Principles of Warfare for the Information Age and other scholarly work could make an important contribution.

Any doctrine on the exercise of control (indeed, on command in general) must place strong emphasis on allied and coalition operations. Operating as a truly integrated joint force has only recently become a requirement, but operating with allies or coalition partners has been a common characteristic of warfare since at least the Peloponesian War. As argued in Chapter Three, operating as a member of an allied or coalition force is the norm, not the exception, and it places very clear limitations on the CJFC's ability to exercise control over his military forces. Our doctrine should fully embrace this reality. So the rewrite of JP 6-0 should not simply have a chapter on allied and coalition operations, the entire publication should approach command and control from this standpoint. This implies that the approach(es) to command recommended in JP 6-0 must employ decentralized control and aim to achieve unity of effort rather than unity of command.

We should also expand the JP 6 series. Much of the material currently in JP 6-0 should be updated and become a subordinate manual in the series focused on the principles of employing

communications and information processing systems to support command and control. The current JPs 3-30, 3-31 and 3-32 should be redesignated as part of the Command and Control series and should deal with the challenges of integrating and synchronizing the operations of functional components without centralizing control. To expand on the model provided by these three publications, we should establish subordinate manuals expanding on the challenges of supporting commanders in alliance and coalition operations, in interagency task forces and in domestic support to civil authority operations. This is no contradiction to the above recommendation to rewrite JP 6-0 from a standpoint that all operations will be combined and inter-agency as well as joint. There are an enormous number of specific considerations which are relevant to the CJTF staff in each of these conditions. They include entire subsets of organizational, technological, procedural, cultural, political and legal considerations. Each subset can be quite large. These can easily fill a publication on "Tactics, Techniques and Procedures" or simply on considerations for each of those three cases. Abundant sources for this doctrine which are relevant to the information age can be found in our observations from combined (NATO) operations in Bosnia and Kosovo, coalition operations in Africa, Afghanistan and Iraq, support to host nation governments and militaries in South America and recent support to domestic authorities at home.

Recommendations for Organization

We should build CJTF staffs which are very broad, but not very deep. Chapter One explained that complexity, specialization and distribution will continue to increase apace with our information sharing and processing capabilities. Chapter Three concluded that the CJFC is best positioned to set conditions for military forces to cope with complexity and that he can only do this if he is supported by a staff with broad expertise beyond the military system. So the CJTF staff should include experts in the political, economic, social,[121] information and infrastructure systems in the CJOA or the relevant region as a whole. Some of the staff elements which make up a large percentage of the staff of tactical headquarters such as personnel, supply or sustainment, and even operations, should comprise a relatively smaller proportion of the CJTF staff. At the CJTF headquarters, we should increase the relative size of those sections which are smaller, or do not even exist in some tactical echelons. Building the Civil-Military Operations Center is a good example of this.[122] The J9 directorate requires augmentees familiar with the

[121] Includes culture, religion, behavioral norms, informal power structures, etc.

[122] DoD, CJCS, *JP 3-57 Joint Doctrine for Civil-Military Operations* (Washington DC: US Government Printing Office, 8 February 2001) IV-10 to IV-14.

kinds of organizations present in the CJOA. Another is the Political Advisor. This should not be a single person but a team which is capable of providing full-time support simultaneously to both the CJTF command group and the cells, centers and boards of the headquarters. The individual directorates of the CJTF staff should not be very deep, however. As Marine Corps doctrine recommends, the staff "should not be large enough to exercise detailed command and control".[123]

The organization and focus of the CJOIC should be fundamentally changed from that described in Chapter Two[124] to meet the conclusions of Chapter Three. Its primary purpose should be to ensure Unity of Effort of the CJTF with the other cooperating entities in the CJOA through constant attention to synchronization and integration. As Chapter Four explains, joint doctrine calls for the JTF to integrate and synchronize with organizations and agencies outside the CJTF but able to contribute to success of the mission. The CJOIC should be organized, manned and equipped to accomplish the details of this task for the CJFC and to support him in the specific role he pays in it, not to monitor military forces and to enable intervention in current operations. The CJOIC should be in regular communication with all the cooperating entities in the CJOA but outside the CJTF. They should gather information on the activities, capabilities and requirements of these entities and seek opportunities for cooperation and coordination with them to accomplish the CJTF mission. The CJOIC should publish its overall picture of the cooperating entities and the operating environment in general on a regular basis for units of the CJTF to access easily to support planning and execution at their level. Further, it should be the "one stop shop" from which any headquarters within the CJTF and any cooperating agency can pull information on any other. This requires constant attention to making information releasable, available and up to date. In sum, the focus of the CJOIC should be refocused from "downward" through command echelons to "outward", covering the environment around the CJTF holistically.

