NATIONAL DEFENSE UNIVERSITY

JOINT FORCES STAFF COLLEGE

JOINT ADVANCED WARFIGHTING SCHOOL

PARADOX & POLARITY: TOOLS FOR MANAGING COMPLEXITY

by

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Abstract

Today's interconnected and complex security environment requires individuals and organizations that can anticipate and adapt to unforeseen and rapidly evolving situations. Senior military leaders, foremost former Chairman of the Joint Chiefs of Staff, General Martin Dempsey, have repeatedly emphasized the need for greater innovation and adaptation across the US Defense Department. Paradox theory and polarity management are respectively conceptual and organizational change management frameworks useful for thinking about issues, problems, and change. As a conceptual framework, paradox theory highlights the existence of paradoxes—especially in complex dynamic systems—in which two contradictory elements are simultaneously present and operating. As an organizational change management framework, polarity management differentiates between paradoxes that need to be managed and problems that have solutions. Polarity management uses paradox theory to understand issues and frame change as leading to problem management or resolution. Together, paradox theory and polarity management are tools for better understanding issues and their management than the current US joint force focus that relies almost exclusively on creative thinking and *Leading Change*-type models in response to complexity.

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"There is nothing permanent except change"

– Heraclitus, Greek philosopher, 544-483 BC

"I was to learn later in life that we tend to meet any new situation by reorganizing; and a wonderful method it can be for creating the illusion of progress while producing confusion, inefficiency, and demoralization"

– attributed[1] to Gaius Petronius Arbiter, Roman novelist and courtier, 27-66 AD

Introduction

These aphorisms from the two great ancient Mediterranean civilizations capture both the inexorable nature of reality's perpetually shifting existence and man's struggle to adapt. In the two millennia since, humanity has not been able to alter nature's fundamental reality and impose control over change, and only very rarely escaped the bitter frustration of attempting to adapt to new situations and environments efficiently and effectively. Change has always been, is now, and will always be hard.

While acknowledging this fact, this paper proposes that polarity management, an organizational change management principle derived from a conceptual framework based on paradox, will enable a better intellectual understanding of change and ease organizational adaptation. Adopting a new conceptual framework and applying polarity management will make adaptation less frustrating, will make organizations more responsive and agile, and generate actions that are both more efficient and effective. The paper will draw heavily upon Robert Quinn and Kim Cameron's *Paradox and Transformation: Toward A Theory of Change in*

[1] Frequently attributed to Gaius Petronius Arbiter, though perhaps mistakenly so according to "Quote Investigator." Their research suggests this this quote comes from Charlton Ogburn Jr's January 1957 Harper's Magazine article entitled "Merrill's Marauders: The Truth about an Incredible Adventure." Ogburn served as a communication platoon leader who later in 1959 published a book titled "The Marauders" that also included a slightly revised version of the quote from the magazine. However, in 1966 a Chicago Tribune news article and a 1970 business management book reattributed the quote to Gaius Petronius. See http://quoteinvestigator.com/2013/11/12/reorganizing/ (accessed 26 Jan 2016). While the quote's origin is still popularly contested, attributing it to Gaius maintains the "ancient Mediterranean world" introduction.

Organization and Management in arguing for paradox theory. Barry Johnson, author of *Polarity Management*, is a leading advocate for polarity management, an obscure and often overlooked change management theory. Shifts in thinking and management will not make managing change easy: nothing will. But deliberately thinking in a manner that is more open ended and applying managerial principles that are more dynamic will ultimately prove beneficial, especially in an increasingly complex world where rapid adaptation is the key to success. Change rooted in competition and conflict has at its core a social variable. As a result, getting change exactly right the first time is impossible, yet quickly and successfully adapting to change is both possible and imperative.

Successfully adapting to change is especially necessary for the US Defense Department, where change management has been heavily influenced by overly prescriptive goal-oriented thinking and procedures that are largely incompatible with today's complex environment and has failed to deliver promised results.[2] The qualifier "largely" is important here for two reasons. First, the US Defense Department and its subordinate military are large, sophisticated organizations. Whatever else may be said, defense and military bureaucracies are not universally subject to monolithic thinking; paradoxical conceptual thinking and principles of polarity management have been successfully applied in the past and are present in today's doctrinal and organizational discourse and some of its bureaucratic procedures. Therefore, the ideas and concepts are not completely unfamiliar. Those roots can be nurtured, further developed, and more broadly applied. Second, and less favorable, paradox theory and polarity management are

[2] A 70% failure rate is the most commonly cited figure within the change management literature. See Nitin Nohria and Michael Beer "Cracking the Code of Change" *Harvard Business Review* (May–June 2000): 133, https://hbr.org/2000/05/cracking-the-code-of-change (accessed 26 January 2016).

overshadowed and are not taught or consistently applied. The overshadowing arises from a natural tendency, especially in Western thinking, to avoid paradoxical thought and the pervasive stifling infatuation with John Kotter's *Leading Change* as the model for change management.

Thesis Statement

This paper argues that today's complex world requires a shift in thinking and management tools to prevail and win tomorrow; that easy "either/or" problems and solutions are a distant, faded legacy of a simpler bipolar security dynamic; that the post 9/11 conventional versus unconventional conflict security paradigm has been supplanted by an "all of the above" threat model replete with resurgent state threats, expanding terrorist networks, new cyber concerns and vulnerabilities, narrowing US qualitative force advantages, global health issues, and unprecedented environmental challenges. Finally, it argues that these trends place greater necessity on adaptability and innovation. To prevail over the threats and challenges in the coming decades, the joint force requires a conceptual thinking shift marked by analysis that accounts for paradoxes and the application of polarity management as a dynamic, non-linear adaptation to change. Time-phased change management models that initiate, consolidate, and proceed through sequential steps are frequently both inappropriate and inadequate. Inappropriate because they are based on conceptual mischaracterizations of issues as discrete problems to be solved. Inadequate because their plodding linearity is insufficiently responsive and their promised destinations unattainable. Consequently, the Department of Defense needs alternative thinking and managerial methods in the form of paradox theory and polarity management.

Methodology and Organization

In narrative fashion, this paper will first proceed from an exploration of the very fundamental nature of change. What is change? Why is it so difficult for humans and large social organizations to adapt? Next, in Chapter Two, the paper will introduce polarity management and paradox, provide working definitions, full explanations and descriptions, and highlight benefits not found in other conceptual frameworks and change management models. These advantages are central to the argument that the Department of Defense requires a shift in thinking and management tools. Chapter Three will argue the critical importance of adaptability and innovation as strategic advantages in today's challenging security environment.

Chapter Four will examine the significant influence of Clausewitz and Sun Tzu on the Western and Eastern philosophies of war, respectively. The importance of this section to the paper is more than an interesting philosophical departure from the conceptual and organizational obscurity of Chapter Two, and the bureaucratic reasoning of Chapter Three. This section provides the philosophic martial underpinning to the paper's argument for a shift in thinking to incorporate paradox and polarity management. Contrasts and critical argumentation are essential to both explain the genesis of our current Clausewitzian-dominated thinking and to elucidate important differences that are necessary to shape and inform an alternative conceptual model that is at the heart of the argument for a shift in thinking.

Chapter Five reviews the business literature on change management models. The first step in this chapter is to consider and defend the applicability of business literature to the defense and security realm. Though separate and distinct, business practices have valuable lessons to impart to defense and security. The section then proceeds to the change management review that briefly examines four leading models and assesses their penetration into military

discourse and thinking. The result of this review is a comparison of John Kotter's *Leading Change* model with Barry Johnson's *Polarity Management.* This section concludes with a case study where the US Army Aviation Center of Excellence at Ft. Rucker, Alabama, applied the leading change model and failed to sustain it.

In Chapter Six, the paper examines polarity management more closely, detailing the difference between three different problem typologies (either/or, mystery, and continuum) and polarities. Chapter Seven applies this analytic framework in the review of an historical vignette—the decision to drop the atomic bomb on Japan and the nuclear strategy that followed—to examine the importance of issue framing and demonstrate how an issue can be made to fit under multiple typologies. Chapter Eight applies the same analytic framework with more complexity by adding three levels of analysis in a thought experiment against a current security issue: counterterrorism. The intent is to identify critical tensions in which polarity management could usefully gain traction or reveal shortcomings. This chapter will then conclude with an extrapolated and generalized review of polarity management's positive and negative attributes. While the paper argues favorably for polarity management's broader study and application, all models and approaches have strengths and weaknesses. To be true to the critical review methodology, one must identify and address both strengths and weaknesses so that opportunities for contextual judgments emerge.

Chapter Nine, the paper's closing chapter, springs from the previous section's analysis of polarity management's strengths and weaknesses to emphasize the point that greater study and deliberate implementation of paradox theory and polarity management are required to manage complexity, and prevail and win future challenges. Emphasis of this point will draw heavily upon senior military leadership statements citing the need for new thinking, innovation, and

adaptation to today's complexity. This section will also make the argument that, to a limited degree, paradox and polarity management are already incorporated into security thinking and military planning. Paradox and polarity management's limited incorporation is important to demonstrate advocacy for ideas and procedures that, while inadequately recognized, poorly understood, and inconsistently applied, are not all together new and untested. In fact, they have a proven—though underappreciated—record of success.

Chapter One
The Fundamental Nature of Change and Social Complexity

In the physical world, change has a deep cosmic genesis stemming from singularity's equilibrium to the big bang and the creation of the universe, the second law of thermodynamics,[1] and even time itself.[2] As challenging as these immutable physical laws are, change in the social world of human interaction creates even greater complexity challenges. Social or man-made change knows no physical truths from which accurate predictions can be made and appropriate responses taken. Yet change in the social world is just as inexorable, but beyond this *prima facie* fact the consequences are not fundamental, immutable laws. Emotion and reason guide mankind's response to such social change and offer a wide variety of options stretching from "ignore" to "over react" with "folly," "miscalculation," and "failure" the predominate intervening options and few rare opportunities to expertly ride the wave.[3] As the surfer versus shark demotivation poster warns: "It's a short trip from riding the waves of change to being torn apart by the jaws of defeat."[4]

[1] Of course, all physical laws, not just the Second Law of Thermodynamics, derive from the big bang. But the Second Law is especially relevant to the issue of change. This law refers to the **quality** of energy. In simple terms it states that as energy is transferred or transformed some of it is lost and the process is irreversible. The consequences of this law are that perpetual motion machines are fantasy and that in a closed system, the natural tendency is towards entropy and disorder. See: http://www.livescience.com/50941-second-law-thermodynamics.html (accessed 26 January 2016).

[2] Or more accurately, the direction of the arrow of time that always points toward the future. This may seem obvious, but it puzzles physicists who otherwise cannot explain why physical laws are microscopically reversible, yet not macroscopically. According to physicist Sean Carroll, time's future pointing arrow results from the particular low entropy conditions immediately following the big bang. "The observed macroscopic irreversibility is not a consequence of the fundamental laws of physics, it's a consequence of the particular configuration in which the universe finds itself….Understanding the arrow of time is a matter of understanding the origin of the universe." See: http://www.preposterousuniverse.com/eternitytohere/faq.html (accessed 26 January 2016).

[3] This is, of course, a reference to the great military historian Michael Howard's quote in his now famous 3 October 1973 "Military Science in the Age of Peace" lecture upon receiving the Royal United Service Institute Chesney Gold Medal, in which he exhorted military members to accept, embrace, and shape change to their advantage. "They [the military] should see themselves as intelligent surf riders spotting the essential currents on which to ride in a sea which is certainly disturbed and by no means friendly but on which, if they are skillful enough, they will survive." Michael Howard "Military Science in an Age of Peace" *RUSI, Journal of the Royal United Services Institute for Defense Studies* (March 1974), 8.

[4] http://www.techrepublic.com/pictures/images-demotivators-strike-again/6/ (accessed 26 January 2016).

Why is change so hard? If change is so fundamental in nature, why are humans so bad at adapting to it? In a word, “anxiety.” In several words, “anxiety” and “not evolved to respond to complexity.”[5] At an individual level man has learned how to act and respond to his environment in a manner that he is comfortable with. Ignoring the issue of whether that expected comfort is optimizing, merely satisficing, or worse, man has established patterns of thought and behavior that guide his actions in a familiar situation. Yet if the situation is not the same, either because it is a variation to an established environment or a completely new experience, that change can lead to lesser or greater degrees of anxiety. Unfamiliarity sparks man’s concern that actions will not result in the expected outcome. At an individual level man experiences anxiety.

