On Learning: Metrics Based Systems for Countering Asymmetric Threats

A Monograph

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14. ABSTRACT

The author primarily seeks to identify why a learning organization is critical to defeating asymmetric threats. Secondly, the author will provide evidence supporting that metrics rather than doctrine serves as the cornerstone for learning in the transformational processes currently underway in the U.S. Army. Lastly, the author will offer theoretical metrics for gauging the key indicators of progress in transformation. The intent is to foster discussion. If an organization is going to learn in a complex environment, it must give great thought as to what it measures, but it must capture and measure performance by some form of metric. The metric must be open ended and qualitative, or seek to measure trends from an assortment of indicators. An organization must be aware of the second order effects of its actions and understand that any intervention in a complex system creates positive and negative aftershocks. Finally, an organization must expect to change actions and strategies regularly without associating failure with the change. The system itself is changing so no strategy can sustain success indefinitely, and in attempting to find a working strategy, modifications are inevitable.

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Abstract

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An organization learns only if it measures. This is the simple underlying idea of this monograph. It is important because the current international system, with all of its conflict and tension, requires the U.S. Army to learn a great many things in order to fulfill its mandate of winning the nation's wars. Ignoring this simple idea condemns the nation to repeating previous mistakes in national defense with increasingly dangerous consequences.

While doctrine serves to capture generally accepted methods and ideas that have an expectation of working, by requiring institutional consensus a delay in the development of doctrine is inevitable. The delay allows smaller, more agile organizations to target weaknesses that exist at the operational and strategic level with the commitment of asymmetric assets. The author primarily seeks to identify why a learning organization is critical to defeating asymmetric threats. Secondly, the author will provide evidence supporting that metrics rather than doctrine serves as the cornerstone for learning in the transformational processes currently underway in the U.S. Army. Lastly, the author will offer theoretical metrics for gauging the key indicators of progress in transformation: organizational learning rates. The intent is to foster discussion on not only why the Army should be gauging its learning rates as it aspires towards becoming an agile learning organization, but also how to measure its learning rates.

Why is learning critical? It is critical because transformation is a necessary part of warfare in the 21st Century. The emergence of asymmetric threats, enhanced by global connectivity, makes the need for agile organizational structures preeminent amongst the Department of Defense methods for meeting the national strategies outlined by the president.

Why measure learning? Doctrine cannot be the measure of learning for organizations. It is far too slow and unresponsive in its development to be an effective metric. The system itself changes faster than doctrine can develop consensual solutions. Without the application of metrics to drive the learning process of an organization, it cannot learn within the ever-increasing cycle of environmental changes characteristic of the Information Age.

If an organization is going to learn in a complex environment, it must give great thought as to what it measures, but it must capture and measure performance by some form of metric. The metric must be open ended and qualitative, or seek to measure trends from an assortment of indicators, avoiding the bureaucratic slavery of "tasks, conditions and standards," that in essence only sets limits for organizations. An organization must be aware of the second order effects of its actions and understand that any intervention in a complex system creates positive and negative aftershocks. Finally, an organization must expect to change actions and strategies regularly without necessarily associating an admonition of failure with the change. The system itself is changing so no strategy can sustain success indefinitely, and in attempting to find a working strategy, modifications are inevitable. Change itself, if approached carefully is also a measure of success.

To conclude, metrics drive learning and the cognitive realization by an organization of learning, only comes with measures and checks, otherwise learning remains illusory.

TABLE OF CONTENTS

TABLE OF FIGURES

CHAPTER 1: INTRODUCTION

An organization learns only if it measures. This is the simple underlying idea of this monograph. It is neither new nor sophisticated. It is important however because the current international system, with all of its conflict and tension, requires the U.S. Army to learn a great many things in order to fulfill its mandate of winning the nation's wars. Ignoring this simple idea condemns the nation to repeating previous mistakes in national defense with increasingly dangerous consequences.

Why is learning critical? An organization's flexibility and adaptability is only a part of the continual process of organizational learning. Organizational learning requires the combination of external pressures with institutional consensus to achieve fundamental changes.[1] The external pressures that exist today include not only the impacts of globalization and radical extremism on national security policy, but also the technological implications to warfare brought about by the Information Age and the emergence of asymmetric threats as the primary national security threat. These trends combine to form a dynamic threat environment in which the Army emerges as the primary force provider in accomplishing the objectives set forth in the National Defense Strategy by dissuading, deterring, or defeating threats.[2] In a recent essay, Frank G. Hoffman, a research fellow at the Center for Emerging Threats confirms the need to adapt to the new environment. "Our opponents eagerly learn and adapt rapidly to more efficient modes of killing. We cannot continue to overlook our own vulnerabilities or underestimate the imagination of our enemies."[3] Military history suggests however that the Army is hesitant to accept if not obstinate in resisting change. Past asymmetric challenges like counterinsurgency and stability operations are acute examples of how internal dissent within the operational and institutional Army can stagnate organizational learning. Experiences in Vietnam, Somalia, Haiti, Bosnia, and Iraq suggest institutional resistance towards adaptation. To avoid pitfalls that have historically been detrimental to building organizational consensus, the Army must continue building towards becoming a learning organization, seeking the agility to learn faster over time.

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[1] Richard D. Downie, COL, USA (Ret), *Learning From Conflict: The U.S. Military in Vietnam, El Salvador, and the Drug War* (Westport, CT: Praeger, 1998), 5.

[2] Donald Rumsfeld, *National Defense Strategy of the Unites States of America*, (Washington DC: GPO, March 2005), 7-8.

[3] Frank G. Hoffman, LTC USA, RET, "Complex Irregular Warfare," (Paper presented at the Foreign Policy Research Institute's conference on "The Future of American Military Strategy", Philadelphia, December 5, 2005) 6.[www.fpri.org]

Why measure learning? If learning is critical to the conduct of future military operations in an environment of emerging asymmetric threats and learning is critical to the development of the military organizations that must operate in it, a method for gauging learning would inform both processes. Additionally, congressional oversight of Department of Defense (DOD) activities and the corresponding budgetary control of those activities, suggests a need by DOD to gauge the learning process in its organizations as a means of gauging the effectiveness of transformation overall. The current Quadrennial Defense Review, as a process for evaluating risks in national defense, makes assumptions about the current threat environment. Doctrinal development is a method. COL (Ret) Richard Downie, author of *Learning form Conflict*, and the Director for the Center for Hemispheric Defense Studies at the National Defense University, states that doctrine serves as the "conceptual repository for learning, allowing the military culture to reference common language sets and common operational approaches.[4] Does current Army doctrine offer a methodology for measuring the learning rates of its organizations? Does doctrine develop fast enough to capture the dynamic nature of emerging asymmetric threats? Is there an alternative to doctrinal development for measuring learning rates? This monograph will attempt to address why the Army should measure learning, addressing the questions raised above, if it is to become a learning organization.

Is there a way to measure learning in a complex environment? In a classroom environment, one can measure learning by the administration of tests. An answer key provides the solutions. In natural science, we use scientific laws to govern experimentation and repeat them with slight variations to confirm results. In social science, the conditions are unique for any singular experiment. The test has no answer key and there are no laws governing the outcome. The complexity of operational and strategic design reflects the same challenges faced by social scientists. Learning through experimentation is not feasible in the sense that each experiment is a real event not a laboratory experiment. Military organizations create, resource and execute campaign plans to achieve national and operational objectives, but there is no answer key with which to ensure success. The current political fallout surrounding the stability of Iraq and the related status of the Global War on Terror hangs precipitously on the ability of the operational force to learn continuously from the threat environment. Without the luxury of predictability, how does a military organization learn? A theoretical approach to analyzing holistically the complexity of the environment in which an organization operates called, Systemic Operational Design, an Israeli methodology, attempts to inculcate learning as the cornerstone of operational design in complex

[4] Richard D. Downie, 260.

environments, but how does the methodology seek to reinforce the recognition of an emerging trend to allow adaptation?

Purpose and Thesis. Doctrine serves to capture generally accepted methods and ideas that have an expectation of working as evidenced by experiences in the field. By the nature of gaining institutional consensus, a delay in the development of doctrine is inevitable. The delay allows smaller, more agile organizations to target weaknesses that exist at the operational and strategic level with the commitment of asymmetric assets. **The author primarily seeks to identify why a learning organization is critical to defeating asymmetric threats. Secondly, the author will provide evidence supporting that metrics rather than doctrine serves as the cornerstone for learning in the transformational processes currently underway in the U.S. Army. Lastly, the author will offer theoretical metrics for gauging the key indicators of progress in transformation: organizational learning rates.** The intent is to foster discussion on not only why the Army should be gauging its learning rates as it aspires towards becoming an agile learning organization, but also how to measure its learning rates. The ideas discussed in this document should at least contribute to that body of knowledge.

Methodology and Structure

This monograph is a theoretical analysis of the effect of metrics on learning. The organization of the work is an introductory chapter with the methodology, purpose and layout, three main chapters, each arguing one facet of the thesis, and a conclusion with recommendations. The chapters describe the criticality of learning, the impetus behind measurements for learning, and a method for classifying effective metrics to inform the learning process.

This chapter introduces the topic and research questions. The second chapter will consider why learning is critical to retaining strategic and operational advantage in an emerging environment comprised of two competing trends, globalization and radical extremism. The challenge for U.S. Forces is to learn and adapt to the asymmetric threats poses by the dangerous combination of these two trends. To accomplish this discussion, the chapter will describe the current international environment, one where globalization and technological innovation have fundamentally changed the way that the international community interacts. The author will define asymmetric threats with some rigor using the perspective of ends, ways and means created by LTC John Nagl in order to highlight the emergence of asymmetric threats, to include radical extremism, as the dominant threat

to national security.[5] In addition, the chapter will relate how learning organizations serve as a counterbalance to offset the risks posed by these trends. The chapter closes with an illustrative overview of common causes for resistance to organizational learning in the context of past military operations.