The CJTF staff should include a large number of liaison officers who are trained, equipped and prepared to be embedded with cooperating military headquarters and critical civilian agencies. These could include local offices of relevant national governments, International Organizations and Non-Governmental Organizations and whatever others are relevant to the CJTF mission. The liaisons' input to the holistic picture of the CJTFs operating environment will help to ensure that the CJTF staff and commander are focused on their roles as described in Chapters Three and Four. These liaisons should be tied to the CJOIC, now focused

[123] DoD, HQUSMC, MCDP 6-0 Command and Control (1996) 135.

[124] In Chaper Two's description of the current style CJOIC as an example of a control-centralizing organization

as recommended above, and other cells, centers and boards which require information on the organanizations and agencies where these liaisons operate.

A secondary, but still essential purpose of the CJOIC should be to accelerate the learning process across the CJTF. As the CJOIC focuses on long-term trends across the entire CJOA and all systems of the operating environment, it is well-positioned to assess which efforts or methods are effective in accomplishing missions in the given environment. Performing the primary function described above, it is already disseminating information and enabling networking between various organizations on a regular basis. Assessing why certain organizations or units are successful and disseminating their conclusions across the entire CJTF should be a natural fit. This sort of information and assessment also contribute to re-evaluating the applicability of the commander's intent or "command concept" to the evolving environment and the mission, as described in Chapter Two.

At least one three-star headquarters per Service should be permanently re-organized as a JTF, full-time. This will ensure that these headquarters train and operate as JTFs on a daily basis and focus on role of CJTFs described in Chapters Three and Four. This should enable these headquarters to develop familiarity and competency in those particular CJTF roles. These headquarters would ensure that any CJTF staff which was required on short-notice would have a significant percentage of its personnel already trained together as a staff. In such a case they could be paired with the Standing Joint Force Headquarters – Core Element (SJFHQ-CE) and officers from cooperating militaries to create a robust CJTF staff with established processes, experience and the regional expertise which the SJFHQ-CE should bring.

Recommendations for Procedures

Some of the recommendations for organizations above have procedural recommendations embedded in them. The two are not entirely separable, but others are added here. In order to train commanders and staffs at the operational level to focus laterally instead of downward, all joint training should also be combined and interagency. We should support meeting this standard by creating a training model and training support aids that truly represent the complexity of the joint operating environment and provide JTFs and JFCs with an accurate replication of the coalition and interagency environment.

Allow each Theater Army to institute an annual orientation week for new Corps, Division and Brigade commaders of units troop-listed or apportioned for their war plans. This could amount to tactical unit commanders attending multiple orientations. Recognizing that other demands already pull comanders away from their units, we must understand that this is not

necessarily detrimental. Bringing these commanders together and giving them more opportunity to interact allows them to build familiarity and trust. Taking commanders away from their units forces them out of the day-to-day management of their unit and refocuses them on the broader environment in which they must operate. It also forces commanders to delegate and deputies to assume more authority and responsibility. This is decentralization of control.

Do away with daily battle updates at the CJTF level. Replace them with several functionally-focused situational understanding briefings which each occur once per week. The longer interval between the briefings presented by each cell or center is more appropriate to a decentralized approach to control. The briefings would be less likely to focus on the events of the day and those preparing the brief would have the time to conduct some pattern or trend analysis and an assessment of what their findings mean for the CJFC. Senior staff members would have more time to ensure the briefings do not dwell on tactical details but assist the CJFC in understanding the environment and the overall success or failure of operations to meet his intent or concept. If several cells and centers each made their presentations weekly, then they could be spread across the week to ensure the entire audience for the briefings is views the operation on roughly a daily basis. The fact that each briefing would provide less data and more assessment would contribute to a regular update of understanding rather than awareness, addressing the problem of information overload discussed in Chapter Three. Moreover, a view from a diferent functional perspective (Operational Intelligence, Operational Protection, Campaign Assessment, Civil-Military Relations, Information Operations, etc.) with a broader scope, would focus attention on the proper role and responsibilities of the CJTF headquarters as presented in Chapters Three and Four.

The original problem statement postulated the existence of pressures towards centralization coming from political leaders. As an institution, the US military should seek to shape the environment that creates these pressures by training ourselves to present Mission Command to our political leaders and population. We should always be ready to explain how Mission Command and decentralized control encapsulate a truly American way of war. Americans will understand the principles of trust and cooperation among independent, capable and self-reliant actors, because it speaks to our national self-image and identity. Americans' innovative and progressive nature will support an approach to command and a decentralization of control which we demonstrate is on the cutting edge because it recognizes and capitalizes on the trends of the Information Age.

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