In larger social groups, individual change foibles are exponentially magnified; it is within these larger social environments that change complexity becomes ever more pronounced. Establishing the rules and roles for each individual is an important aspect of all group socialization to provide a structure of familiarity from which everyone can perform. Establishing rules and roles creates hierarchical and lateral relationships, processes with set tasks and deadlines, and defines outcomes that establish individual and group expectations. Yet a change in rules and roles ripples through an organization and creates a degree of anxiety in each individual as new expectations are clarified. For the organization, as distinct from the individual, this change is experienced in two ways. First, larger groups magnify this friction simply because they contain more members, and confusion, frustration, and dissatisfaction can build. Second, leadership intrinsically becomes more difficult as organizations scale up, such

[5] Dietrich Dorner writes, “It appears that, very early on, human beings developed a tendency to deal with problems on an ad hoc basis...All these were problems of the moment and had very little significance beyond themselves.” Consequently, humans have difficulty thinking beyond cause and effect in terms of interactions between and among components, projecting understanding into the future, and comprehending exponential change. See Dietrich Dorner, *The Logic of Failure: Recognizing and Avoiding Error in Complex Situations*, (New York: Basic Books, 1996), 5.

that leadership authority becomes more fragile in groups greater than ~150, and change management becomes especially daunting.[6] Complexity exacerbates these two distinctions between group quantity and leadership effectiveness because larger organizations require a greater role specialization that is more sensitive to change. These scale, leadership authority, and role specialization challenges conspire to make organizational changes especially challenging.

Despite these challenges people do adapt—always with difficulty, often clumsily and unsuccessfully, but sometimes relatively gracefully, enabling them to thrive in the new environment. The goal then is to best enable successful adaptation to change. A frequently tried, though not often true, method is to reorganize, perhaps because it immediately satisfies the impulse brought about by change: do something in response. At least initially doing something often has the illusory feel of progress, of getting ahead and successfully adapting. But as already noted, organizationally there is also a cost to change in terms of confusion, frustration, and possibly demoralization. So is there a better alternative?

[6] Yuval Noah Hariri, "A Brief History of Humankind" Lesson 2 Part 3. https://www.youtube.com/watch?v=4CJBn5UIRRE&index=11&list=PLBOXjuzxIKcrqTyqh2Wwh6B86sIN-42di (accessed 21 October 2015). Starting at 19:30, Hariri explains: "this is why even today a critical threshold in human organizational abilities falls somewhere around this magical number of 150…below this number [organizations] can maintain themselves...based mainly on intimate acquaintances..." Business literature backs this assertion, see Ricardo Semler "Managing Without Managers" *Harvard Business Review*, (Sep-Oct 1989), 77. "As Antony Jay pointed out back in the 1950s in *Corporation Man*, human beings weren't designed to work in big groups. Until recently, our ancestors were hunters and gatherers. For more than five million years, they refined their ability to work in groups of no more than about a dozen people. Then along comes the industrial revolution, and suddenly workers are trying to function efficiently in factories that employ hundreds and even thousands...At Semco we've found the most effective production unit consists of about 150 people."

Chapter Two
Introduction to Polarity Management and Paradox Theory

Polarity Management

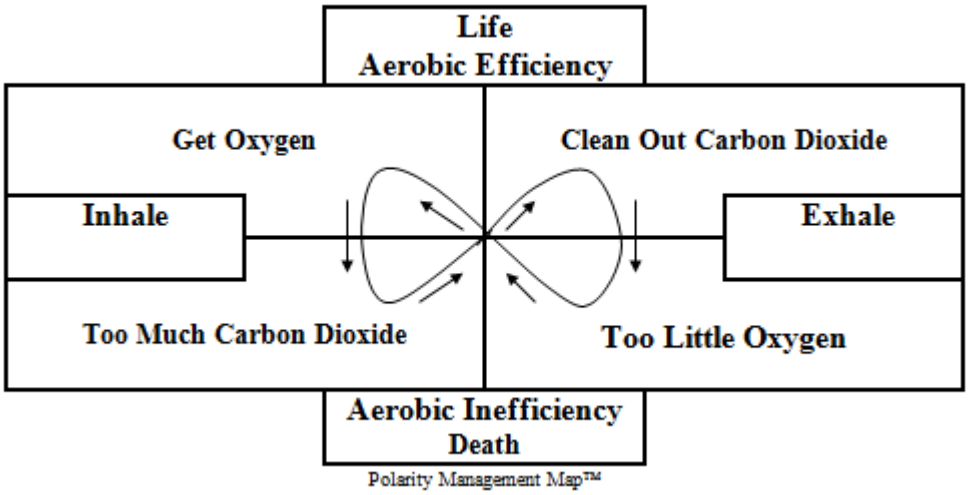
Dr. Barry Johnson's concept of polarity management is an alternative and better organizational management concept.[1] Unique in organizational change literature, polarity management actively discourages reflexive reorganizing by distinguishing between "problems" and "polarities." Johnson identifies problems as issues that can be solved, sometimes by reorganizing and thus enabling organizations to move *from* the problem *to* the solution, but these represent a small number of the issues facing organizations in today's operating environment. Polarities are interdependent oppositional values that must be managed in a balanced sustainable dynamic. Polarity management recognizes and values competing priorities as a means of sustainably addressing conflictual issues for which there is no solution. Polarity management eschews "either/or" problem solving in favor of "both/and" processes. Barry Johnson argues polarities "have two or more right answers that are **interdependent.**"[2]

As an analogy, consider breathing: either/or thinking leads to a choice of either exhaling or inhaling. But as a polarity with two interdependent right answers breathing is a dynamic process managed through both exhaling and inhaling. "You do not solve the exhale/inhale polarity by choosing to *either* inhale *or* exhale. You manage it by getting the benefits of each while appreciating the limits of each. It is not a static situation. It is a process, an ongoing flow of shifting emphasis from one to the other and back again."[3] Central to polarity management is

[1] Barry Johnson, *Polarity Management*, (Amherst, MA: HRD Press, Inc, 1992).
[2] Barry Johnson, "Polarity Management: A Summary Introduction" June 1998, 3. http://www.jpr.org.uk/documents/14-06-19.Barry_Johnson.Polarity_Management.pdf, (accessed 6 September 2015). Emphasis in the original.
[3] Johnson (1992), 22.

understanding the complete dynamic and recognizing both oppositional pairs, or poles (inhaling/exhaling, individual/team effort, centralized/decentralized decision-making) have clear positive and negative values. A polarity is represented as a quad chart where the poles are the left and right, the upper quadrants are the positive values of both poles, and the lower quadrants are the negative values. The goal is to manage these polarities such that more time is spent in the upper positive value realms rather than blindly adhering to a polarity whose utility is now trending negative.[4] Polarities—not problems—represent the clear majority of issues facing organizations today.

Figure 1: Polarity Management Map of Breathing



Polarity management provides three important insights that differentiate it from and make it more effective than other change management organizational principles:

- In distinguishing between problems and polarities, it accommodates the inevitability of change rather than attempting to resolve the problem of change. Specifically, polarity management's central organizing principle is the inevitable movement between oppositional values. Polarity management seeks to efficiently manage dynamic tension

[4] Johnson, (1998), 8. "A well-managed polarity is one in which you capitalize on the inherent tensions between the poles. You get the benefits of both upsides and the synergies between them. The results are that you fulfill more and more of your higher purpose."

and rather than waste organizational time, resources, and energy treating it as a problem to be solved.

- Polarity management values resistance as a telling indicator of how well the overall process is being managed, rather than a friction to be eliminated. Specifically, in recognizing that each polarity has limitations, resistance from the opposite value is a vital and necessary signal regarding the status of the overall dynamic. Within polarity management, friction and resistance are catalysts for maintaining process efficiency.

- In focusing on the dynamic over organizational movement towards a stated goal or end state, polarity management is more flexible and adaptable. Specifically, in focusing on the process, leadership's attention and energy is devoted to adjusting and adapting to the environment rather than driving the organization towards a goal that may be illusory. Within polarity management, good management of the process becomes the goal, and good management of the process requires adaptability.[5]

The virtue of these distinctions is that as an organizational approach, polarity management gives greater leadership focus and priority towards two qualities that are necessary in today's resource scarce and complex environment: adaptability and efficiency. Cumulatively, these distinctions reinforce one another to achieve higher standards of both. By actively dissuading the perspective that organizations face "problems" that require "reorganization," significant time, energy, and resources are saved and efficiencies gained. The entirety of an organization's personnel resources—even those that are critical and obdurate—are incorporated as catalysts contributing to a dynamic and fluid process. Finally, the focus on the process, ensuring it is sensitive and responsive to change with the goal of maintaining the dynamic in the upper positive quadrants, further lends itself to the twin goals of adaptability and efficiency.

Paradox Theory

Polarity management has deep roots in paradox theory. Leading paradox theory scholars Robert Quinn and Kim Cameron put forth a definition extensively used in business management

[5] Johnson, (1992). These three bulleted insights imbue Barry Johnson's *Polarity Management* and are central to the idea of managing over problem solving.

literature that defines a paradox as "an observation in which two apparently contradictory elements are seen as present or operating at the same time."[6] The important point in this definition is that paradox is not simply contradiction and opposite. Paradoxes are dynamic processes in which contradictory values are present and operating simultaneously.

Scholars of creative thinking share this definition and credit paradoxical thinking with tremendous intellectual breakthroughs, including Albert Einstein's 1915 general theory of relativity and Neils Bohr's 1927 complementarity principle that advanced quantum mechanics.[7] Albert Rothenberg describes the creative thinking process that led to both achievements as "Janusian thinking" after the Roman god Janus, whose several faces look out in multiple directions simultaneously. He explains:

> The process of Janusian thinking involves the active and intentional conception of two or more opposites or antitheses *simultaneously*...In the course of the creative janusian process, opposites and antithesis are conceived and posited as existing side by side and/or as equally operative and equally valid and true. In an apparent defiance of ordinary logic or matters of physical impossibility, the creative thinker formulates multiple opposites or antitheses simultaneously operating and the formulation leads to integrated entities and creations.[8]

This is not dialectical thinking where thesis and antithesis are sequentially resolved and reconciled through synthesis. In contrast to dialectical thinking, Janusian thinking "involves simultaneity of opposites rather than sequential alternation and it involves tension and conflict."[9] Though Rothenberg applies a different term, Janusian thinking epitomizes paradox theory. His explanation of simultaneous opposites is entirely consistent with this thesis

[6] Robert E. Quinn and Kim S. Cameron, "Paradox and Transformation: A Framework for Viewing Organization and Management" in *Paradox and Transformation: Toward A Theory of Change in Organization and Management*, eds. Robert Quinn and Kim Cameron, (Cambridge, MA: Ballinger Publishing Co., 1988), 290.

[7] Albert Rothenberg "Einstein, Bohr, and Creative Thinking in Science" *History of Science* vol 25, no. 2 (1987), 147-166.

[8] Ibid., 150.

[9] Ibid., 159.

definition of paradox theory as "an observation in which two apparently contradictory elements are seen as present or operating at the same time."

Such a strict definition transcends a simplistic understanding and vernacular use of paradox as merely opposites, conflict, or inconsistency. The conditions of opposite and conflict do not constitute paradoxes, though scholars acknowledge that scale and perception contribute to disagreement over what constitutes a true paradox and debates rage over perceptions and framing semantics.[10]

Debates aside, paradoxes are intrinsic in nature and they are especially pervasive in large organizations and socially complex situations. Businesses and bureaucracies struggle to manage the tension between individual employee role specialization and generalization, between decentralized flexibility and centralized control, between stability and innovation. Most organizational literature tends to discount contradictions and tensions in favor of linear logical consistency, but Robert Quinn and Kim Cameron believe contradictions, dynamic tensions, and mutually causal relationships are organizational essentials for excellence. They regard paradoxes as key "to a more complex and comprehensive view of organizations and their management."[11] These scholars believe a paradoxical framework "leads to richer analyses in which we are forced to look more deeply than usual, and to ask about the positive opposites that

[10] Victoria Buenger and Richard L. Daft, "The Puzzle of Paradox in Just-In-Time Manufacturing" in *Paradox and Transformation,* eds. Robert Quinn and Kim Cameron, (Cambridge, MA: Ballinger Publishing Co., 1988), 197. Affirming that paradox's core tenet is "the simultaneous presence and attainment of seemingly mutually exclusive ends," Buenger and Daft acknowledge that "paradox is a slippery concept" and state two conditions necessary to establish a paradox gold standard— "simultaneously mutually occurring exclusive states" and "a lack of understanding or knowledge of how such a condition can be explained." In their critique of a preceding chapter attributing just-in-time manufacturing's success to the resolution of paradox, Buenger and Daft argue "...the presence of multiple, even conflicting goals, the attainment of absolute goals, and a dynamic view of the environment..." do not constitute a paradoxical state, merely a challenging environment.