The third chapter contains a discussion on measuring organizational learning rates and the effectiveness of doctrine to provide an effective measure of progress. The discussion includes a survey of current national policy, Army and Joint doctrine, highlighting the limitations of doctrine as a metric for organizational learning. The discussion will also include the congressional demands for information relating to transformation and strategy that further suggest the use of a metrics based learning system for military organizations. The chapter informs the assessment of whether metrics rather than doctrine should be at the heart of gauging transformation and organizational learning.

The fourth chapter contains a discussion of potential evolving metrics-based learning designs for military organizations and offers a methodology for gauging learning rates. The discussion will include a brief overview of Systemic Operational Design, relating its application to the adoption of metrics for organizational learning. The discussion will also include a discussion of the methodology adopted by Mayor Rudy Giuliani during his tenure in New York City, which focuses on the use of metrics based execution practices. Finally, the discussion will include the Balanced Scorecard Approach to strategic management, as described by Dr. Robert F. Kaplan of Harvard Univerisity. The chapter concludes with a discussion of criteria for metrics based learning in the context of some emerging principles for war for the information age. The conclusion will summarize observations discerned from the research that should serve as initiators of future discussion and offer recommendations for the use of metrics based learning methods to drive organizational learning.

Theoretical Basis

The work in this monograph borrows heavily from the work of two published theorists. The first model is Dr. (COL RET) Richard D. Downie's Institutional Learning Cycle. The second model is Peter Senge's Five Disciplines for Organizational Learning.

[5] John Nagl, "Asymmetric Threats to U.S. National Security to the Year 2010," (Monograph,

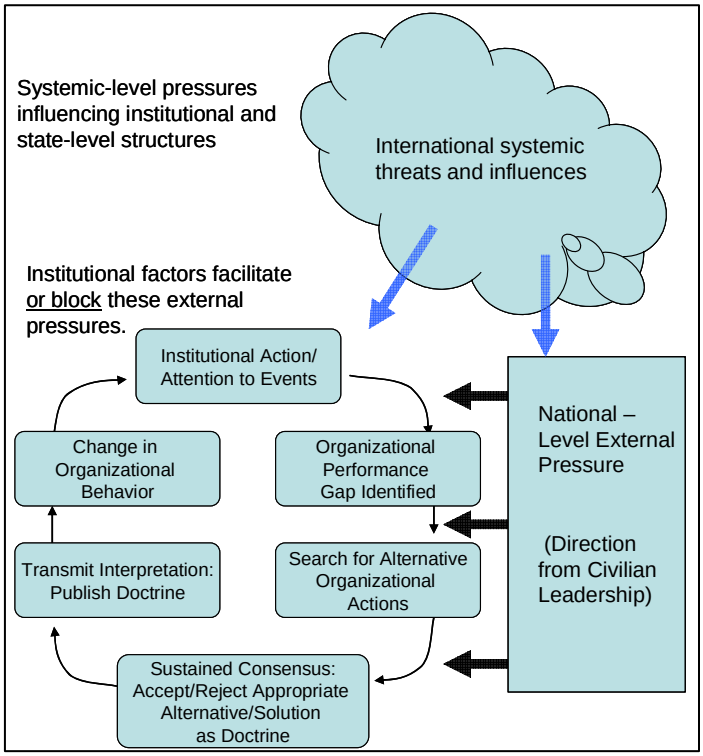

Figure 1 Institutional Learning Cycle: The Process for Doctrinal Change[6]

In Dr. Downie's, *Learning From Conflict: The U.S. Military in Vietnam, El Salvador, and the Drug War*, the author proposes that the publication of new doctrine is the primary metric for organizational learning. The process is a cyclic one in which organizational gaps in performance result from external pressure. External pressures include not only international threats and influences but also changes in policy by the national leadership. The proponent attempts to build organizational consensus over time within the operational and institutional structures of the Army, resulting in the acceptance of a compromise solution as doctrine. Figure 1 depicts the Institutional Learning Cycle: the Process of Doctrinal Change.[7] The resulting publication and dissemination of doctrine then drives resourcing of existing and new organizations, training, materiel, leader development, programming and force development (DOTMLPF). Collectively, changes in the

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Graduate Degree Programs, US Army Command and General Staff College, Leavenworth, KS, June 2001), 5.

[6] Richard D. Downie, 8

DOTMLPF dimensions reflect a cultural change that inculcates the new doctrine and accepts the learning experience. Downie suggests that doctrine serves as a metric to measure learning in learning organizations.

> "For militaries to remain capable of deterring and, if necessary, defeating challengers in this era, they must become learning institutions. Such institutions are capable of rapidly understanding the implications of operational experience, and are able to use knowledge acquired by the organizations members to modify doctrine and adapt quickly to the changing face of future warfare. Only then will a military organization retain a warfighting edge over potential competitors."[8]

In Peter Senge's, *The Fifth Discipline*, a "Learning Organization" is "an organization that is continually expanding its capacity to create its future."[9] Senge goes on to describe a learning organization by its ability to conduct not only adaptive or survival learning, but also to conduct generative learning. Adaptive learning is the process by which failure generates the need to change fundamental aspects of an organization. This process is necessary for growth and is an essential aspect of a Learning Organization. Generative learning is the ability to proactively transition core capabilities, inculcating organizational changes in anticipation of major systemic changes in order to leverage the advantages offered by the system change and mitigate any disadvantages. As their names suggest, the former is reactive, while the latter is proactive. Senge lists five essential disciplines that will serve as the starting point for this author in discerning a system for screening metrics to enable learning.

Systems Thinking. This is a conceptual framework for holistically approaching the implications of a system.[10] A similar concept exists in Effects Based Planning where a System of Systems Analysis is the beginning of any fundamental appreciation of the environment.[11] The objective is to see through a complex environment to distinguish high and low leverage changes that induce generative learning. Systems thinking does not suggest reductionism but rather it suggests an appreciation for the underlying complexity that denies simple cause and effect conclusions and blinds organizations to the second order effects of the metrics they choose.

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[7] Ibid.
[8] Richard D. Downie, 9.
[9] Peter Senge, *The Fifth Discipline*, (New York: Doubleday Publishing Group, 1990), 14.
[10] Ibid., 128.
[11] Joint Warfighting Center Pamphlet 4, *Doctrinal Implications of Operational Net Assessment*, (Norfolk: Headquarters, Joint Forces Command, February 2004), 17.

Personal Mastery. This discipline stresses the significance of fostering a culture of self-education. While this alone cannot guarantee organizational learning, no organization can learn without a spirit of individual learning permeating the organization.[12]

Mental Models. This discipline stresses the awareness of internally held beliefs and how they affect the acceptance or refection of new ideas. Internal images of how the world works will influence how organizations select the metrics for gauging success or failure and therefore it becomes necessary to create common models as part of the learning process...[13]

Building Shared Vision. This discipline focuses on the creation of shared conceptual frameworks and the mutual commitment to it throughout an organization.[14] A common framework focuses the collective effort on learning and recognizing changes within the environment.

Team Learning. This discipline focuses on the unified direction or alignment of an organization during execution (the ability to row together) and develops "the capacity of an organization to create the results its members truly desire."[15] It builds on the development of a Shared Vision and Personal Mastery but focuses on the ability of each individual to work interdependently with the team.

Robert Downie and Peter Senge's work contribute a common language as well as a common framework with which to view organizational learning. They inform the understanding of the complex interrelationship between external and internal pressures on the Army as a military organization transforming to meet the challenges of a dynamic asymmetric threat environment. Since the purpose of this analysis is to discern theoretical metrics for gauging learning rates, a fundamental appreciation of these models is necessary prior to discussing the international environment in which the Army finds itself.

CHAPTER 2: WHY LEARNING IS CRITICAL TO MILITARY ORGANIZATIONS

Learning for the purpose of this monograph is the process through which an organization discerns adaptive and generative actions from the environment in which it exists. This definition is

[12] Peter Senge, 139.
[13] Peter Senge, 175.
[14] Ibid., 206.
[15] Ibid., 236.

generally from Senge's definition of Organizational Learning referenced earlier in the work. This chapter will explore the criticality of learning to the retention of relative advantage held by the U.S. Army over all national and transnational competitors in a threat environment that is more and more asymmetric. It will also explore the negative consequences of refusing to learn in past military operations to include Vietnam, Somalia, Haiti, Bosnia and Iraq. While a detailed evaluation of the deleterious effects of organizational learning disabilities is outside the scope of this monograph, an illustrative glance informs the argument for learning organizations as an effective counter to emerging asymmetric threats and the use of metrics to enable learning.

Globalization and the Information Age

You can believe in the Superpower, Supermarket, and the Super-empowered Individual as described by Thomas Friedman or not.[16] You can believe that new connectedness will result in new rule-sets that will allow Gap countries to join the Core as described by Thomas Barnett or not.[17] You can believe that the Industrial Age Structures developed to counter the challenges of the Cold War are obsolete as described by David Alberts or not.[18] Regardless of which description of the present you choose to believe, what is indisputable is that the world has changed. The world IS fundamentally different today with fundamentally different requirements. In the following section, the author will present summaries of leading descriptions of the world today in an effort to convince the reader of this simple fact. Subsequent sections link the criticality of learning in our future organizations as a means of wading through the complexity of our changing world.