[11] Quinn and Cameron, xiv.

might not be recognized in a given situation."[12] They cite studies that conclude "excellent companies have learned how to manage paradox" and developed a diagram capturing critical tensions that when properly managed lead to organizational efficiency.[13]

Figure 2: Quinn and Cameron's "Competing Values" diagram.

To summarize the importance of paradox in both the theory and in polarity management: as a conceptual framework with tremendous explanatory powers and creative insights, paradox theory is unique in that it embraces paradoxes—contradictory elements operating simultaneously—as essential to full understanding and comprehension of an issue. As an organizational management concept with practical applications, polarity management is unique in that embraces paradox and linear discontinuities and regards them as essential—not anathema—to adaptive learning, efficiency, and effectiveness.

[12] Ibid., 304.

[13] Ibid., Kim S. Cameron and Robert E. Quinn, "Organizational Paradox and Transformation" in *Paradox and Transformation: Toward a Theory of Change in Organization and Management,* eds. Robert Quinn and Kim Cameron (Cambridge, MA: Ballinger Publishing Co., 1988), 12. The work Cameron and Quinn are citing is T.J. Peters and R.H. Waterman, *In Search of Excellence: Lessons From America's Best-Run Companies* (New York: Harper & Row, 1982).

Chapter Three
The Imperative to Adapt and Innovate

The current security environment places a premium on adaptability and innovation. The 2014 Quadrennial Defense Review made the following observation: "Regional and global trends in the security environment, coupled with increasing fiscal austerity, will make it imperative that the United States adapt more quickly than it has in the past and pursue more innovative approaches and partnerships in order to sustain its global leadership role."[1] In a recent *Joint Forces Quarterly* interview, former Chairman of the Joint Chiefs of Staff, General Martin Dempsey, again emphasized the importance of adaptability:

> We were fighting an insurgency...In that kind of conflict, the use of military [forces] against nonstate actors, I think size and technology matter, but what matters more is the rate at which we innovate. The rate of innovation becomes a better predictor of success than the Force Management Level, for example. Size matters, but the rate at which we can innovate, adapt, and respond to changes in the environment matters more.[2]

This requirement emerges from three lines of reasoning that create subtle and uniquely different adaptability requirements. One requirement comes from wars that we know, but are poorly postured to fight, or at least tired and unwilling to continue fighting and seemingly incapable of ending. These are the wars of the last 15 years against terrorism in Afghanistan, Iraq, and now Syria, where it threatens to destabilize regional allies, and has brought Russian and Iranian forces and interests into competition with those of the US. The adaptation that this requirement invokes concerns the mission and scale of existing forces pursuant to ambiguous political goals.

[1] US Department of Defense, *Quadrennial Defense Review 2014* (Washington DC, Mar 2014), 3.

[2] Dr. Joseph J. Collins and Dr. RD Hooker Jr., "From the Chairman: An Interview with Martin E. Dempsey," *Joint Forces Quarterly* (Issue 78, 3rd Quarter 2015), 7. He echoed this same point during his 12 August 2015 speech to National Defense University students.

A second requirement emerges from possible wars against suspected potential enemies to be fought in domains that are either familiar, new and unfamiliar, or both. These are the potential wars against near-peer powers such as China and Russia, and regional powers such as North Korea and Iran. Familiar domains would be air, sea, and land; unfamiliar domains would be space and cyber. These domains are not entirely unfamiliar, forces operate in these realms now and in the case of space, have for several decades. However, the unfamiliarity is due to the fact that in a future conflict these domains could for the first time be contested (e.g., space in a conflict with Russia or China) and that the doctrinal guidance for responding to aggression in these domains is at a minimum not well practiced, perhaps not yet written. The adaptation that this requirement invokes is on capabilities (to develop ever more capable weapons to maintain qualitative advantage), mass and movement (to more effectively and efficiently resource and employ force), and doctrine (to determine the policy way forward in a now contested realm).

A third requirement dictated by history is the ability to adapt to that for which the US is completely unprepared. The admonition for this requirement comes down through the ages from many sources. Perhaps none were more eloquent than the entirety of Sir Michael Howard's October 1973 speech before the Royal United Service Institute. In a portion of his speech on the broader topic of the peacetime study of military science he exhorted, “This is an aspect of military science which needs to be studied above all others in the Armed Forces: the capacity to adapt oneself to the utterly unpredictable, the entirely unknown.”[3] General Dempsey acknowledged this last point, the danger of preparing for the unknown, in the “Chairman's Assessment” portion of the 2014 Quadrennial Defense Review. Under the “Risk” heading and

[3] Howard, 2. He further elaborated: “I am tempted indeed to declare dogmatically that whatever doctrine the Armed Forces are working on now, they have got it wrong. I am also tempted to declare that it does not matter that they have got it wrong. What does matter is their capacity to get it right quickly when the moment arrives.”

looking out towards 2025, he warned against failure "to achieve the far-reaching changes" necessary in US defense plans, posture, objectives, and concepts of war and noted, "Some of these are only dimly perceived today and need encouragement and direction."[4] The adaptation that this requirement invokes is on how one thinks about, prepares, and organizes for change.

[4] *Quadrennial Defense Review 2014*, 64.

Chapter Four
Western and Eastern Philosophies of War

Two intellectual giants have shaped human thinking about war: Carl von Clausewitz and Sun Tzu. Clausewitz represents a western and Sun Tzu an eastern philosophical approach. American strategic and military thinkers have imbibed from both, but as a nation, the US inherited and has fully embraced Clausewitz's western philosophical approach, both to what war is and how wars are won. As to what it is, "war is not merely an act of policy but a true political instrument, a continuation of political intercourse, carried on with other means."[1] That is to say, war and peace are different; peace is the governing norm up until the time that events motivate or cause a definite transition to war. Colin Gray writes, "...some cultures, the American for a leading example, tend to approach strategic problems monochronically, employing one method at a time. War and peace, war and diplomacy, and war and politics generally are regarded as alternatives, not as continuous complements."[2]

As to how wars are won, Clausewitz maintains "that direct annihilation of the enemy's forces must always be the dominant consideration."[3] That is to say, war's purpose is to destroy not preserve the enemy. This has implications, for the war itself, yet also—and not always as clearly—for the peace that is to follow. Colin Gray writes that this is the strategist's unique problem, to wage the war in such a manner as to consolidate battlefield victories to political objectives, "to think consequentially in two steps." For the strategist must both "employ military

[1] Carl von Clausewitz, *On War*, ed. and trans., Michael Howard and Peter Paret (New York: Alfred A. Knopf, 1993), 99.

[2] Colin S. Gray, *Fighting Talk: Forty Maxims, on War, Peace, and Strategy*, (Dulles, VA: Potomac Books, 2009), 33.

[3] Clausewitz, 270.

force for its...strategic effect upon the course of the war" while also planning "to employ that strategic effect [for a] politically tolerable postwar order."[4] Gray raises the strategist's unique problem precisely to make the point that Clausewitz's decisive engagement dictum, the enemy's annihilation, often either fails to win the war (e.g., the French experience in Algeria or the US experience in Vietnam) or that victory in the war fails to yield peace (e.g., the American experience in Afghanistan and Iraq).

Sun Tzu has a very different understanding both of what war is and how wars should be won. As to what war is, Sun Tzu writes, "War is a matter of vital importance to the state."[5] That is to say, war is not an anomaly that the state is suddenly forced to respond to, but rather something of such significance as to always warrant consideration and action. Samuel Griffith writes, "War is a grave concern of the state; it must be thoroughly studied. Here is recognition—and for the first time—that armed strife is not a transitory aberration but a recurrent conscious act and therefore susceptible to rational analysis."[6] On this point, Clausewitz and Sun Tzu are not completely at odds: both see politics and *raison d'etat* as animating and giving reason to war. However, there is an important difference in their understanding of the interrelationship between peace and war. Whereas Clausewitz argues one flows sequentially into the next, Sun Tzu argues there is a continuously bound interrelationship between war and peace, peace and war.

The distinction becomes more profound on the question of how wars should be won. Here in place of Clausewitz's single "direct annihilation" thought, Sun Tzu relies on two

[4] Gray, 8.
[5] Sun Tzu, *The Art of War*, trans. Samuel B. Griffith (Oxford, Oxford University press, 1963), 63.
[6] Ibid., 39.

thoughts: the criticality of deception and the need to attack the enemy's strategy.[7] That is to say, do not directly attack the enemy's strength, rather indirectly attack the enemy's plans and capabilities to conduct warfare with the goal of weakening them. Samuel Griffith writes, "Sun Tzu sees the business of a general to consist, in part, of creating changes and manipulating them to his advantage."[8] In stark contrast to Clausewitz, Sun Tzu believes a truly skilled general wins by subduing the enemy absent a fight—not through a decisive engagement.

These philosophic distinctions permeate how the US has fought and won and fought and lost past wars. World War II was a traditional Clausewitzian conflict. Throughout the war, and especially in Europe, the US and its Allies sought to engage and destroy the enemy relying on its greater material resources in a broad front offensive employing attrition operational warfare. Such operations played to US strengths in logistics, resources, and firepower and most importantly engaged the enemy in a campaign of annihilation. Comparing attritional and operational maneuver warfare, Edward Luttwak, notes "attrition requires that strength be applied against strength. The enemy too must be strong when and where he comes under attack, since a concentration of targets is required to ensure efficiency in the application of effort."[9] Against peer state traditional militaries—Germany and Japan—this strategy worked and resulted in what one scholar described as "perhaps the most glittering moment in US history."[10] But Vietnam demonstrated the US strategy's shortfall. In Vietnam, Ho Chi Minh and General Vo Nguyen Giap—guided by Sun Tzu's ancient dictums—attacked the US strategy and refused to

[7] Ibid., 66 and 77. Respectively, "All warfare is based on deception" and "Thus, what is of supreme importance in war is to attack the enemy's strategy."

[8] Ibid., 43

[9] Edward N. Luttwak, "The Operational Level of War" *International Security*, Vol. 5, No. 3 (Winter, 1980-1981), 64.

[10] Shannon D. Beebe and Mary Kaldor, *The Ultimate Weapon is No Weapon: Human Security and the New Rules of War* (New York: Public Affairs, 2010), 39

engage US troops in a decisive Clausewitzian conflict. This represented a set of circumstances to which the US was slow to adapt and, by the time the military shifted from Westmoreland's failed attritional model to Abrams counterinsurgency operations, the Vietnamese had already successfully defeated US public support for the war. Comparing the US reliance on Western philosophy against the Vietnamese application of eastern philosophy, one American Army Sun Tzu advocate observed: "The United States won the battles, but it lost the war because it did not realize it was not fighting the same war as its adversary...the decisive battlefield is rarely the one on which troops are deployed. Instead, the battlefield lies in the political will of the opponent, the hearts and minds of its citizens."[11] But for the US Army raised on Clausewitz, this was a hard lesson to learn. Writing in 2003, this same observer noted Colonel Harry Summer's well-received work, *On Strategy,* is an example of just how resistant the Army was to that lesson, almost ten years after the war.[12]

Arguably, Vietnam was the first US contact with Sun Tzu's approach to war. His ideas of avoiding military strengths, fighting asymmetrically, and attacking strategy now has many disciples. Whether consciously applying Sun Tzu's approach out of preference or forced to do so due to limited means of resistance, these concepts formed the basis for the *intifada* in Israeli occupied territories and the insurgencies in Iraq and Afghanistan, where the adversary knows better than to attack military strengths.[13] In these conflicts military strength and conventional correlations of power are tenuous and poor predictors of victory or defeat.

[11] Colonel Douglas M. McCready, "Learning from Sun Tzu" *Military Review* (May-June 2003), 86. For a more detailed study exploring the US Army's fundamental misunderstanding of the nature of the Vietnam War, see Andrew F. Krepenevich, Jr., *The Army and Vietnam*, (Baltimore: Johns Hopkins University Press, 1986.).

[12] Ibid., "The warm reception Summers' book received at the Army's highest level shows that the U.S. military still does not understand what happened in Vietnam." See also COL (Ret) Harry G. Summers Jr., *On Strategy: A Critical Analysis of the Vietnam War*, (New York: Random House, 1982).

[13] In the widely attributed LTG HR McMaster quote, this idea is expressed more famously: "there are two ways to fight the US military—asymmetrically and stupid." However, in his March-April 2015 *Military Review*

The future global strategic environment is not expected to look exactly like either the pre-Vietnam Clausewitzian style state-on-state symmetric wars nor the prolonged period of Sun Tzu-inspired counterinsurgent asymmetric conflicts. Rather, the future global strategic environment is expected to resemble both and be increasingly complex. The 2014 Quadrennial Defense Review's consideration of future conflict notes these "could range from hybrid contingencies against proxy groups using asymmetric approaches, to a high-end conflict against a state power armed with WMD [weapons of mass destruction] or technologically advanced anti-access and area-denial (A2/AD) capabilities."[14]

So has the US learned to integrate both Clausewitz and Sun Tzu in its approach to war? Is America prepared to meet the challenges from both proxy groups using asymmetric strategies to high-end state power conflict? Unfortunately, even after Vietnam, the years spent in Iraq and Afghanistan suggest that Sun Tzu's lessons remain hard for Americans to grasp. Aware of this shortfall, in 2005 the US Army War College initiated a new core curriculum *Fundamentals of Strategic Thinking* "explicitly focused on self-awareness and "how" to think" and made a concerted effort to prepare leaders to operate effectively in volatile, uncertain, complex and ambiguous environments.[15] Still missing from this initiative—and subsequent discussions of teaching strategic thinking—is explicit reference to paradox theory as a conceptual framework and polarity management as an organizational framework.

article, LTG McMaster credits this idea to US Army War College historian Conrad Crane. See LTG HR McMaster, "Continuity and Change: The Army Operating Concept and Clear Thinking About Future War," *Military Review* (March-April 2015), 16 and Conrad C. Crane, "The Lure of the Strike," *Parameters* 43(2) (Summer 2013): 5, http://www.strategicstudiesinstitute. army.mil/pubs/parameters/issues/Summer_2013/1_Crane_ SpecialCommentary.pdf.

[14] *Quadrennial Defense Review 2014*, vii

[15] Dr, Richard M. Meinhart, "Leadership and Strategic Thinking," (unpublished paper 2011), 1. Dr. Meinhart has taught at the US Army War College since 1997. His biography and research interests can be found at: http://www.strategicstudiesinstitute.army.mil/pubs/people.cfm?authorID=102 (accessed 13 February 2016).

This omission is a weakness in the Defense Department's own strategic thinking, especially since Sun Tzu's eastern-oriented philosophy of war is closely aligned with paradox theory and polarity management. Sun Tzu's starting premise is that the state must study war, not as an aberration, but as a continuous polar opposite to peace, a "contradictory element seen as present or operating at the same time."[16] Statecraft and generalship do not shift from clearly delineated phases of politically-led peace to militarily-led war, and back to politically-led peace. Instead, Sun Tzu teaches the nature of state governance is one of a dynamic paradox of war and peace where leaders continuously strive to manipulate both to their advantage to defeat their enemies, ideally without ever engaging in conflict. Senior US military leaders are aware that our potential adversaries operate in this dynamic. Chairman of the Joint Chiefs of Staff, General Dunford, acknowledged this conceptual difference in a 14 December 2015 Center for a New American Security keynote address.[17] Yet at American military educational institutions, staff and war colleges, paradox and polarity remain ignored as tools to explore this difference.

In scholarly business literature, paradox theorists and polarity management advocates also frequently note differences between western and eastern philosophy that result in different business perspectives similar to the different perspectives of Clausewitz and Sun Tzu. Paradox theorists Kathleen M. Eisenhardt and Brian J. Westcott wrote:

> Western thinking is characterized by linear thought processes. Outcomes have causes. There are beginnings and ends. There is planning and then execution….Eastern thinking emphasizes the timeless, eternal qualities of life and the attainment of perfection. Life is flow and motion and constant change.

[16] As a reminder to the reader, this is the paper's working definition of paradox theory.

[17] "Our traditional approach kind of views things as we're either at peace or at war. That may not necessarily be the case for our adversaries; they live somewhere in between. And from my perspective, we need to spend some time on that particular issue." Center for a New American Security, "Gen. Dunford's Remarks and Q&A at the CNAS Inaugural National Security Forum" http://www.cnas.org/transcripts/dunford-remarks-national-security-forum#.VsEH_f7VyM8 (accessed 8 February 2016).

> There is no finality, only ceaseless becoming of something else and never-ending change.[18]

Similarly, polarity management advocates Patricia G. Beach and Jennifer Joyce submit:

> An understanding of polarities is reflected in the ancient teachings of Lao Tsu, known as Taoism. Taoism is centered on the belief that well-being comes from acknowledging and balancing the duality of life (also known as the Tao). While Taoism has brought wisdom about polarities to Eastern culture, relatively speaking, Western culture has not embraced wisdom of the Tao in either a spiritual or practical way.[19]

Paradox theory and polarity management represent thinking and organizational management tools well suited to respond to the range and complexity of threats the US now faces. They provide the conceptual framework to consider how we should think and how we should respond to change consistent with General Dempsey's emphasis on adaptation. These concepts emerged from business literature on change and organizational management, so it is worthwhile to conduct a broader review to see how they compare to other concepts and what business concepts American defense thinking has adopted.

[18] Kathleen M. Eisenhardt and Brian J. Westcott, "Paradoxical Demands and the Creation of Excellence: The Case of Just-in-Time Manufacturing" *Paradox and Transformation,* eds. Robert Quinn and Kim Cameron, (Cambridge, MA: Ballinger Publishing Co., 1988) 172.

[19] Patricia G. Beach and Jennifer Joyce "Escape from Flatland: Using Polarity Management to Coach Organizational Leaders from a Higher Perspective" *The International Journal of Coaching in Organizations* 7, no. 2 (2009), 67 http://www.margaretseidler.com/wp-content/uploads/2014/01/ArticleTrueNorth.pdf (accessed 27 January 2015).

Chapter Five
Business Literature Review

Applicability to Defense and Security

Following from the foregoing discussion on the full spectrum of security threats (ranging from terrorist groups to near peer and regional nation state challenges, cyber threats, and environmental devastations) and east-west philosophic distinctions on war, returning to an examination of business models for change may seem incongruous at best or distinctly inapplicable. Reasonable objections to a comparison would seem to fall along questions of scale, environment and outcome, and command structure. There are obvious differences of scale; the US Defense Department dwarfs even the largest corporation. With respect to environment and outcome, there is little in common between US security concerns in which the operating environment can be dangerous, with life, death, national power and global influence at stake, in comparison to a business market and mere issues of profitability. Finally, militaries have clearly delineated ranks and command structures where actions are directed by orders vice muddled corporate hierarchies with ambiguous office titles and influence networks. Some might argue the two worlds could not be more unrelated.

However, the above represents a facile caricature of both the security and business realms that share more in common—especially on the issue of change and adaptation—than they hold separate. In terms of scale, by any measure, comparisons are more similar than dissimilar. At its 2010 peak, US defense spending totaled $712.9 billion dollars and in

2014 totals $644.8 billion.[1] These figures represent more in 2010 and slightly less in 2014 than the total market capitalization of a single US corporation, Apple, which closed 2014 with an assessed value of $647.4 billion.[2] Both US defense and Apple are global enterprises; yet Apple is arguably more global, operating in some countries the US military does not—such as Russia where it conducts marketing and sales, and China where it conducts marketing, sales, and manufacturing. At just ~115,000 employees, Apple is smaller than any of the Services, though larger than the US Coast Guard's ~91,000.[3] This then represents the one caricature with an element of truth, but the scale argument is not Apple in comparison to the defense department; it is the business world in comparison to the defense department and Apple just happens to be a single corporation that underscores the validity of scalar comparisons.

The remaining objections of environment, outcome, and command structure are similarly weak counterarguments to the fact that business management literature has something important to say to defense on the topic of organizational change. The business environment is just as competitive and hostile as the battlefield, though the victor and the vanquished differ between corporeal and corporate. Command structure differences should also not be exaggerated. Where the military wears rank and the business world does not, both are nevertheless hierarchical, yet equally capable of devising confounding command

[1] http://www.usgovernmentspending.com/federal_budget_detail_fy10bs12014n_30#usgs302, (accessed 1 November 2015).
[2] https://en.wikipedia.org/wiki/List_of_public_corporations_by_market_capitalization#2014, (accessed 1 November 2015). These figures are derived from the Financial Times Global 500. Admittedly, market capitalization and defense budget comparisons are not exactly equal for equal; Apple's operating budget is a corporate secret and there is no market capitalization equivalent for the US Department of Defense. But the quarterly market valuation of just one US corporation gives a sense of comparable financial scale to the yearly US government budgetary allocation to the entirety of the US Defense of Department.
[3] For Apple and Coast Guard see respectively: https://en.wikipedia.org/wiki/Apple_Inc.#Stores and https://en.wikipedia.org/wiki/United_States_Coast_Guard, (both accessed 1 November 2015).

structures where ultimately personal relationships, trust, and initiative are more important than orders from a single directive leader. Finally, all these points have long been understood, and business literature has long been on service school and war college curricula and endorsed for their value in instructing students on organizational change and complexity, and providing leadership tools.[4] More recently, military leaders such as retired General Stanley McChrystal are presenting a counterwave of military leaders offering organizational insights and advice to the business world.[5] Regardless of genesis and direction, the point is clear that both the business and defense communities have valuable lessons on organization and change management to share.

For both the business and defense communities, adapting to change has two distinctly different challenges. There is the externally focused adaptive response to identifying threats and opportunities in a changed environment. This requires enormous and deep intellectual capacity to understand the environment in which one's organization operates, the manner(s) in which the organization needs to adapt, and the means for addressing the shortcomings. There is also the internally focused leadership challenge of executing the change, be it reorganization (consistent with most change models) or re-vectoring the dynamic process (according to polarity management.) Both the external intellectual task and the internal execution task are difficult and the challenges have

[4] Dr. Thomas P. Galvin and LtCol Lance D. Clark, "Beyond Kotter's *Leading Change*: A Broad Perspective on Organizational Change for Senior U.S. Military Leaders" (US Army War College, Carlisle, PA, July 2015) http://www.strategicstudiesinstitute.army.mil/PDFfiles/Pcorner/LeadingChangePrimer4.pdf (accessed 27 January 2016).

[5] Explaining his military leadership experience that culminated in his 2003-2008 Command of Joint Special Operations Command, General McChrystal details the transformation of his own leadership philosophy in the "Leading Like a Gardener" chapter writing: "The temptation to lead as a chess master, controlling each move of the organization, must give way to an approach as a gardener, enabling rather than directing." General (Ret) Stanley McChrystal, *Team of Teams: New Rules of Engagement for a Complex World* (New York: Penguin Publishing Group, 2015), 232.

created an enormously broad and diverse field of organizational change management in the business field literature that is well beyond this paper's task of reviewing.[6] A cursory review reveals four organizational change models that are clearly leading the field or otherwise important to this thesis. They are the Balanced Scorecard, Shingo or Lean Model, John Kotter's Eight Steps to Leading Change, and, of course, the thesis favorite—Polarity Management.