In *The Lexus and the Olive Tree*, the esteemed journalist and foreign correspondent for the New York Times, Thomas Friedman outlined a new international system whereby the irreversible trends created by information technology were balanced by three distinct and yet interdependent structures of power. The Superpower represents the significant contributions of nation-states to security and stability in the world. The Supermarket represents the impact of global electronic trade centers and their ability to influence the balance between nation-states as well as link nations economically. Super-empowered individuals, like international terrorists, can also influence world events on the scale of a nation-state. These balancing forces rather than the bipolar world struggle

[16] Thomas L. Friedman, *The Lexus and the Olive Tree*, (New York: Random House, 2000), 13.

[17] Thomas P. M. Barnett, *Blueprint for Action: A Future Worth Creating*, (New York: G. P. Putnam's Sons, 2005), 104.

[18] David S. Alberts and Richard E. Hayes, *Power to the Edge*. (Washington DC: Government Printing Office, June 2003), 2.

between capitalism and communism define the world today. Friedman describes the new international system in comparison to the Cold War System as one of integration rather than separation. The new system is more like an endless cycle of sprints against multiple competitors rather than a wrestling match between goliaths. He chooses to characterize the new era with Moore's Law (computing power doubles while cost halves) rather than the Theory of Relativity. Friedman convincingly argues that the end of the USSR and the exponential growth of the World Wide Web as a portal for sharing information precipitated the emergence of the current era of interconnectedness.[19]

Thomas Barnett, a distinguished author and political scientist, in his follow up to *The Pentagon's New Map*, approaches the description of our current and future international system from the perspective of rule sets rather than balancing entities. In *Blueprint for Action*, Barnett describes the requirement for two distinct rule-sets or international methodologies to balance the threats in a post Cold War world. The first is to develop a rule-set for prosecuting politically bankrupt nations. This process includes the formulation of a global executive body like the G8 to codify the process through which the global community can "connect its will to great-power action on the pressing matter of politically bankrupt states."[20] In the extreme cases where the global community selected regime change as the only viable alternative to an authoritarian regime, a high intensity force, which he calls a "Leviathan," would conduct major combat operations, or would provide the credible threat of major combat operations to force a change in the regime. A multi-national nation building force, described as a "System Administrator Force," would then provide interim support for redeveloping these nations into interconnected economic and informational hubs.[21] The combination of Leviathan and System Administrator Forces under the discretion of a global executive body would serve as the balancing force between nation states.

The second methodology or rule-set described by Barnett addresses the prosecution of criminal and terrorist networks. Unlike Friedman who sees Superpowers, markets and individuals as balancing forces in one system, Barnett puts more emphasis on the role of nation state to balance the two systems, one imbalanced by rogue nations, and one imbalanced by rogue transnational actors. Barnett suggests that partner nations will cooperatively address these criminal networks within underdeveloped, or "Gap," countries that are insufficiently prepared to defeat these forces within their own borders as well as enhancing those same defeat mechanisms in the interconnected

[19] Thomas L. Friedman, 11.
[20] Thomas P. M. Barnett, 73.

Western, or "Core," countries. Both authors agree that globalization is ongoing, irreversible and entirely different from the world system that preceded it.[22] The noted author, Antulio J. Echevarria, concurs in a recent publication defining globalization using Friedman's terminology as the "dispersion and democratization of technology, information and finance."[23]

The distinguished author and executive agent for DOD's Command and Control Research Program, Dr. David Alberts describes globalization in *Power to the Edge*, as a subset of the larger Information Age challenges. This persuasive treatise outlines the monumental transformation of wealth and power in terms of information flow. Like Friedman and Barnet, Alberts concurs that connectedness is the key change agent. Alberts further argues that the structures that were in place to deal with the challenges of the Cold War—Industrial Age Structures—lack the flexibility or responsiveness to adapt to the complexity of the Information Age and must therefore be replaced. "This is because the emerging threats are different and are continuing to evolve, as well as because our legacy force structure and concepts of operation are not well suited for the tasks at hand, nor are they agile enough to keep abreast of the continuing changes."[24]

The world is fundamentally different today. Though disagreement on how to rebalance the new international system exists, there is consensus among the aforementioned models that globalization and the associated technological innovations have fundamentally changed the way the world interacts and this is irreversible (the possibility of an apocalyptic world war is ignored). Although each of the three authors mentioned represents a different background; one a journalist, one a political scientist and one a computer scientist, they come to the same conclusion about the resistance to globalization. The impact of the Information Age on entrenched failed ideologies and rogue nations is unpredictable and asymmetric, a concept that will be discussed in detail in the ensuing chapter. There is further consensus that the expansion of globalization and Information Age technologies benefits not only the connected global community, but also the rogue nations and terrorist networks that oppose it. Antulio Echevarria states that globalization has given terrorist networks greater advantage because of their greater mobility within their smaller more dynamic organizational structures.[25] The organizational agility that military organizations seek to adopt as part of identifying performance gaps is resonant within adversaries with much smaller

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[21] Ibid., 69.

[22] Thomas P. M. Barnett, 231.

[23] Antulio J. Echevarria II, "Fourth Generation Warfare and Other Myths," (Washington D.C.: Strategic Studies Institute, 2005), 10.

[24] David S. Alberts and Richard E. Hayes, 2.

organizational learning requirements. Therefore developing both, adaptive and generative learning abilities are vital to maintaining a position of advantage.

In the subsequent sections the author will explore why the emergence of a new system requires not only a change in the organizational learning habits of the Department of Defense in general and the Army specifically, but it also requires an inculcation of constant ever increasing learning rates in order to outpace those rogue actors that seek to prevent it.

Asymmetric Challenges Require Organizations to Learn Faster

This section will attempt to first define asymmetric warfare. The term appears in current literature in multiple forms under multiple monikers: irregular warfare, insurgency operations, stability operations, small wars, terrorism, and transnational threats. A doctrinal definition is also relevant to the discussion. Some explication as to the conditions surrounding asymmetric warfare informs the classification of asymmetric warfare in the context of national security. The author will use the perspective of ends, ways and means borrowing heavily from the work of noted author LTC John Nagl, PhD to classify the most severe forms of asymmetric threats.[26] To conclude this section the author will discuss current doctrine with respect to asymmetric threat in the context of both Senge and Downie's learning models to determine if these threats represent the identification of performance gaps indicating the criticality of organizational learning to correct the shortfall.

In the broadest sense, the use of the Roman Legion to destroy the Macedonian Phalanx in 200 BC was the first significant use of Asymmetric warfare.[27] In recent historical publications, Revolutions in Military Affairs describe tactical, organizational, doctrinal and technological asymmetries throughout the last 700 years of warfare, but these asymmetries were mainly changes to how an army fought, not why they fought.[28] The evolution of Asymmetric Warfare as described by Stephen Metz in a recent essay suggests more rigor than the RMA concept. Metz states that in its current usage, it has been more "Strategic than operational and technological. The change, in

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[25] Antulio J. Echevarria II, vi.

[26] Joint Pub 3-0, *Doctrine for Joint Operations*, (Norfolk: Headquarters, United States Joint Forces Command, 10 September 2001), III-14. While the Monograph by LTC John Nagl describes the classification of asymmetric threats using Ends, Ways and Means, Joint Pub 3-0 also describes asymmetric leverage using similar terminology, but not with the intent of describing asymmetric threats to national security.

[27] Douglas A. Macgregor, Breaking the Phalanx: A New Design for Landpower in the 21st Century, (Westport, CT: Praeger, 1997), 1-2.

other words, has been in who fights and why they fight rather than only in how they fight."[29] Frank Hoffman, a retired Army Lieutenant Colonel and author, states in an essay to be published later this year, that the emergence (and implications) of "Complex Irregular Warfare is a natural reaction to America's overwhelming military superiority.[30] A still more precise definition comes from Thomas Barnett.

> "Asymmetrical Warfare is a conflict between two foes of vastly different capabilities. After the Red Army dissolved in the 1990s, the U.S. military knew it was basically unbeatable, especially in a straight-up fight. But that meant that much smaller opponents would seek to negate its strengths by exploiting its weaknesses, by being clever and "dirty" in combat. On 9/11, America got a real dose of what asymmetrical warfare is going to be like in the twenty-first century."[31]

Similarly, Thomas Hammes, a distinguished author and retired Marine Colonel defines Asymmetric Warfare, or "Fourth Generation Warfare" as "the use of all available networks—political, economic, social and military—to convince the enemy's political decision makers that their strategic goals are either unachievable or too costly for the perceived benefit."[32] Hammes further states that the shift was "From an Industrial-Age focus on the destruction of the enemy's armed forces to an Information-Age focus forces to changing the minds of the enemy's decision makers."[33]

The emergence of Asymmetric Warfare is due to the U.S. Army's dominance in conventional operations. Actors that do not possess the means to express their collective political will conventionally choose alternate means, preferably means not easily matched in the abilities of the perceived threat. Globalization and Information Age technology facilitates the emergence of asymmetric capabilities, since the use of the very networks that enable globalization, also enables asymmetric organizations to leverage capabilities like network attacks, technical intelligence collection, satellite imaging, remote communications, media exposure, financial support, logistics and transportation arrangements. In essence, the success of the Army only reinforces a preference

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[28] Macgregor Knox and Williamson Murray, *The Dynamics of Military Revolution 1300-2050*, (Cambridge: Cambridge University Press, 2003), 12.