Forewarning: conducting a comparative review of these different models gets conceptually muddled very quickly for at least three reasons. First, as a most general observation, these all fall under the broad social or soft science discipline and are therefore fraught with all the same complexity and ambiguity of any scientific study of human interaction. Second, and magnifying this first point, all these organizational change management models are meant to be applied in the real world and are to some degree interdisciplinary, which further exacerbates difficulties of making like-to-like comparisons to explain behavior. Lastly, and as a final refinement from the second point, while each of these are cited in studies and applied to organizational management, this is not done in each instance for the purpose of managing organizational change or to the same scope or scale; rwo examples, the first of purpose, the second to application. The purpose of the Balanced Scorecard method is capturing metrics and monitoring organizational performance that can be usefully applied to questions about the need for change, assessing performance during a transition, or determining success after a reorganization. However, in

[6] Robert M. Murphy, "Managing Strategic Change: An Executive Overview" (US Army War College, Carlisle, PA, June 2003), provides a good foundational understanding of the major intellectual figures that created and developed managerial sciences and their ideas. See http://www.au.af.mil/au/awc/awcgate/army-usawc/murphymgttext.pdf (accessed 27 January 2015).

comparison to Kotter's Eight Steps model, the Balanced Scorecard is less prescriptive to the direct task of leading change once that decision has been made. To the application point, the Shingo or Lean model, is best applied to industrial manufacturing processes, where it has had demonstrably proven success, vice managing organizational change. Nevertheless, each of these models has something important to say on the topic of organizational change.

Balanced Scorecard

Introduced in a 1992 Harvard Business Review article, the Balanced Scorecard is primarily a strategic planning and performance management tool used to track select activities across four different dimensions: Financial, Customer, Internal Business Processes, and Learning and Growth.[7]

This model grew from the British scientist Lord Kelvin's (1824-1907) observation that unless you can measure and express your knowledge in numbers, then your knowledge "is meager and unsatisfactory kind."[8] Thus, metrics matter, and metrics matter beyond the obvious numeric friendly financial dimension of an organization. The scorecard was purposely intended to balance financial and nonfinancial dimensions, customer/external and internal stakeholders, and lagging and leading indicators of performance. Ideally, scores from these indicators fill each of these four dimensions to provide a complete and comprehensive review of the organizations performance in each dimension and in its entirety. Beyond its current performance management and the "early indications and

[7] Robert S. Kaplan and David Norton, "The Balanced Scorecard: Measures that Drive Performance" *Harvard Business Review* 70, no. 1 (January-February 1992), 71-79.

[8] Robert S. Kaplan, "Conceptual Foundations of the Balanced Scorecard," *Harvard Business School Working Paper 10-074*, http://www.hbs.edu/faculty/Publication%20Files/10-074.pdf (accessed 26 January 2015).

warning" utility through its review of leading and lagging indicators, proponents also laud Balanced Scorecard's usefulness as an internal communication tool to link employee and organizational performance metrics. The scorecard can also help with allocating resources in order to hit select target goals as an organization continuously assesses its performance and refines operations.

Lean Model

The Shingo or Lean Model has been most widely applied in manufacturing and is widely credited as the basis for Toyota's success through its principle of "Just in Time" manufacturing. Developed by the Japanese industrial engineer Shigeo Shingo, lean emphasizes continuous improvement focused on efficiency and the elimination of waste. Applying his industrial engineering principles in the late 1950s, Mitsubishi Heavy Industries set a manufacturing record by reducing the time required to build a ship hull from four months to just two.[9] Dr. Shingo describes three levels of business improvement that if successfully applied ultimately lead to organizational transformation: the tools and techniques, the systems, and the principles.[10] The first two levels he described as "know how," the last he described as "know why." According to Dr. Shingo's approach, too much attention is devoted to know how improvements and principles have been neglected. Yet principles and values guide behavior and define the culture that is the narrative necessary for achieving operational excellence. Inculcating principles and a single-minded focus on efficiency creates system and tool/technique improvements that can result in a virtuous

[9] Shigeo Shingo, *A Revolution in Manufacturing: The SMED System*, trans. Andrew Dillon (Portland, OR: Productivity Press, 1985), 345.

[10] Shigeo Shingo, "A Study of the Toyota Production System from an Industrial Engineering Viewpoint" (1989), http://www.kellogg.northwestern.edu/course/opns430/modules/lean_operations/shingo.pdf (accessed 17 January 2016).

circle leading to organizational transformation. On the assembly line, this meant workers were not merely manufacturing cogs, but also sources of inspiration for greater efficiency. This virtuous circle is most often described in the following five steps:

- **Identify value:** from the customer perspective, identify and define the term value
- **Map the value stream:** for every good, identify all the necessary steps with the goal of eliminating all waste and focusing only on those steps that provide value
- **Establish flow:** ensure that the production steps occur in a tight temporal sequence so that a reliably consistent flow is achieved
- **Create pull:** allow customers to pull value from each activity
- **Seek perfection:** revisit the cycle with the goal of continuous self-improvement.[11]

Inefficiencies were identified in seven "wastes" located with people (in motion and in waiting), with process (in over production, in over processing, in defects, and in high inventories) and with products (in transportation). The Shingo model's industrial and manufacturing success spawned the "Lean Six Sigma" community that has tried to export his approach more broadly across the government and business communities.

Leading Change

John Kotter's "Eight Steps to Leading Change" is a clear favorite within the organizational change community, probably precisely because it addresses the issue and its inherent challenges directly.[12] His eight steps are as follows:

- **Create urgency:** successful change needs a clear and present danger to motivate and build a following committed to the necessity for change. Kotter argues that at least 75% of a company's management needs to support the change for it to succeed.
- **Form a guiding coalition:** change is not managed, it must be led. This must involve a broad coalition involving key people and leaders working as a single minded team to create the sense of urgency and build momentum for change.

[11] See http://www.lean.org/WhatsLean/Principles.cfm (accessed 27 January 2016).
[12] John P. Kotter, *Leading Change*, (Boston: Harvard Business School Press,1996).

- **Develop a vision and strategy:** all successful change needs a focus, a vision of the future that can be effectively communicated in a five-minute speech that gets to the heart of the matter.

- **Communicating the vision:** this is not a matter of one effective five-minute speech, or a single email, or an all-hands meeting and leadership speech. Rather, communication is a near ceaseless activity in which in their words and deeds, in formal and informal ways, in large group meetings and in random one on ones, leadership communicates and espouse the principles of change.

- **Enable action and remove obstacles:** this represents a shift in the change continuum from planning and communicating to doing and taking action. Supportive structures are created, obstacles are removed, and people are encouraged to think and act in new ways that are consistent with the change.

- **Generate short term wins:** understanding the importance of attainable goals managers need to highlight wins and reward achievements as examples of the new vision. This is important both because success will breed success and to counter critics.

- **Hold the gains and build on change:** early wins are important, but avoid declaring victory prematurely. An early and premature declaration of victory will stop the momentum for change. Instead, change has to be intensified and momentum increased more broadly and deeply throughout and across the organization.

- **Anchor changes in the culture:** Ultimately the change has to be embedded in the culture to the point where it is taken for granted and discussed simply as "the way we do things."

None of this is regarded as easy, and by his research 70% of all corporate change initiatives ultimately fail. This fact is meant to underscore the immense difficulty of the undertaking and encourage serious dedication to the task and his methodology. In the Harvard Business Review article preceding the book's publication, Kotter warns:

> The most general lesson to be learned from the more successful cases is that the change process goes through a series of phases that, in total, usually require a considerable length of time. Skipping steps creates only the illusion of speed and never produces a satisfying result. A second very general lesson is that critical mistakes in any of the phases can have a devastating impact, slowing momentum and negating hard-won gains. Perhaps because we have relatively

> little experience in renewing organizations, even very capable people often make at least one big error.[13]

Doubtless his somber reflection on successful organizational change is merited. However, anyone applying his method and heeding his warning that each step must be applied sequentially, given considerable time, and provided no defined criteria for advancement to the next stage, can be forgiven for wondering how is it possible that even 30% of corporate change initiatives succeeded or concluding that 70% failed precisely because they were rigidly cast in an ill-adaptive sequential model.[14]

Nevertheless, Kotter's model is very popular both in the business literature and among military scholars. A Google Scholar query of the terms “Harvard Business Review” and the four different organizational change models being reviewed (“balanced scorecard,” “lean model,” “leading change,” and “polarity management”) resulted in:

- Balanced Scorecard: 31,500 hits
- Lean Model: 1,330 hits
- Leading Change: 9,880 hits
- Polarity Management: 166 hits

However, arguing against this data, a scan of the Balanced Scorecard results revealed most of these results were for this method's performance management vice change management

[13] John P. Kotter, (1995) "Leading Change: Why Transformations Fail," *Harvard Business Review*, 1995 (March-April 1995), 71-79.

[14] At least one organizational change colleague is also a critic on this point. Leandro Herrero, speaker-author-consultant-and architect of organizations writes: “I challenge anybody to explain to me how you successfully implement this model today, in this sequence, in any organization. The linear, sequential world has gone.” http://leandroherrero.com/john-kotters-8-step-change-management-model-is-the-best-change-model-of-the-last-century-why-this-is-still-alive-in-2014-is-beyond-me/ (accessed 27 January 2015).

application. Adjusting this same methodology and substituting "war college" in place of "harvard business review," the results are decidedly in favor of Leading Change.

- Balanced Scorecard: 172 hits
- Lean Model: 3 hits
- Leading Change: 515 hits
- Polarity Management: 3 hits.

The military scholarly literature favoring Leading Change encompasses all Services, though the Army leads with 465, the Air Force follows with 92, and the Navy with 6.[15] One typical example of the favorable military embrace of Kotter's model can be found in "Leading Change: A Model for the Transformation Initiatives in Today's US Army"[16] that concluded: "The case study analyses indicated that the Leading Change model has significant application potential for military organizations, and reinforced many of the model's key points regarding the transformation process." But as one would expect, the military review of Kotter's leading change is not without its critics. Writing for the US Army War College, Dr. Thomas P. Galvin and LtCol Lance D. Clark concede *Leading Change* "is used widely across senior service colleges" but also warn:

> Unfortunately, this has not necessarily improved the U.S. military's capabilities for implementing change. As graduates leave senior service college and enter the military bureaucracy at senior levels, they often enter environments where Kotter's eight steps are difficult to apply and can even be counterproductive…Unfortunately for new senior leaders, Kotter's model is

[15] These results were achieved on 13 October 2015 with a further refinement to the Google Scholar search variously substituting "army war college," "air war college," and "navy war college" for the more generic "war college" term against both "leading change" and "balanced scorecard." Due to unknown Google Scholar search vagaries, the change in the search parameters from "war college" to the Service specific war colleges produced a result that did not add up to the expected value of 515.

[16] Maj Richard S. Jeffress "*Leading Change*: A Model for the Transformation Initiatives in Today's US Army" Fort Leavenworth, KS: US Army Command and General Staff College, 2003. www.dtic.mil/cgi-bin/GetTRDoc?AD=ADA416930 (accessed 20 October 2015).

insufficient to address many challenges specific to change efforts in the U.S. military.[17]

Leading Change Case Study

Following up on Kotter International's own Leading Change advertising validates this dour assessment. From the Kotter International website, one advertised success story is from the US military, specifically Army aviation's effort to increase employee productivity.[18] The US Army Aviation Center of Excellence at Ft. Rucker, Alabama, partnered with Kotter International to increase the number of trained pilots and create a more inclusive leadership culture. As framed by Kotter International client story advertising, the challenge was "to update a set of processes that had been in place for many years, and would require thousands of people to change their behaviour." With Kotter International's assistance, goals were met and the results were so overwhelmingly successful that Kotter International encourages everyone to "Read more about how change has been instilled into the culture, and the team is still leading change today at http://www.rucker.army.mil/leadingchange/." However, rather than validating Kotter's Leading Change goal of institutionalizing change at Ft. Rucker, the website testifies to the shortcomings of this approach. After visiting the Leading Change website, it is abundantly clear the transformation was short lived; it has all the hallmarks of an unsustained initiative that was not institutionalized and abandoned during the first leadership change.[19] The US Army Aviation Center of Excellence at Ft. Rucker is not a Leading Change unequivocal success.

[17] Galvin and Clark, 1. From this assessment the authors devote themselves to offering "alternative perspectives to leading change in the U.S. military context." None of their alternative perspectives raise polarities as issues that cannot be solved and nowhere do they mention polarity management as an alternative management model.

[18] http://www.kotterinternational.com/research/what-we-do/case-studies/increasing-employee-productivity/ (accessed 5 December 2015).

[19] For example, the Leading Change Team's Commander's Initiative Group (CIG) stood up in October 2010. The "Current Initiatives" page notes that in April 2011, the CIG launched an Aviation Knowledge Network page "with more than 250 links to Aviation specific topics and also links to our Aviation Warfighter's Forum, the

Why are even advertised change successes, unsuccessful? In part the problem lies with Kotter's own model, where the sum of the eight parts is disastrously less than the whole. Whether any organization could devote the recommended two and half-to-three years to such a rigidly sequential process, even in 1996, seems dubious.[20] Today, certainly not. The problem is not that only 30% of those who have tried know how to implement Kotter's model or have the patience to implement it properly. The fundamental problem is how one thinks about organizational change: what is the nature of the issue one is trying to resolve, and is it even a problem?

Branch's professional forum." In February, the O6 deputy commander spoke about leading change in a 3+ minute YouTube video in which he encouraged everyone "to get involved and put real and meaningful changes in place." However, most telling of the Leading Change Team's failure to institutionalize is the news archive page containing exactly four stories. Three reference US Army Aviation Center of Excellence MG Crutchfield's patronage of the Leading Change effort. The most recent—and last—dates from August 16, 2012, on the topic of MG Crutchfield introducing the Leading Change Team to his successor MG Kevin Mangum. There was one subsequent change of command in March 2014, when MG Mangum turned over to MG Mike Lundy, but no subsequent Leading Change updates. http://www.rucker.army.mil/leadingchange/ (accessed 6 December 2015).

[20] For the "two and a half-to-three year" reference, see: http://www.gsa.gov/portal/mediaId/203435/fileName/Guiding_Principles_for_Leading_Change_Guide_vjune2012.action (accessed 6 December 2015). Kotter's book *Leading Change* offers no timeline or metric for success for any of the eight steps, just the warning not to skip or speed through them.

Chapter Six
Exploring and Applying Polarity Management

Polarity management is most insightful precisely to this last question: "what is the nature of the issue one is trying to resolve, and is it even a problem?" As stated in the introduction, change is fundamental to reality. In response to this intrinsic constant, the impulse to commit to organizational change is also strong. Polarity management offers a cautionary restraint to this impulse and urges deeper reflection and understanding of the issue. Rather than accepting problem solving and organizational change as the default response, consider first whether the issue is in fact a polarity requiring management, not resolution. In distinguishing between problems to solve and polarities to manage, Johnson asks two questions: is the issue ongoing? Are there two values or poles which are interdependent?[1]

Regarding the first question, "Is the issue ongoing?", if the answer is yes, it is a polarity; if the answer is no, it is a problem. However, do not allow the yes or no simplicity fool you. Understanding the true nature of a complex system, and correctly judging if an issue is ongoing or not, can be difficult. A facile understanding of a complex system can result in either a false yes or a false no. The second question—"Are there two values or poles which are interdependent?"—is critical because interdependence is the key to a polarity. Consistent with the paradox theory definition, in a polarity the oppositional poles are simultaneously present and operating. Certain problems can be thought of as having oppositional poles or contradictory elements, but unless those oppositional poles are interdependent, they are problems and not polarities. Asking these questions will lead to deeper understanding and help categorize an issue

[1] Johnson (1992), 81-96. The discussion in Chapter Six, "A Problem to Solve or a Polarity to Manage," identifies the questions and discusses the three problem typologies and characteristics of a polarity.

as belonging to either one of four typologies: either/or decisions, mystery problems, continuum problems, and polarities.

Either/Or Problems

Either/Or decisions are the simplest problems to solve. They have a definite and conclusive resolution and there is no interdependence with other issues. This is not to say that either/or decisions are all easy to make. Some, such as where to go to lunch, can be both easy and simple.

Others, such as what job to accept out of college, or whether or not to drop the atomic bombs on Japan, are very difficult to make because of their gravity and consequences, but are nevertheless simple in that they have conclusive resolutions that are not interdependent with polar opposites. The decision to take one job over another or drop the atomic bomb does not then necessitate managing the ongoing issue of the job not taken or the atomic bomb not dropped. These decisions have consequences, but the decisional opposites do not have consequences or issues requiring continued management.

Mystery Problems

Mystery problems are difficult only in that they require resources and intellect to achieve understanding. Once understanding is achieved, the problem has a definite and conclusive resolution and there is no interdependence with other issues. Both simple detective mysteries and more difficult problems, such as curing cancer or understanding the nature of matter, require the discovery or creation of knowledge. Logic, science, and experimentation are key to overcoming mystery problems, though some mysteries are stubbornly difficult to resolve. Nevertheless, the creation and discovery of knowledge, the invention of solutions, or running of experiments will provide resolution, and as a result human knowledge will expand.

Continuum Problems

Continuum problems are often confused as polarities because they can easily be conceived as ongoing issues and constructed as polar opposites. Engineering problems are good examples of continuum problems; they appear as a polarity in that new materials, design, and construction continue year after year giving them the appearance of an ongoing issue in contrast to either/or decisions and mystery problems. Furthermore, compromises are achieved between oppositional values. For example, the engineering compromises between passenger safety (heavy vehicles) and fuel economy (light vehicles). However, in response to Johnson's first question, whether this is an ongoing issue, the answer is at best only a qualified yes. A delivered solution represents a possible resolution at that time pending another design and engineering effort. The response to Johnson's second question, whether the two poles are interdependent, provides a more decisive distinction: there is no dynamic interdependence between the oppositional values that bound the engineering problem. Rather than representing a dynamic interdependence, the oppositional values are simply design and engineering choices. They are more accurately thought of as a series of either/or problems collectively pursued to optimize a desired condition along a continuum. Such problems looks like paradoxes, but they are not.[2]

Polarities

Polarities represent the final set of issues and they are distinctively different from the above problems because they are both ongoing and involve interdependent oppositional poles.

[2] Returning to Chapter Two footnote 9, Buenger and Daft criticize their colleagues precisely for misidentifying a continuum problem as a paradox. Their colleagues wrote about the paradoxical approach inherent in just-in-time manufacturing principles. Buenger and Daft disagreed that just-in-time manufacturing principles represented a paradox. Their colleagues identified "...a set of conditions that nurtures an atmosphere of creative thinking and promotes the questioning of assumptions. It is that characteristic of the just-in-time manufacturing philosophy, rather than an innate ability to deal with paradox, that leads to the observed improvements in performance and the creation of excellence." Buenger and Daft, 197.

These are true paradoxes and, as such, they defy resolution and cannot be solved, but only managed. Whereas all problems—even mystery and continuum problems—lend themselves to either/or frameworks, polarities require both/and frameworks. Applying an either/or framework to a polarity will ultimately worsen the situation. Previous polarity examples cited in this paper include inhaling and exhaling as oppositional poles to breathing; other popular business literature polarity references include individual/team effort, centralized/decentralized decision making, and plan/action. Paradoxes and polarities are literally everywhere, but so too are problems and Barry Johnson warns that problems should not be confused as polarities any more than polarities should be confused as problems. "Either/Or thinking and Both/And thinking is itself a polarity to manage. We need both. Either alone will be dysfunctional. This is not about the rejection of either/or thinking. The rejection of either/or thinking is an example of either/or thinking, alone."[3] The key to distinguishing between problems and polarities is in deciding how to frame the issue.

[3] Johnson (1998), 17.

Chapter Seven
The Decision to Drop the Atomic Bomb and Nuclear Strategy

Examining the decision to drop the atomic bombs on Hiroshima and Nagasaki will highlight the importance of issue framing by demonstrating how a single issue can be made to fit in multiple problem typologies. Examining the nuclear strategy that evolved out of that decision will again highlight the importance of issue framing by demonstrating how a single issue can also be understood as a problem or polarity and transition from one to the other. Where an issue fits depends entirely upon how one frames the issue.

As an Either/Or Problem

The decision to drop the atomic bomb fits easily in an either/or problem framework; having developed the weapon, the US now needed to decide either to use it on Japan or not. After mid-July 1945, the justifications for its use greatly exceeded arguments against using it. Weapons were developed for the purpose of employing them against one's enemies and the atomic bomb had been an especially expensive weapon to develop: nearly $2 billion dollars.[1] Framed as a justification of purpose issue, this was an easy either/or decision to make. Framed as a moral issue, this still simple binary decision might have been more difficult, but the power and unique devastation of the atomic bomb were not yet fully known.

As a Mystery Problem

The decision to drop the atomic bomb can also be framed as resolution to various mysteries regarding their use. Would it force Japan's surrender and obviate an invasion? What would the weapon's affect be on Stalin and the Soviet Union, a relationship that with the

[1] $1,889,604,000. See Nathan Donohue, "Understanding the Decision to Drop the Bomb on Hiroshima and Nagasaki," Center for Strategic and International Studies, 10 Aug 2012, at http://csis.org/blog/understanding-decision-drop-bomb-hiroshima-and-nagasaki (accessed 8 January 2016).

inevitability of victory over Germany had already deteriorated into a competition for territorial conquest and political influence. Could Japan's surrender be effected before the Soviet Union declared war and entered Manchuria? Would the bomb demonstrate American superiority over the Soviet Union? Such questions framed the decision to drop the atomic bomb as policy mysteries that could only be resolved by running the experiment and dropping the bomb. Deciding not to drop the bomb would have resulted in taking other actions with their own consequences, in which case the question of using the bomb would have remained a mystery, the province of conjecture and not fact. This is the nature of such historical counterfactual mysteries; the experiment can only be run once.

There was also the mystery of the weapon's destructiveness. True, the 16 July 1945 Trinity test yielded an explosive energy equivalent to 20,000 kilotons and so quantified its destructiveness, but acknowledging a fact is not the same as comprehending a fact. While at Potsdam, Truman wrote in his diary on 25 July the details of the earlier Trinity test: "We have discovered the most terrible bomb in the history of the world. It may be the fire destruction prophesied." Yet days later after approving the Japanese cities to be targeted he wrote, "I have told Sec. of War . . . [Henry] Stimson to use it so that military objectives and soldiers and sailors are the target and not women and children."[2] Whether this disconnect between what he knew of the bomb's power, the selected targets of Hiroshima and Nagasaki, and his direction to avoid civilian casualties represented a disingenuous journal entry for posterity's sake, willful self-deception to ease a troubled conscience, or incomprehension of the weapons' true destructive magnitude are subject to opinion not proof. What is true is that no one—not even the physicists

[2] Barton J. Bernstein, "The Atomic Bombings Reconsidered," *Foreign Affairs* January/February 1995. https://www.foreignaffairs.org/articles/asia/1995-01-01/atomic-bombings-reconsidered (accessed 8 January 2016).

who ushered in the atomic age—comprehended the deadly effects of radiation. Reporting during a May 1945 Target Committee meeting, J. Robert Oppenheimer acknowledged the weapon's radioactivity, but was unclear on how the radioactive cloud would disperse and the expected radiation casualties. Among the scientists, blast effects were better understood than radiation.[3] Framed as an inquiry into the effects of an atomic bomb on infrastructure and an unprotected populace, certain knowledge could only be gained by running the experiment. As a consequence, human knowledge expanded and we now better understand the danger of radiation disease.

As a Continuum Problem

The single decision to drop the atomic bomb is difficult to frame as a continuum. Only years later, with the onset of the Cold War and proliferation of nuclear weapons, could the issue that began with the decision to drop atomic bombs on Hiroshima and Nagasaki begin to take shape as a continuum problem. Given the destructiveness of nuclear weapons, what strategy could achieve victory? How could nuclear weapons be optimized to provide victory? Led by Herman Kahn, nuclear war theorists in the later 1950s began considering the idea of fighting and winning a limited nuclear exchange.[4] Applying game theory principles, theorists

[3] Ibid., "The bomb, set to explode in the air, would deposit 'a large fraction of either the initial active material or the radioactive products in the immediate vicinity of the target; but the radiation . . .will, of course, have an effect on exposed personnel in the target area.' It was unclear, he acknowledged, what would happen to most of the radioactive material: it could stay for hours as a cloud above the place of detonation or, if the bomb exploded during rain or in high humidity and thus caused rain, 'most of the active material will be brought down in the vicinity of the target area.' Oppenheimer's report left unclear whether a substantial proportion or only a small fraction of the population might die from radiation. So far as the skimpy records reveal, no member of the Target Committee chose to dwell on this matter. They probably assumed that the bomb blast would claim most of its victims before the radiation could do its deadly work."