[29] Stephen Metz, "Small Wars: From Low Intensity Conflicts to Irregular Wars," *Rethinking the Principles of War*, edited by Anthony D. McIvor (Annapolis: Naval Institute Press, 2005), 280. In the text Metz was referencing Martin Van Crevald's *Transformation of War* (New York: Free Press, 1991).

[30] Frank G. Hoffman, 1.

[31] Thomas P. M. Barnett, xv.

[32] Thomas Hammes, COL USMC RET, *The Sling and the Stone: On War in the 21st Century* (St Paul: Zenith Press, 2004), 208.

[33] Ibid., 207.

towards asymmetric attacks against the U.S. as a means of undermining the Army's overwhelming conventional capability. Stephen Metz and Raymond Millen, in a recent monograph for the Strategic Studies Institute, state this same argument in saying that concomitant to globalization is the advent of insurgency operations.[34] The current interdependence of nation states makes state on state war unlikely. Metz and Millen posit that historically, periods of unlikely international confrontation fostered a rise in insurgencies throughout nations whose structures were sufficiently underdeveloped to prevent it. The lack of any near peer indicates that for about the next 10 years, the primary threat to national security will be asymmetric....The rise of Islamic Jihadism in the Middle East and North Africa as well as the published strategy of Al Qaeda supports this same conclusion.

John Nagl offers a much more rigorous definition of Asymmetric Warfare in a monograph submitted in 2001 while attending the Command and General Staff College. Nagl suggests the consideration of Asymmetric Warfare from the perspective of ends, ways and means. Asymmetry of ends indicates that the vital interest of each actor is vastly different. The strategic objective of an operation leads to the ways and means used to obtain it as well as the cost that the actor will sustain to achieve it. If one actor is willing to risk annihilation to obtain his ends and the other is not, an asymmetry of ends is present. Likewise, asymmetry of ways captures the choice of an actor to employ conventional warfare versus guerilla warfare or terrorism. The asymmetry lies in the application of countermeasures that mitigate the strength of the opponent. To neutralize conventional military dominance, Asymmetric countermeasures as a "way", includes the use of terrorism. Asymmetric means refers to the use of tactical systems in such a way as to avoid their defeat and inflict the greatest damage. The use of Improvised Explosive Devices is asymmetric in that they avoid detection by conventional countermine operations. Weapons of Mass Destruction (WMD) are in themselves not asymmetric, however their use as a means of achieving effects can be, whether as a deterrent against those with them or as a tool of terror. Figure 2 graphically represents the perspective of asymmetric ends, ways and means. Nagl's approach suggests that the most dangerous scenarios for national security are asymmetric ones and that the simultaneous employment of asymmetric ends, ways and means, an "asymmetric trifecta," is the worst of all possible scenarios.[35] The trifecta of survival type goals, with terrorist methods applying a WMD device against premeditated soft targets represents the most dangerous threat because while our

[34] Stephen Metz and Raymond Millen, "Insurgency and Counterinsurgency in the 21st Century: Reconceptualizing Threat and Response." (Carlisle, PA: Strategic Studies Institute, November 2004), 14.

[35] John Nagl, "Asymmetric Threats to U.S. National Security to the Year 2010," 36.

national security apparatus is extensive, systemic challenges like moral indifference, porous international borders and relatively unencumbered interstate travel, combined with a nascent domestic defense system make it our largest vulnerability.

These conclusion are in stark contrast to the Army's capstone document, FM-1 published in June 2005, which still states that the gravest threat to the nation is fighting a peer or near peer competitor.[36] Field Manual 3-0, Operations, published in June 2001, defines Asymmetric Warfare in conventional terms, using RMA-like terminology to express the concept of tactical asymmetries.[37] A more detailed discussion of the gap in doctrine to identify the current trends of literature and doctrine reveals that a gap exists between the Army's conceptual repository for learning and the external environment.

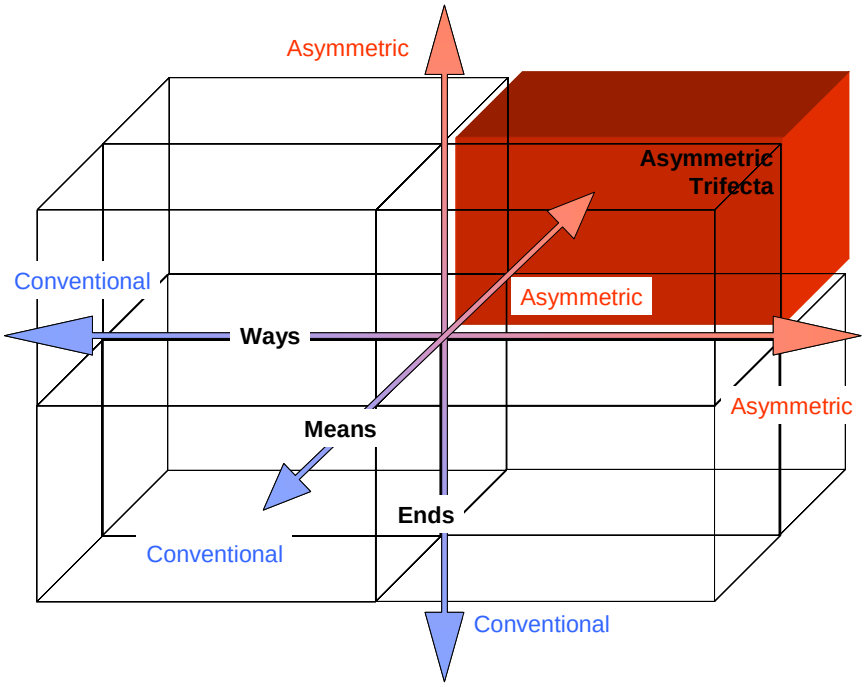

Figure 2 John Nagl's Asymmetric Trifecta[38]

[36] Field Manual 1-0, *The Army*, (Washington D.C.: Headquarters, Department of the Army, June 2005), 1-75.

[37] Field Manual 3-0, Operations, (Washington D.C Headquarters, Department of the Army, June 2001), 4-109.

[38] John Nagl, "Asymmetric Threats to U.S. National Security to the Year 2010," 36.

Why Organizations Refuse to Learn

This chapter has described the emerging environment, presenting the broadly held views on globalization and the impact of Information Age technology. The emerging environment conceptually links to the learning model as part of the external pressure for change as well as being a description of the new mental models needed for learning organizations. The next section then described asymmetric warfare as it relates to globalization. The discussion links the status of current doctrine as a measure of our organizational learning in regards to asymmetric threats to a conceptual performance gap, indicating that the process of testing alternative solutions is underway. This final section will attempt to highlight past strategic and operational failures within the Army in

- I Am My Position
- The Enemy Is Out There
- The Illusion Of Taking Charge
- The Fixation On Events
- The Parable Of The Boiled Frog
- The Delusion Of Learning From Experience.
- The Myth Of The Management Team.

countering past asymmetric challenges and trace the resulting adaptive learning by the organization. To this end, this section will describe common organizational learning disabilities and trace them through past military operations to highlight past learning patterns in the Army

Figure 3 Peter Senge's Learning Disabilities

Common learning disabilities in organizations derail organizational learning. They are common in large organizations of any origin and so apply to military organizations as well. Two prominent sets of characteristics will inform the illustrative description of past military interventions in Vietnam, Somalia, Haiti, Bosnia, and Iraq. The first set of characteristics are those provided by Peter Senge in his seminal work, *The Fifth Discipline*.[39] (See Figure 3, Peter Senge's Learning Disabilities, for a list.)

The first disability, "I am my Position," refers to people in organizations having little regard for the products produced in other parts of the organization. A certain myopic view of individual performance sets in, contributes nothing to the overall performance of the organization, and in fact may actually hinder the overall performance in extreme cases. Senge's second

disability, "The Enemy is Out There," refers to the common perception of blaming an outside agency for failures without considering the impact of internal shortcomings as part of the overall system. The third, "The Illusion of Taking Charge," refers to the initial emotional reaction to a set back, where aggressive counter action is mistaken for proactive systemic measures to correct the problem. Often, the aggressive behavior is more damaging, reinforcing the cause of failure, rather than correcting it. The fourth, "The Fixation on Events," is the creation of simplistic and often unsupported causal links in the search to correct a failure. It often leads to larger system faults. The fifth, "The Parable of the Boiled Frog," describes the difficulty faced by organizations in identifying threats that develop slowly over time. The "Delusions of Learning From Experience," refers to the

- Institutional Inertia
- Lack Of Institutional Memory
- Skewed Incentive Patterns
- Inadequate Analysis Of Performance

mistake of basing new actions on experiences without careful analysis. Lastly, "The Myth of the Management Team," refers to the common occurrence that dissention with the plan constitutes a lack of loyalty and potential loss of position within the organization. These common disabilities will appear repeatedly throughout the following discussion of past asymmetric interventions.

Figure 4 Robert Komer's Institutional Obstacles to the Learning Process

The second set of characteristics that inform a survey of past military interventions are found in Robert Komer's brilliant work on the Vietnam War called, *Bureaucracy At War: U.S. Performance in the Vietnam Conflict*.[40] (See Figure 4, Robert Komer's Institutional Obstacles to the Learning Process). The first, "Institutional Inertia," parallels Senge's observations on position focus and external avoidance. Komer highlights that bureaucratic preference is to deal with the familiar when dealing with emerging challenges. Familiar systems evoke confidence due to their record of working. Large bureaucracies in particular are risk averse, so they avoid learning in new environments because that requires more risk initially. The tendency in organizations to force a new challenge to fit into the processes of an existing solution is routine with military organizations and while sometimes appropriate is often done with little planning.