[4] Herman Kahn, *On Thermonuclear War*, (Princeton, NJ: Princeton University Press, 1960). Both credited and reviled for his willingness to think through the logic of nuclear war, his work can be summarized in this quote: "For some years I have spent my time on exactly these questions—both in thinking about ways to prevent war, and in thinking about how to fight, survive, and terminate a war, should it occur." See: http://www.brainyquote.com/quotes/quotes/h/hermankahn224144.html#JSz4KH9eVBuE36BK.99 (accessed 31 January 2016).

challenged existing assumptions that Eisenhower's strategy of a massive first-strike nuclear retaliation to any Soviet aggression preserved US security and deterred provocations. On the contrary, they argued US nuclear superiority was vulnerable to a surprise first strike and that conventional force inferiority invited provocations to test US credibility. Key to security was not the uncertain threat of a massive first strike, but a survivable second-strike capability; the ability to absorb a surprise strike and retaliate, with the ultimate goal of winning.[5]

As an ongoing evolution in nuclear strategy that was yet another phase in a Cold War that showed no sign of abating, the issue could be confused as a polarity. In addition, the fact that the US and Soviet Union were vulnerable to the other's nuclear weapons reinforced the appearance of oppositional values and paradox. But this was a continuum problem—not a polarity. For the US strategists, winning was the goal; the issue was not ongoing because victory by one side over the other would resolve and end the fight. Winning also meant that the oppositional values were not interdependent because policies and decisions were taken with the express purpose of creating advantage and enhancing victory. Framed as US-Soviet nuclear competition, there were no oppositional value downsides to be managed.

As a Polarity

With the further evolution of US-Soviet nuclear relations to the point of mutual assured destruction, the issue meets the definition of a polarity framed as stability and deterrence. In this framework, actions were interdependent as any attempt to gain a nuclear strike or war winning advantage would create instability and raise the risk of a global thermonuclear war. This

[5] Albert Wohlstetter, "The Delicate Balance of Terror," *Foreign Affairs*, 37, no. 2 (January 1959): 213. "To deter an attack means being able to strike back in spite of it. In other words, a capability to strike second."

framework incentivized US-Soviet agreement to several binding treaties all designed to eliminate surprise and strengthen stability.[6] Simultaneously, both powers also continued to modernize their nuclear weapons arsenal and preserve their capability to destroy the other by means not subject to treaty.

Problem and Polarity Conclusions

Aside from highlighting the importance of framing, this historical vignette highlights two other significant points regarding the nature of change from man-made inventions and purpose. At least initially, inventions are always problems, not polarities, because all polarities involve a level of complexity that does not immediately encumber a new invention. A new invention requires time for information regarding its use and potential to proliferate and become widely known before it can become integrated into man's social sphere. In this respect, the decision to drop the atomic bomb was nearly unavoidable. Any new invention faces a social mystery problem regarding its potential and how it will shape social interaction. Only after passing through this stage can an invention become sufficiently integrated to the point where it can leverage a level of complexity required to support a polarity.

Regarding purpose, it is important to remember that problems are solved and polarities are managed. Where an invention fits in this dichotomy depends entirely on how it is framed. As the nuclear strategy example illustrates, nuclear weapons evolved from a continuum problem that considered how nuclear weapons could be used to win a war into a polarity that considered

[6] Signed treaties include: the Limited Test Ban Treaty (signed October 1963), the Non-Proliferation Treaty (signed July 1968), the Anti-Ballistic Missile Treaty (signed May 1972 and revoked in June 2002 with US withdrawal), the Threshold Test Ban Treaty (signed July 1974), the Strategic Arms Limitation Talks (SALT I signed May 1972 and SALT II signed June 1979), the Intermediate-Range Nuclear Forces Treaty (signed December 1987), and the Strategic Arms Reduction Talks (signed July 1991, then lapsed and New START signed April 2010). Current US-Russian nuclear strategy appears to be evolving back towards continuum problem framing given pressures to develop precision low yield tactical nuclear weapons. Such weapons blur the strategic nuclear polarity line in favor of a return to pursuing war winning tactical nuclear strategies.

how nuclear weapons could be used to preserve the status quo and enhance deterrence. Purpose shifted from winning to detente, and arguably back to winning, under Reagan's Strategic Defense Initiative and the subsequent decision to withdraw from the antiballistic missile treaty. Purpose drives framing, which determines whether problems are solved or issues are managed.

Chapter Eight
Countering Terrorism

This next vignette builds upon the importance of framing discussion to explore how problems and polarities can simultaneously exist within a larger more complex framework that involves multiple levels of analysis. Most will agree terrorism is an issue to be solved, yet the issue exists within institutional and social frameworks that are also polarities to be managed. Whether the issue is a problem or polarity depends upon the level of analysis. To show this problem and polarity simultaneity, the thesis draws inspiration from Kenneth Waltz's *Man, the State, and War* analysis of conflict.[1] This vignette considers the perspective of state authority targeting the individual terrorist, the terrorist network, and the phenomenon of terrorism.

Individual Level Problems

When countering terrorism at the indivisual level, the issue is a problem. With individuals or small cells of terrorists, the state through means of capture or kill is attempting to solve the problem created by specific individuals. At this level, terrorism is a simple targeting issue requiring detailed *who*, *when*, and *where* answers. Arriving at those answers can be exceedingly difficult, require enormous resources, and its own network of systems and special considerations. Nevertheless, assuming those resources and networks are in place, the individual-level terrorist is an either/or problem: *either* the individual is removed now *or* later if higher priority targets are available or insufficient resources exist. A domestic law enforcement setting can impose other special considerations (such as legal warrants, or questions of sufficient

[1] Kenneth N. Waltz, *Man, the State, and War: A Theoretical Analysis* (New York: Columbia University Press, 2001).

evidence), but the individual-level terrorist is an either/or problem, not a mystery or continuum problem, and certainly not a polarity.

Network Level Problems...But with Caveats

At this analytic level, countering terrorism is generally a problem, but additional complexities may temporarily or permanently drive the issue towards a polarity. For example, a network represents more than a multiplicity problem of an individual or cell. An entire network is sufficiently large and complex that it cannot be eliminated in a single strike or operation. In addition to vastly more numerous *who, when, where* questions, the *how* question is introduced. Answering *how* is key to understanding system operations. *How* seeks to understand interactions that drive the system between and among its individual component parts. With this in mind, attempts to gain system-level understanding results in the creation of an information vice action polarity, to learn and better understand the roles of individuals. If individual terrorists within the network are known, but the more substantive *how* relationships between and among them are not (e.g., *how* do they communicate and fund themselves, *how* do they divide responsibilities and leadership), a polarity emerges between allowing individuals to operate to get information on the network or taking action to remove them. This polarity, between gaining network understanding and taking action, is generally temporary. Over time once sufficient information and network understanding is gained, then the issue is reframed from a polarity to a problem and actions are usually taken to eliminate the network. Moreover at this analytic level, networks are continuum problems as the state seeks to optimize limited resources in quickly, efficiently, and effectively eliminating the terrorist network.

Actions are usually taken to eliminate the network, but circumstances can sometimes drive a different outcome. For example, if a terrorist network adapts to state pressure and adopts

new tactics, the state may temporarily shift back to a polarity dynamic to regain a better understanding. Another unique driver could be political circumstances, where a network transitions from a terrorist to a political organization. Such circumstances could lock the network into a polarity dynamic. Operations against the network may still occur, but that decision becomes an interdependent issue between competing goals of *defeating* and *transitioning* the network. For example, the US treats al-Qaida as a terrorist network problem to be eliminated, but the Afghan government treats the Taliban, or the UK treats the IRA, as terrorist network polarities to be transitioned to political organizations.

Phenomenon Level Polarity

At this level of analysis, terrorism is a polarity in which state coercive (capture or kill) actions against terrorists and networks represent one pole and a variety of other state soft power actions (deradicalization intervention, promoting education, creating economic opportunities, and publicizing counter narrative information and values) represent initiatives against the conditions that create terrorism. This is a dynamic because there are interdependencies between how the state conducts immediate coercive actions against terrorists and simultaneously promotes soft power actions that sets long-term conditions to defeat the phenomenon. Security actions against terrorists need to be carefully managed to ensure they are consistent with the opposite polarity that promotes the values of respect, tolerance, and law and order as a counternarrative to delegitimize the terrorists. Overseeing the dynamic in the other direction, promoting soft power actions need to be managed consistent with the opposite polarity that promotes the state's legitimacy to use coercive force.

Problem and Polarity Conclusions

From this analysis, several significant conclusions emerge. As a general tendency, broadly framed social issues tilt towards polarity—not problems. The emergence of terrorism as a social phenomenon and polarity to be managed means the issue will always defy single simple problem solving applications. There are no and there will never be any quick and easy solutions. Rather, terrorism is a complex social issue that requires careful system management to mitigate. This truth also serves as a reminder and warning that terrorism will never be "solved." This also explains why terrorism has arisen among different cultures throughout history.

Following from this conclusion, it is easy to identify the critical tension between coercive actions against terrorists and terrorist networks and soft power actions to create conditions antithetical to terrorism. A notable manifestation of this tension is the idea that tactical actions have strategic effects, either positive or negative. In successfully managing that tension, the state is affirming to the populace its legitimacy to exercise both coercion and create opportunity in opposition to the terrorist's counterclaim. Positive tactical effects reinforce the state's strategic legitimacy, but negative tactical effects undermine the state's strategic narrative. Managing that tension is especially challenging because there is a further complicating time differential between present-tense actions against terrorists and setting future-tense conditions against the broader phenomenon. Specifically, the nature of the time differential problem magnifies the negative effect of tactical mistakes and undervalues the positive effect of tactical deeds in the present moment.

From this coercive vice soft power tension, three concluding thoughts. The first thought is the critical importance of understanding the fundamental nature of an issue. Treating polarities as problems and applying single dimension solutions will utterly and catastrophically

fail. From the terrorism vignette, it is easy to see how only applying coercive force would support the terrorists' narrative and exacerbate future conditions. Conversely, only promoting soft power initiatives would also fail by ceding the use of force and violence to the terrorists. At the phenomenon level of analysis, implementation is difficult and there is no guarantee of success, but both coercive force and soft power initiatives are required to succeed.[2] The second thought, related to the first, is the simultaneity of both polarity and problem depending on the analytic level at which one is operating. While dynamic systems cannot be treated as problems, actions below the system level may require a problem-oriented approach. A keen awareness of where and at what level the issue is focused or operating is necessary and key to understanding the fundamental nature of an issue.

The third thought is the importance and art of framing and sometimes reframing an issue either as a means of adapting to change and gaining a greater understanding or as a means of fundamentally reenvisioning an outcome. The terrorism vignette provided an example where temporarily treating a problem as a polarity could be beneficial and the nuclear weapons discussion demonstrated how US strategists reframed and fundamentally shifted thinking on nuclear weapons. Without context and specific detail it is impossible to portray the innumerable

[2] One individual who has successfully defeated terrorism is KPS Gill, who served as the Director General of Police in the Indian state of Punjab. Between 1984 and 1995, the Sikh extremist Khalistan movement conducted a wave of terrorism that started when two Sikh body guards assassinated PM Indira Gandhi and peaked in 1991 with 5,000 deaths. That same year, KPS Gill was appointed Director General of Police, a position he held until retiring in 1995, by which time the terrorist group was defeated. In a 2012 interview, Gill provided the following response to the question "why was the insurgency ultimately defeated?" that succinctly captures the twin poles of a successful counterterrorism campaign. "The insurgency was defeated principally by the judicious, narrowly targeted and effective use of force, under a clear political mandate. As the Security Forces recovered ground, political activity quickly reasserted itself, elections at various level, down to the village self-government institutions (Panchayats), were held, and representative government was restored." See Sergei DeSilva-Ranasinghe, "Counterinsurgency in India: Lessons from the Punjabi Insurgency—Interview" *Euarasia Review* (24 December 2012), http://www.eurasiareview.com/24122012-counterinsurgency-in-india-lessons-from-the-punjabi-insurgency-interview/ (accessed 18 January 2016).

complexities inherent in implementing a polarity strategy, but the idea of periodically reframing hints at the potential opportunities to diminish the difficulties of implementation.