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[39] Peter Senge, 18-25.

[40] Robert W. Komer, *Bureaucracy At War: U.S. Performance in the Vietnam War*. (Boulder: Westview Press, 1986), 70-74.

The U.S. Army during the Vietnam War is illustrative of a large organization that refused to learn. Lieutenant Colonel John Nagl effectively states that during the Vietnam War, the cultural resistance to learning was the leading cause for the Army's failure to defeat the communist forces of North Vietnam in spite of never losing a tactical engagement to North Vietnamese forces. He compares the cultural bias of the Army during the Vietnam era to the British Army during its successful counterinsurgency operation in Malaya and finds that unlike the British, rather than recognize clear indications of change, the U.S. Army continued applying the strategy that had worked in the past without an appreciation for the fundamentally different conditions of Vietnam.[41] Consistent with this theme, Andrew Krepinevich argues that we entered Vietnam with a predisposition to fight it the way we fought the North Korean Forces and the German Forces before them. The Army's method was to use conventional forces with a large volume of fire to destroy the enemy's fielded forces in a Napoleon-like series of engagements. For fifteen years prior to the introduction of combat battalions in 1965, the Army directly observed developments in Vietnam and entered into major combat operations without embracing any appreciable differentiation between this conflict and those that preceded it.[42] While the Army incorporated a substantial level of innovation because of tactical engagements, fundamental bureaucratic changes did not take place. Innovations in the use of helicopters, fixed wing gun ships and night-vision devices continue to improve the force. However, organizational innovations to counter asymmetric threats in the areas of pacification and civil military operations never migrated effectively to doctrine.[43] Rather the Army abandoned them following Vietnam as aberrations.[44]

Komer's obstacle, "Lack of Institutional Memory" is linked to Senge's "Delusion of Learning form Experience," and is inherent in the rotational basis of force management seen not only in Vietnam throughout the conflict but also seen in Iraq during OIF. In Vietnam, a desire to sustain morale led to the 12-month individual rotation plan. The desire to rotate as many offices as possible through command opportunities in combat to enhance promotion opportunities led to six-month command rotations. The combined effect of was amnesia at the organizational level. Experienced gained in combat was almost immediately lost and the unit turbulence caused by

[41]John Nagl, LTC, USA, Learning to Eat Soup with a Knife: Counterinsurgency Lessons from Malaya and Vietnam. (Chicago: University of Chicago Press, 2005), 192.

[42] Andrew F. Krepinevich Jr., *The Army and Vietnam,* (Baltimore: Johns Hopkins University Press, 1986), 5.

[43] John Nagl, Learning to Eat Soup with a Knife: Counterinsurgency Lessons from Malaya and Vietnam, 195.

[44] Richard D. Downie, 109. For a discussion on this issue also see John Nagl's, *Learning to Eat Soup with a Knife*, 207, also referenced in this work.

constant individual rotations was not only expensive but prevented the development of cohesive combat elements. During Operation Iraqi Freedom, unit rotations replaced individual replacements, greatly increasing cohesion and quality of leadership, the same 12-month time limit continued to inhibit organizational learning. In an article published in the Military Review, British Brigadier General Nigel Aylwin-Foster, Deputy Commander of the Office of Security Transition in the Coalition Office for Training and Organizing Iraq's Armed Forces, recounts the following story of U.S. Army forces searching the home of an Iraqi Colonel also serving on the combined staff. "On one occasion the troops displayed exemplary awareness of cultural sensitivities such as appropriate treatment of women in the household. On the other, the aggressive behavior of troops from a battalion newly arrived in theater led to his [the Colonel's] formal complaint with consequent apology from a U.S. General Officer."[45] Brigadier Aylwin-Foster goes on to conclude that due to a lack of institutional memory, the trend towards highly centralized decision making existed in spite of the espoused view of Battle Command at all levels. This trend made it less likely that junior commanders would seek to find generative learning opportunities due to the perceived risk to personnel and mission accomplishment in spite of senior commanders stressing the need for them.[46]

Robert Komer's third obstacle to organizational learning is "Skewed Incentive Patterns." This obstacle to learning exists when an organization has no real incentive to make a change in its behavior but does have an incentive to conduct operations that are familiar. The incentive is so strong that in continues even when those behaviors are inherently bad for the organization. Like Senge's disability, "The Illusion of Taking Charge," organizations prefer to use the capabilities that reflect its self-perceived purpose and will pursue strategies that allow it to do so whether or not the strategy is effective. Thomas Barnett illustrates this tendency in describing the organizational culture of the Department of Defense as inherently biased against learning because it conflicts with ongoing long-term preparations for national defense. The congressional budget process allocates funds to DOD to fund future defense planning and preparations but not to conduct actual combat operations resulting in a system of supplemental budgeting to pay for actual combat operations. In other words, the Pentagon does not like to fight because in gets in the way of planning for the next fight.[47] No real incentive in the budgeting process exists to learn from the operational environment, and subsequently the process actually resists learning due to the potential disruptive effect on development programs and the associated programming dollars.

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[45] Nigel Aylwin-Foster, Brigadier, HMA, "Changing the Army for Counterinsurgency Operations," *Military Review* (November-December 2005):5

Another example of skewed incentive patterns was the escalating aversion to mission creep after the downing of two Blackhawk helicopters supporting Task Force Ranger on October 3, 1993, and the ensuing withdrawal of troops from Somalia. The subsequent resignation by Secretary of Defense Les Aspin reinforced the incentive to avoid mission creep and state building. Rather than emerge from the experience with a fundamental appreciation for the dynamic nature of tribal society and the need to develop new structures and capabilities accordingly, the culture absorbed the experience as a failure attributable first, to the application of forces in a non-doctrinal mission and second, to unclear objectives. The withdrawal effectively created the perception that casualties inferred mission failure. The Army became increasingly more reluctant to recommend the commitment of forces where unclear objectives violated the Weinberger/Powell doctrine. This perception of failure associated with mission creep, and casualties prompted senior commanders to consider any deviation from the original mission set as a failure in campaign design. So rather than designing operations that recognized the inherent complexity of any operation, the limited time available for plan development, or the gaps in information; the Army instead developed a habit of only preferring military actions that would end in a clear redeployment. There was little tolerance for a viewpoint that expected the end to change and even less for any change in the means and ways applied to the solution. So learning was in contradiction to an internal expectation of short-term success. This emerging doctrinal attachment to a clearly defined end state and the structural investment in attaining that solution predisposed commanders and staff to avoid looking for clear examples that the environment was changing because of the intervention. Ambassador Richard Holbrooke, based in his experience in Bosnia, called this phenomenon, "Vietmalia." The inadvertent affect was the avoidance of organizational learning. Rather than accept fundamental changes that needed to occur after the Cold War, the Army avoided learning altogether. The focus remained on major combat operations rather than the challenges of developing culturally astute field grade officers, the complexity and dynamism of state building, and the seamless integration of all elements of national power to accomplish military objectives.[48]

Subsequent success in Operation Desert Storm only accentuated the refusal to learn from emerging system characteristics, resulting in less than successful military operations in Somalia, and Haiti. The overwhelming success of U.S. Army conventional forces when facing other conventional forces in combat operations reinforced the belief that future problems would only

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[46] Ibid., 7.
[47] Thomas P. M. Barnett, 8.

require the application of the same conventional means and that they would result in the same minimal loss of life to U.S. combatants. The result was a need to see every conflict in the context of the only desirable means of obtaining a solution. Like the old saying goes, if you only have a hammer, everything looks like nails. Scenarios against materially different enemies with asymmetric intentions and capabilities proved more difficult to overcome and actually precipitated a significant change in U.S. strategy in relation to the conflict rather than inspire organizational learning and acceptance that a new threat was emerging based on an enemy marginalizing U.S. military capabilities.[49] This new system inseparably tied to globalization is able to leverage a faster learning rate because in essence it does not have to overcome its own organizational barriers. In Haiti, only eight days after the Task Force Ranger attack, militia turned away the USS Harlan County, threatening to achieve another strategic defeat for U.S. forces like Mogadishu. The U.S. response was to restore Preside Bertrand Aristide to power, but the force was limited to self-protection and not allowed to disarm or engage paramilitary forces. The aversion to accepting casualties skewed commanders towards defining a militarily successful outcome in terms not consistent with national polices to restore democracy to the island.[50] Ten years later, the United Nations Stabilization Force in Haiti, is struggling again to establish legitimate elections. Robert Komer summarizes the effect of institutional constraints on military effectiveness during the Vietnam War. "While by no means the whole answer, these constraints reflected patterns of organizational behavior which did much to make our actions ill-suited to the needs, impeded the translation of policy into practice, and inhibited innovation and adaptation."[51]

The last obstacle to organizational learning is "Inadequate Analysis of Performance." This obstacle relates two critical aspects of learning: the inadequacy of internal attempts at data collection and internal resistance to criticism. Senge called this same phenomenon the "Myth of Management." In large organizations, an expectation exists that the upper end of the hierarchy can and will seamlessly assess trends and collect information that informs the assessment of progress in order to reconcile any differences that prevent attainment of the objectives. The expectation exists from both the top and bottom. The failure is typically in the collection and analysis of data. There simply is none or if there is, it is overly specific and fails to inform any real analysis. When an

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[48] Robert F. Baumann and Lawrence A. Yates, *My Clan Against the World: US and Coalition Forces in Somalia 1992-1994*. (Fort Leavenworth, Kansas: Combat Studies Institute Press, 2004), 206.

[49] Stephen Metz and Raymond Millen, "Intervention, Stabilization, and Transformation operations: The Role of Landpower in the new Strategic Environment," *Parameters*, (Spring 2005):43.

[50] Max Boot, *The Savage Wars of Peace: Small Wars and the Rise of American Power*, (New York: Basic Books, 2003), 324.

[51] Robert W. Komer, 16.

attempt to collect and analyze data does occur, it is often focuses on collecting data that reinforces the organization's preconceptions, or enabling positional advantage within the organization by one department over another. Komer explains this by stating that "Organizations are usually neither long on self-criticism nor very receptive to outside analysis of their performance."[52] The lack of metrics to track operational expenses in Vietnam allowed commanders to expend large amounts of their budget on offensive operations relative to pacification activities as directed by OSD. In Bosnia, the focus on "tank plinking" by air assets did little to prevent atrocities against ethnic Albanians or the forced migration of most of the population in Kosovo although this was one of the three primary objectives of the campaign.[53]

While there is great care in this work to avoid comparing present day events with events from history, the intended effect in illustrating obstacles to learning in several recent military conflicts is purely to highlight the difficulties faced by military organizations when facing new environmental systems. The difficulty is multiplied when the new challenges render core capabilities less capable, threatening the entrenched existing structures and organizations that have already demonstrated success in the past and are therefore reluctant to risk failure by embarking on new untested ventures. The asymmetric nature of our current challenge makes past experiences critical. The U.S. Army should not continue to operate with little focus on organizational learning across the spectrum of conflict (current focus is arguably on tactical level innovations, which are largely technological and do not necessarily advance attainment of strategic objectives or address fundamental shifts in the nature of any conflict).

Our current national strategy policies recognize the need for military organizations to learn as does the U.S. Congress. This is evident in the guidance contained in the collection of National Security Strategies published by the President as well as the Quadrennial Defense Review. The policies and congressional oversight mechanisms are part of the ensuing discussion on the use of metrics rather than doctrine (as suggested by Downie) as a means of gauging organizational learning. While doctrine is effective as evidence after the fact of organizational learning is does little to create organizations that are responsive to the subtle but significant changes that occur as part of the interconnected global environment.

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[52] Robert W. Komer., 76.

[53] Ivo H. Daalder and Michael E. O'Hanlon, *Winning Ugly: NATO's War to Save Kosovo*. (Washington DC: Brookings Institution Press, 2000), 212.

Before discussing these national mandates on the military to embrace a learning culture and the shortfalls of doctrine as a means of gauging that learning, a short review is helpful. The world is different in more ways than being the Post Cold War Era. The Information Age challenges suggest that organizational agility is the preeminent characteristic of successful organizations. The asymmetric nature of the threats in this era suggests that Asymmetric War not conventional threats constitute the largest threat to national security. The Army's history of learning from asymmetric challenges since Vietnam is not as good as it should be as evidenced by the poor transition to stability operations in OIF. While it would seem intuitive that a military organization would adapt to fight its enemy, operational experiences since Vietnam failed to engender a culture of learning. A review of two common models describing organizational learning challenges shows that a common theme in this body of literature is that most large organizations, not just military organizations, find it difficult to recognize changes in their existing systems. These events suggest that a key capability of the Army should be organizational learning to meet the challenges of emerging threats. How does a learning organization serve as a counter balance to offset the challenges of globalization and emerging asymmetric threats? A learning organization includes the need to continue learning from the environment as part of every operation and recognizes that its participation changes the environment and so every action has unforeseen consequences that will require a future adjustment. Learning organizations accept that there are no static solutions. Learning organizations expect to collect information on the environment to be effective in directing the inevitable adjustments.

CHAPTER 3: WHY METRICS DRIVE LEARNING

The purpose of this chapter is to provide evidence supporting why metrics rather than doctrine serves as the principal method for gauging learning during transformative processes. What is "Transformation" and how does it relate to organizational learning? A Congressional Research Report published in April 2005 to inform congress on oversight issues for transformation, defines the term. "Defense transformation can be thought of as large scale, discontinuous and possibly disruptive changes in military weapons, concepts of operations and organizations that are prompted by significant changes in technology or the emergence of new and different international security challenges."[54] The report goes on to characterize transformation as shifting from an industrial age

[54] The definition contained in the CRS Report effectively describes the distinction between transformation and incremental evolutionary changes in force modernization. See Congressional Research Service Report RL 32238, *Defense Transformation: Background and Oversight Issues for Congress*, by Ronald O'Rourke (4 April 2005), CRS 3.

approach to an information age approach, shifting reliance away from massed forces and towards more precise, more distributed and more connected interdependent operations.[55] The risk in transforming the national security structure is not achieving the right balance between structuring the force to principally contend with the asymmetric threats, or principally develop the existing conventional capability. In the previous section, the author argues that the asymmetric threats are the most dangerous and most likely threats facing the nation and that the most effective method of countering that threat is through the development of learning organizations that can shape operational outcomes to achieve national objectives.

The national strategic policies provided as guiding documents to the organizations within the Department of Defense articulate the idea of developing learning organizations. The National Security Strategy, National Defense Strategy, and National Military Strategy define the emerging threats and prescribe a balance of capabilities. They further articulate the need for adaptive learning organizations to execute and achieve the balance of capabilities. A survey of our doctrine will reveal a doctrinal expectation that organizations will learn and adapt in their environments. Does the Army currently have doctrine to drive the development of learning organizations? A survey of capstone documents will also reveal that the knowledge contained in doctrine is a reflection of past successes and not a method for achieving the generative learning capabilities characteristic of a learning organization, required to meet our transformational goals and contained in our strategic policy documents. Therefore, neither policy nor doctrine provides a methodology to drive learning within organizations. Generative learning is what distinguishes a learning organization. While innovation and learning at the tactical level results directly from the nature of the conflict, this adaptive learning is not the key descriptor of a learning organization. Generative learning however requires predictive analysis, which in turns requires observations. These observations, obtained in the form of metrics and collected throughout an organization are the key to driving organizational learning. While the final chapter will highlight how metrics drive learning, it is important to review the existing national demand for metrics based information—federal accountability.

In this chapter, the author will present why metrics drive learning. First, the chapter contains a summary of current strategic national security policies, highlighting the demand for learning adapting military organizations. Next, the chapter contains an explanation of why doctrine does not serve to drive generative learning but rather serves to record adaptive learning. Finally, the

[55] Congressional Research Service Report RL 32238, CRS 6.

chapter contains an overview of the congressional requirements for metrics to gauge progress to justify and meet policy requirements and requirements for informing the public.

Implementing National Policy Requires Organizations that Learn

The genesis of current national policy directing the development of adaptive, innovative learning organizations is transformation. The new set of strategic challenges posed by globalization and the Information Age mandated the creation of a new strategic outlook. The implementation of it is Transformation. Previous changes in the strategic setting initiated similar changes to national policy. The development of nuclear arsenals in a bipolar confrontation for influence required the development of an outlook that allowed for the integration of conventional and nuclear strike capabilities. Prior to nuclear developments, the expansion of imperial Japan and Germany, spawned the development of amphibious warfare, carrier based power projection and combined arms land tactics. Ryan Henry articulates this idea in describing the current national policy as deriving from the current administrations recognition of the challenges of the 21st century.[56]

The trio of national defense strategy policies each articulates the essential changes necessary in the new environment. The National Security Strategy published by President George W. Bush in September 2002, states that the national security apparatus "were designed in a different era to meet different requirements….A military structured to deter massive Cold War era armies must be transformed to focus more on how an adversary might fight rather than where and when a war might occur."[57] The National Defense Strategy published by Secretary Donald Rumsfeld echoes this directive.

> "Experience in the war on Terrorism has underscored the need for a changed defense establishment—one postured both for extended conflict and continuous transformation. This demands an adaptive strategy, predicated on creating and seizing opportunities and contending with challenges through an active, layered defense of the nation and its interests."[58]

The National Military Strategy, published by GEN Richard Myers in 2004 outlines the both the sentiments of the President and the Secretary to create a more adaptive organization. Specific

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[56] Ryan Henry, "Defense Transformation and the 2005 Quadrennial Defense Review," *Parameters* Vol XXXV, No. 4 (Winter 2005-06), 6.

[57] George W. Bush, *National Security Strategy of the Unites States of America*, (Washington DC, September 2002), 33. The last section of the strategy deals exclusively with the emerging military threats and their inherent asymmetric nature.