Chapter Nine
Recommendation and Conclusion

This paper argues that today's complex world requires a shift in thinking and management tools to prevail and win tomorrow; that easy "either/or" problems and solutions are a distant, faded legacy of a less complex world where a problem-oriented approach was sufficient. Today's security environment requires a new approach. This point is frequently emphasized by senior military leaders and in strategic documents. Writing in *Foreign Affairs*, former Chairman of the Joint Chiefs of Staff General Dempsey wrote, "The 21st century operating environment brings new challenges **and requires new thinking.**" Elaborating on this idea in the context of the joint force's strategic direction, he went on to explain that "...most of the required changes will be in the realm of ideas – on developing shared concepts, policies, doctrine, and education that make the force more interoperable and effective at a lower cost."[1] The current Chairman, General Dunford, reiterated this theme, highlighting three priorities for the force, one of which is to "develop leaders for Joint Forces next."[2]

The idea of and emphasis upon "new thinking," phrased as innovation and adaptation, is also pervasive and firmly embedded in national, defense, and military strategic documents. The January 2012 Defense Strategic Guidance mentioned innovation or adaptation five times in its eight pages.[3] The March 2014 Quadrennial Defense Defense Review (79 pp) used innovation or

[1] GEN Martin E. Dempsey, "The Future of Joint Operations: Real Cooperation for Real Threats" *Foreign Affairs* May/June 2013 Issue. Emphasis added.

[2] General Joseph F. Dunford Jr., "Message to the Joint Force" 2 Oct 2015 letter. http://www.jcs.mil/portals/36/Documents/151002_CJCS_Message_to_the_Joint_Force.pdf (accessed 20 January 2016).

[3] "Sustaining U.S. Global Leadership" Jan 2012. http://archive.defense.gov/news/Defense_Strategic_Guidance.pdf (accessed 20 January 2016). The word "innovative" appears twice, "innovation" also twice, and "adaptability" once.

adaptation forty-three times.[4] The June 2015 National Military Strategy (17 pp) used those terms twenty-one times, more than one reference per page.[5] Given the timing of General Dempsey's tenure as Chairman (1 October 2011 to 25 September 2015) and the Chairman's authority over the document, the National Military Strategy more than any other document reflects General Dempsey's influence and focus on innovation and adaptation. This document includes a heading "People and the Profession of Arms: Improving Upon Our Greatest Advantage" with a text box titled "Fostering Innovation" that includes a "Producing creative, adaptive leaders" bullet.[6]

The White House shares General Dempsey's focus on new thinking and the importance of innovation and adaptation. The February 2015 National Security Strategy used innovation or adaptation eighteen times over its twenty-nine pages.[7] This is a sharp contrast to the September 2002 National Security Strategy that used the terms just six times in thirty one pages, despite being published at the height of both the Army's and the Defense Department's push for "transformation."[8]

Yet paradox theory is not taught in today's military academies and schools and is missing from the literature. The need for creative and critical thinking are emphasized, but the

[4] "Quadrennial Defense Review 2014" http://archive.defense.gov/pubs/2014_Quadrennial_Defense_Review.pdf (accessed 20 January 2016). The word "innovative" appears sixteen times, "innovation" fourteen, "innovate" three, "adapt" six, "adaptation" twice, and "adaptability" twice.

[5] "The National Military Strategy of the United States of America 2015" http://www.jcs.mil/Portals/36/Documents/Publications/2015_National_Military_Strategy.pdf (accessed 20 January 2016). The word "innovative" appears seven times, "innovation" six, "innovate" once, "adapt" six, and "adaptability" once.

[6] Ibid., 13-14.

[7] "The National Security Strategy" February 2015 https://www.whitehouse.gov/sites/default/files/docs/2015_national_security_strategy.pdf (accessed 20 January 2016). The word "innovation" appears eleven times, "innovative" twice, "innovate" once, and "adapt" four.

[8] "The National Security Strategy of the United States of America" September 2002 http://www.state.gov/documents/organization/63562.pdf (accessed 20 January 2016). The words "innovation" and "adapt" appear three times each.

need to think deeply about paradox, how two opposites can exist simultaneously, is not discussed. Examples abound. A February 2013 US Army Research Institute of the Behavioral and Social Sciences study commissioned to examine how the Army can "assess, develop, and retain, strategic thinkers" identified many different ways of thinking, but did not consider or address paradox theory.[9] Dr. Richard Meinhart, a professor at the US Army War College with research interests in strategic thinking and strategic leadership, argued in an unpublished paper that "senior leaders and those that advise senior leaders need to holistically integrate the following five ways to think: Creative Thinking, Critical Thinking, Systems Thinking, Thinking in Time, and Ethical Thinking."[10] Retired Colonel Charles Allen, writing as the US Army War College's Professor of Leadership and Cultural Studies, states creative thinking "facilitate[s] the understanding of the interaction that occurs between the organization and its environment" and that creativity is "the ability to develop new ideas and concepts that are effective in resolving situation."[11] Certainly strategic thinkers should have these skills, but at no point is paradox mentioned as a perspective capable of achieving comprehensive understanding of deep complexity. As argued earlier, perhaps this is a peculiarly Western thinking bias that favors linear thought over Eastern eternal tensions.[12]

[9] Heather M.K. Wolters, Anna P. Gromes, Ryan M. Hinds, eds., *Exploring Strategic Thinking: Insights to Assess, Develop, and Retain Army Strategic Thinkers* (Fort Belvoir, VA: US Army Research Institute for the Behavioral and Social Sciences, 2013) http://www.carlisle.army.mil/orgs/SSL/dclm/pubs/Developing%20Army%20Strategic%20Thinkers.pdf#page=74 (accessed 22 January 2016).

[10] Meinhart, 1. In the discussion of these different types of thinking, systems thinking is defined as focusing "on the whole and not the parts, sees the inter-relationships and not just the things, sees patterns of change and not snapshots, and finally holistically integrates this together using principles of thought and science." (8). This definition comes closest to paradox theory, but misses the essential element of a paradox in which two contradictory values are simultaneously present and functioning.

[11] COL (Ret.) Charles D. Allen "Creative Thinking for Senior Leaders: An Essay on Creative Thinking for Military Professionals" US Amy War College (2012) http://www.au.af.mil/au/awc/awcgate/army-usawc/allen_creative_thkg_sr_ldrs.pdf (accessed 21 January 2016).

[12] See Chapter Four footnotes 18-19.

Similarly, military academies and schools are also silent on polarity management. This is surprising given the parallels between polarity management and the emphasis placed on operational art and design in the joint operational planning process. As described in Joint Pub 5-0, operational art and design:

> combines art and science to develop products that describe how (ways) the joint force will employ its capabilities (means) to achieve the military ends states (ends). The interaction of operational art and operational design provides a bridge between strategy and tactics, linking national strategic aims to tactical combat and noncombat operations that must be executed to accomplish these aims.[13]

The key points from above as they relate to polarity management are "art and science," "linking national strategic aims to tactical combat and noncombat operations," and "interaction." "Art and science" apply to polarity management in the conceptual manner in which an issue is both understood and framed (the art) and the manner in which the system's tension requirements is managed (the science). "Strategic aims and tactical operations" apply to polarity management as the system's oppositional poles, the twin values that operate simultaneously within any polarity. Finally, "interaction" refers to the polarity's dynamic process moving between the oppositional poles as represented in Chapter Two, Figure One (breathing).

The good news is that polarity management and its core principles are already deeply embedded in joint operational planning. The bad news is that polarity management is not taught, and that operational art and design are struggling for relevance and understanding. Brigadier General (ret.) Huba Wass de Czege argues the military's current practice of operational art fails to sufficiently address the inherent dynamism and complexity of most missions, fails to

[13] US Joint Chiefs of Staff, *Joint Operation Planning*, Joint Publication 5-0 (Washington, DC: US Joint Chiefs of Staff, August 2011), xix.

distinguish between strategy and tactics, fails to recognize strategy and tactics have different decision cycle time scales, and fails to rigorously enforce assumption challenges necessary for adaptive learning and tactical and strategic course corrections.[14]

Broadly speaking, the US Department of Defense does not teach or intentionally practice a conceptual or organizational management tool that provides the framework for differentiating between problems and polarities or that takes a dynamic approach to problem solving. Instead, there is a pervasive either/or bias that dominates joint force and security thinking about change. The preferred focus for organizational change is on linear problem solving moving towards a solution. The continued popularity of John Kotter's *Leading Change* demonstrates this preference.[15] Wass de Czege's four criticisms of operational art's current practice are criticisms of linear thinking forced upon a polarity that needs to be managed as such. Linear thinking and change fails to account for complexity and dynamism,[16] resolve tension between strategy and tactics,[17] recognize that those dimensions experience different

[14] Brigadier General (Ret.) Huba Wass de Czege, "Operational Art: Continually Making Two Kinds of Choices in Harmony While Learning and Adapting," *Army* (September 2011), 48.

[15] As an example of this preference, the most recent edition of the US Army War College's *Strategic Leadership Primer*, contains the following: "Many well written books describe how to lead an organization through *change*. John Kotter's *Leading Change* stands out as one of the best of the genre." Colonel (Ret) Stephen J. Gerras, ed., *Strategic Leadership Primer, 3rd Edition.* (Carlisle, PA: US Army War College Department of Command, Leadership, and Management, 2010), 5.

[16] Wass de Czege, 48. "This means that any theory about how to progress toward any vision of "better" will be wrong entirely or at least partially so at the outset—and it will get worse with time….The trick is making assumptions that are good enough to do some good in the short term and learning when to abandon them in the longer term for new ones that fit the ever evolving situation."

[17] Ibid., 50. "We, in the West, are far better at tactics than strategy. We love the tactics of making concrete progress...Once we make up our minds about some complex and abstract matter, we like to stick to it too much."

decision cycle time scales,[18] and deliberately challenge our understanding.[19] At their root, Wass de Czege's criticisms amount to an organizational failure of adaptive learning—precisely the organizational change attribute General Dempsey urged in moving to "adopting efficient, dynamic processes" as a means of "fostering innovation."[20]

The introduction of operational art and design in JP 5-0 and the formal declaration of an Adaptive Planning and Execution System[21]—initiatives specifically undertaken to ensure adaptive learning and organizational agility—are faltering. The stalled and failing approach to operational art is due to its evolution from "a culture of linear ends, ways, and means planning and problem solving."[22] Our thinking and organizational management are not keeping pace with either our ambitions or our challenges.

The demands of current and future complex security environment require the US to invest significantly greater attention and instruction in deliberately teaching paradox theory and polarity management as the conceptual and organizational tools necessary to move the joint force and the greater security profession closer to adopting efficient, dynamic processes capable of prevailing across the full spectrum of complex security challenges facing America. Unfortunately, two factors militate against this direction. First, military educational institutions, specifically staff and war colleges, are themselves unfamiliar with paradox theory and polarity management and unprepared to start instruction. Second, any inclination to teach these concepts

[18] Ibid., 53. "Fighting a military campaign over an extended period of time requires learning about and adapting to constant changes in the environment and in the human matrix of the situation, and thus constantly renewing and balancing the strategy and tactics of the command, keeping them in balance and in sync….The challenges of learning and adapting within these cycles is very different, and in today's command and staff processes are geared almost exclusively toward minding tactical decision cycles."

[19] Ibid., 53. "The proper purpose of an operational design inquiry is to gain a new strategic perspective, to formulate a new strategy for making progress...For best effect, an operational design inquiry is immersed in a deliberate, strategic decision-making process that attends to periodic reframing."

[20] *National Military Strategy 2015,* 13.

[21] JP 5-0, II-13.

[22] Wass de Czege, 47-48.

is quickly frustrated by a cultural intellectual preference for logically consistent linear thinking and a pervasive, stifling infatuation with John Kotter's *Leading Change* model. Nevertheless, the US military must change the way it thinks about change and move from linear binary either/or thinking and problem solving to considering the inherent contradictions and complexities in today's security environment. Using paradox theory and polarity management provides a fresh perspective and demonstrates an adaptive change in viewing and managing complex security conditions. As one successful exemplar of paradoxical thinking observed, "We cannot solve our problems with the same thinking we used when we created them."[23]

[23] Albert Einstein. See: http://www.brainyquote.com/quotes/quotes/a/alberteins121993.html.

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