[58] Donald Rumsfeld, National Defense Strategy of the Unites States of America, 6.

tasks include the development of capabilities to meet the emerging threats posed by the combination of Traditional, Irregular, Catastrophic and Disruptive threats to national security. Traditional threats describe the necessity of sustaining conventional hegemony. Irregular threats however are those that use unconventional or asymmetric methods to counter the traditional advantages of stronger opponents. Stability operations provide a way of countering this challenge but require operational organizations with sufficient agility to fight "small wars" with means other than kinetic forces. Stephen Metz suggests that "Effectiveness at preventing and resolving small wars [irregular threats] is not simply a matter of more money, more people, or new concepts; it requires a very different national security organization than the one the United States has."[59] He goes on to specify that the type of innovation necessary may actually be outside the capability of the military altogether. Catastrophic threats are those involving the proliferation of weapons of mass destruction. Organizations must develop the capability of dissuading the acquisition of catastrophic capabilities, deterring their use and if that fails, destroying them before they can be used.[60] Disruptive threats are those that develop break through technologies that marginalize U.S. military advantages in key areas. To counter this challenge, organizations must constantly identify not only desirable capabilities in new technology but also innovative methods of employing existing technology to create advantage. These threats, while significant in isolation, rarely will occur alone and so GEN Myers adds that their combined implementation by either a nation or a super-empowered actor will "require the Armed Forces to adjust quickly and decisively to change and anticipate emerging threats."[61] To counter the challenges posed by Irregular, Catastrophic and Disruptive threats, the policy directs that organizations develop the ability to change and adjust accordingly, a capability inherent in learning organizations. General Myers specifically outlines the necessity to develop adaptive organizations "that will prepare the Joint Force for asymmetric challenges and a diverse array of threats."[62]

The complementary strategic policies clearly prescribe the development of capabilities rather than platforms. The change in focus from geographic threat orientations to capabilities based planning is possible only if organizations can deal with the unexpected across the spectrum of threats. The national policies therefore mandate the development of learning organizations that can

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[59] Stephen Metz, "Small Wars: From Low Intensity Conflict to Irregular Challenges," *Rethinking the Principles of War*, edited by Anthony D. McIvor. (Annapolis: Naval Institute Press, 2005), 291.

[60].Ryan Henry discusses the requirement to develop capabilities that are not tied to platforms in countering the array of challenges of the new threat environment. Ryan Henry, 14

[61] Richard Myers, GEN, USAF, National Military Strategy of the United States of America: A Strategy for Today, A Vision for Tomorrow. (Washington DC: GPO, 2004), 4.

[62] Ibid., 24

achieve success in ambiguity and complexity. So what drives the development of organizations that are agile enough to discern emerging threats in an unsure environment? A short review of current doctrine will reveal that an answer is not yet part of the Army's repository of knowledge. Rather doctrinal development as a method of gauging learning only records adaptive learning and therefore becomes of little use in meeting the dynamic requirements mandated by our national strategies.

Doctrine Is Ineffective as a Driver for Learning

Doctrine captures learning and in so doing directs a method that generally works in solving problems that are in the past. The process of gaining institutional consensus on how to solve the problem is useful and in the end, doctrine serves a necessary, although anecdotal purpose. The limitation is that it is slow. Doctrine cannot provide answers in real time. Organizations deployed to a theater of conflict for six to twelve months cannot expect the generation of new doctrine to be of any use in directing their generative learning throughout their tour. They can however, expect the threat environment to change significantly while deployed. To learn from their operational environment as part of their operational design, organizations naturally adopt metrics of some sort to gauge progress. The extension of this natural organizational response is the focus of the remainder of this monograph.

In the previous section, a discussion of the national policies published under the current administration reveals that learning organizations, adaptable and innovative, are necessary to contend with the challenges of the emerging strategic environment. This section will link those national policies to doctrine to determine whether doctrine is an effective means of generative learning. The author contends that it is due to the lag time in its development in spite of the stupendous efforts to reduce publication times. Doctrine by its design is not predictive.

Our collection of doctrine is certainly one of the strengths of the Army as it captures lessons and ideas that generally work and that generally resonate well within the profession. Doctrine drives force modernization. In the senior leader capstone publication, *How the Army Runs: A Senior Leader Reference Handbook, 2005-2006*, the process of doctrinal change takes between two and four years to be effective. Training and curriculum changes as well as structural changes "follow changes in the other 'drivers' by several years."[63] While the handbook goes on to

[63] How The Army Runs: A Senior Leader Reference Handbook, 2005-2006. (Carlisle, PA: US Army War College, 2005), 43.

articulate the importance of shortening this as well as other key elements of force development, their utility as drivers for learning in organizations is limited. Rather doctrine serves to capture things that are already learned.

In the past, doctrine provided the cornerstone upon which the Army could build a joint conventional force, lethal and devastating in the operational level of war. The U.S. Army's hegemony in conventional warfare emerged from the refinement of its doctrine over time. The doctrine of the 1986 edition of Field Manual 100-5, Airland Battle, paved the way to achieve dominant warfare capabilities by capturing the idea of operational art.[64] The focus on conventional warfare as the preeminent threat continued through successive versions of the Army's Capstone manuals, and essentially remained unchanged through the current version of Field Manual 1-0, *The Army*, published in June 2005.[65] The changes permeated the force for 17 years before full testing during Operation Iraqi Freedom. The doctrine associated with the operational art was insufficient however, as the transition to stability operations, to include counterinsurgency operations, overwhelmed the operational units assigned to execute them. The asymmetric nature of the conflict in Iraq did not have a doctrinal solution and it is arguable that the application of our doctrine only served to make matters worse.[66]

Why did the Army's doctrine fail to describe a common framework for operations immediately following the amazing success of major combat operations in OIF? We should have had doctrine published. As suggested in the previous chapter, the majority of the conflicts since Operation Desert Storm involved asymmetric threats and posed challenges that the Army could not overcome. Military experiences in Somalia, Haiti, and Bosnia should have generated new doctrine centered on complex stability operations as the predominant threat. Consensus in recognizing that our conventional superiority was driving adversaries to pursue asymmetric capabilities did not materialize in spite of the availability of evidence. A warlord causing the United States to change

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[64] See the final Chapter in Shimon Naveh's study of operational theory. *In Pursuit of Military Excellence: The Evolution of Operational Theory*. (Portland: Frank Cass Publishers, 1997), 307.

[65] The new version of FM 1-0 accepts as a start point that the Army is at War. The concurrent transformational processes our featured with equal importance, highlighting the asymmetric nature of the current threat environment while falling short of listing it as the focal point of Army transformation. See Field Manual 1-0, 64

[66] The presentation of information suggesting that US operational strategy at the conclusion of major combat operations did little to sustain the successful momentum of the operation as it transitioned to stability operations is the subject of multiple contemporary essays. See Nigel Aylwin-Foster, "Changing the Army for Counterinsurgency Operations," 9. See Steven Metz and Raymond Millen, *Insurgency and Counterinsurgency in the 21st Century*, (Carlisle, PA: Strategic Studies Institute, November 2004), p. vi. See Jeffrey Record, "Why the Strong Lose," Parameters XXXV, No. 4. (Winter 2005-06), 29.

its foreign policy in Mogadishu is compelling evidence. Rampant corruption undermining the transition to civilian rule in Haiti is compelling evidence. An aversion to casualties preventing the active pursuit of national objectives in Bosnia is also compelling evidence of the need for a doctrinal shift towards asymmetric war. The same lessons that we failed to learn in Vietnam we failed to learn in the decade following Operation Desert Storm. This effectively shows the second major shortcoming of doctrine. If the first is the lag time, the second is that doctrine's implementation will always require consensus in its creation. Large organizations and the associated inertia represent the most common obstacle to learning. Widespread acceptance of new ideas that run counter to the organization's generally held self-perception rarely gain traction unless they are general enough to remain as conceptual guidance.

An example how doctrine often does not represent the emergence of new concepts is in the Army's Field Manual 5-0. The field manual, *Army Planning and Orders Production*, published in its final form in January 2005, supersedes the previous edition titled FM 101-5, published in 1997. The effort to rewrite the Army's capstone field manual for planning paralleled the production of the Joint Pub 5-0, Joint Operation Planning. While the Joint publication is still in draft form, it differs greatly from the Army's planning document in its basic approach. While its hard to imagine a future conflict where the Army will plan and direct full spectrum operations in the absence of a robust joint and multi-national force, one would imagine that the capstone planning document would nest with that of the joint planning manual, particularly if they are both rewritten and staffed in parallel. The joint publication however introduces a shift towards Effects Based Operations, a nested concept as part of a networked theory of war that attempts to harness the interconnected and interdependent capabilities of the Information Age.[67] The Field Manual does not refer to this approach whatsoever.[68]

The concept of interim field manuals is currently in use by the Army's Combined Arms Center to increase the production of field manuals based on emerging trends. An interim manual requires less time for consensus due to its limited lifespan. The proponent does not intend to keep

[67] Field Manual 5-0, *Army Planning and Orders Production*, (Washington D.C.: Headquarters, Department of the Army, January 2005), 1-15. A search of the field manual reveals that no mention anywhere includes references to Effects Based Planning or Information Age concepts.

[68] Joint Publication 5-0, Revision 3d Draft, *Joint Operation Planning*, (Norfolk: Headquarters, United States Joint Forces Command, 10 August 2005), III-2.The entire Chapter III is dedicated to explaining the Effects Based Approach to planning, although the final approval has been pending for over eight months.

the document as a reference for the force for longer than two years from publication. Field Manual 5-0.1, *The Operations Process*, is one such attempt. The purpose of this field manual is as follows.

> "[The purpose is] to reinforce the fundamental principles in FMs 3-0, 5-0 and 6-0. It expands upon those fundamentals based on changes in Army structure and lessons learned from ongoing operations….This FMI establishes the Army's position on how to integrate parts of the effects-based operations concept into Army doctrine. This is an interim position that will be finalized during the development of FM3-0 and FM 5-0. These field manuals are scheduled for publication in 2007."[69]

While the interim manual concept seeks to improve upon the lag time associated with doctrine, it is still slow and shows an inherent lack of agility. The interim manual in its draft form has been in circulation for six months and is still pending final approval.

In some cases, regulations even contradict emerging doctrine further preventing its acceptance. United States Forces Command's regulation 350-1, which prescribes training requirements for active duty units assigned to the continental United States, prohibits the use of training resources for stability operations outside of a 90-day window of deployment to avoid any distraction from the unit's primary warfighting activities.[70] How then can doctrine be the cornerstone of learning in our organization if it only recognizes selected trends in hindsight?

Joint doctrine, by virtue of being "joint doctrine," suggests a more holistic approach to developing learning capabilities that reflect systems thinking. The apparent limitation however seems to be the lack of appreciation for the enemy's innovation and adaptation. A survey of the Joint Warfighting Center's Publications reveals that concepts like Operational Net Assessment and the Effects Based Approach provide frameworks for team learning by the organizations that can master the conceptual implications.[71] The purpose of this series of pamphlets is to promote changes to joint doctrine based on sound ideas that emerge from the joint operational experience. These

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[69] Field Manual Interim 5-0.1, Final Draft, *Operations Process*, (Washington D.C.: Headquarters, Department of the Army, 5 October 2005), vii.

[70] FORSCOM Regulation 350-1, *Active Duty Training For FORSCOM Units* (Fort McPherson, Georgia: Headquarters, U.S. Army Forces Command, 25 October 2002), 26-28. Para 3-22.

[71] The collection of JWFC Publications include JWFC Pamphlet 1, *Future Joint Operations*, (Norfolk: Headquarters, United States Joint Forces Command, 1 March 2002). JWFC Pam 2, Doctrinal Implications of *Low Collateral Damage*, (27 January 2003). JWFC Pam 3, *Doctrinal Implications of the Standing Joint Force Headquarters*, (16 June 2003). JWFC Pam 4, *Doctrinal Implications of Operational Net Assessment*, (24 February 2004). JWFC Pam 5, *Operational Implications of the Collaborative Information Environment*, (1 June 2004). JWFC Pam 6, *Doctrinal Implications of the Joint Interagency Coordination Group*, (27 June 2004). JWFC Pam 7, *Operational Implications of Effects Based Operations*, (17 November 2004).

pamphlets however dedicate little effort in recognizing the adaptive nature of irregular threats in spite of this being a featured portion of national strategy and the Quadrennial Defense Review. The one significant exception is the concept of Red Teaming described in JWFC Pam 4 as an analysis of how the adversary views U.S. forces, to include "United States' values, centers of gravity, vulnerabilities, strengths, and other factors."[72] The concept of Red Teaming suggests a cross-functional team at the division or higher level that attempts to replicate the cognitive abilities of the enemy to attempt to identify and exploit U.S. weaknesses during wargaming. In spite of the philosophical advances (like Effects Based Operations), the primary shortcomings of joint doctrine is the same as Army doctrine. The time to generate doctrine is too long after the recognition of an emerging trend to be of use to the organization groping with the problem. If the problem garners sufficient attention to a gap in our training or doctrine and if there is sufficient consensus to generate the momentum necessary then new doctrine may result. The best doctrine can hope to do is record both the emergence and the intervention associated with it as a reference to identify similar methods for countering similar conditions in the future, but this again only leads to adaptive learning and does not benefit the development of learning organizations in the Information Age.

In LTC Nagl's conclusion to *Learning to Eat Soup with a Knife*, he articulates a series of alternative methodologies for learning in military organizations other than doctrine.

> "Doctrinal changes are not the only way in which military organizations demonstrate learning, although the published nature of formalized doctrine makes it convincing evidence of change. Learning is also demonstrated in the curricula of military schools and training institutions, in the structure of military organizations, in the creation of new organization to deal with new or changed situations and myriad other institutional responses to change."[73]

In many cases, doctrine informs the processes within learning organizations. The conceptual knowledge contained in the Small Wars Manual certainly contributes to the background research necessary to develop individual personal mastery as well as to create the proper mental models within the organization for developing future capabilities in conjunction with stability operations. The publication of the Small Wars Manual in 1940 and its subsequent obsolescence and rebirth reinforces the necessary role that doctrine will continue to play in the development of learning organizations (as a repository for knowledge). But the existence of this manual did little to facilitate the transition to stability operations in OIF as it did little to facilitate operations in Vietnam

[72] JWFC Pam 4, 13.

[73] John Nagl, Learning to Eat Soup with a Knife: Counterinsurgency Lessons from Malaya and Vietnam, 7.

or any of the other small wars in which the U.S. Army found itself.[74] It was the combination of ideas contained in the Small Wars Manual and other related material in academia combined with indicators collected by the operational organizations that inspired the strategic approach currently in use in Iraq. As the environment continues to change, continued synergism between doctrine, academia and timely metrics will identify indicators to prevent delays in modifying strategy in Iraq and induce generative learning.

Accountability Demands Metrics

The transformational processes underway seek to change the force in order to enable its ability to defeat 21st Century threats. Learning Organizations are a major feature of this process as learning organizations focus on observing and acting on an environment to shape future actions through experimentation. In other words, they not only react well, they anticipate well. The risk in not balancing capabilities between asymmetric and conventional threats is too high to leave to random chance. Congressional oversight is not only necessary but also required by federal law. As noted by Ryan Henry, "With a budget in excess of $400 billion, the Department of Defense is perhaps the largest single bureaucracy in the world."[75] Institutional inertia alone would be sufficient to derail transformation without proper and timely oversight. Learning organizations have to rely on more than history and doctrine to drive generative learning. At the operational level, organizations are developing systems for collecting metrics to enable their learning. Strategic organizations are doing the same. In this section, the author will present a discussion on the national demand for metrics to gauge transformation by discussing congressional considerations for oversight of DOD and DOD considerations for informing the public. The purpose in presenting this is to complete the discussion on why metrics drive learning and are therefore the essential component to developing learning organizations that can target asymmetric threats.

To insure confidence and transparency in the execution of the National Security Strategy, congress directed the submission of the Quadrennial Defense Review (QDR) in 1997. The 2005 edition will be the third iteration, presented to congress on 6 February 2006, it serves to inform congress of the strategic direction for U.S. security over the next four years It will not only be a comprehensive review of national security, but will include concepts that will guide major

[74] Max Boot, 285.
[75] Ryan Henry, 5.

investments and theater security cooperation. Congress is currently discerning metrics with which to evaluate the progress of transformation, the primary focus of the QDR. What congress chooses to measure effectively will drive the subsequent efforts for reporting agencies. Allowing for some precautions by the House and Senate Armed Services Committees to inoculate their data against reporting inconsistencies, the metrics selected by congress will drive DOD learning in order to improve those metrics and thereby co-opt congressional support for the strategies proposed in the QDR. A recent CRS Report, *Defense Transformation: Background and Oversight Issues for Congress*, recommended the following areas as key oversight areas for congress: first was the necessity for transformation, and if transformation is necessary than the second area was the appropriateness of the administration's plan for transformation in terms of content and implementation strategy.[76]

According to the CRS Report, the necessity of transformation has five general tenets. The first is that new technologies make possible the creation of new capabilities. The second is that the transformation is necessary to contend with the emerging asymmetric threat environment. Third, is that transformation is necessary to preserve current U.S. conventional hegemony. Fourth, is that we currently enjoy a window in time due to the lack of a near peer competitor. Finally, the report highlights that transformation is cheaper than incremental improvements in force modernization.[77] Congressional oversight in each of these areas would force the development by DOD of results oriented management tools. These would include a spectrum of new metrics to gauge the effectiveness of each tenet as well as the modification of existing metrics to account for the effectiveness of non-tangible capabilities like Net-Centric Warfare and Effects Based Operations.

In selecting metrics to drive DOD's progress and enforce fiscal accountability, the report suggests the development of increasingly sophisticated measures of effectiveness that link performance and availability with collaborative and interconnected capabilities.

> "To what degree has DOD developed new metrics for measuring the capabilities of transformed military forces and the effectiveness of transformational military systems? To what degree is DOD using these new metrics in making decisions about programs and resources? When will the process of developing and applying new metrics be complete?

[76] Congressional Research Service Report RL 32238, *Defense Transformation: Background and Oversight Issues for Congress*, by Ronald O'Rourke (4 April 2005), CRS 14.

[77] Ibid., CRS-15.

> Who is involved in developing the new metrics and what process is being used to develop them?
>
> Are DOD's emerging new metrics unduly biased against legacy forces? Are they unduly biased in favor of it own transformation proposals versus transformation proposals offered by others?"[78]

In his testimony to the House Armed Services Committee, noted author and analyst, Dr. Andrew Krepinevich, suggested strategic metrics as well as campaign metrics for consideration. At the strategic level, he suggested that metrics address overall war aims. "One is whether our [U.S.] operations in Iraq are enabling a shift toward more democratic regimes in the Arab/Islamic world. The second is whether we [U.S.] will experience, as a consequence of this war, a shift away from the proliferation of nuclear weapons."[79]

Congressional oversight has a regulatory basis, not just a morale one. The Government Performance and Results Act of 1993 (GPRA) requires agencies of the federal government to be accountable for program goals and objectives and to measure their performance against their standards and finally to make those metrics available for oversight.[80] Efforts in the Global War on Terror are not exempt nor are the transformational processes in progress throughout DOD exempt from oversight. The statute defines specific terms for reporting. One term is "output measures" and the stature defines it "the tabulation, calculation, or recording of activity or effort and can be expressed in a quantitative or qualitative manner."[81] Outcome measures are an "assessment of the results of a program activity compared to its intended purpose."[82] According to a recent CRS Report, titled *Combating Terrorism: The Challenge of Measuring Effectiveness*, by Raphael Perl, "Arguably, existing legislation requires government agencies to be held accountable for the cost-effectiveness of these mammoth expenditures…Demonstrable, measurable, effective progress against terrorism is the desired goal."[83]

The process of screening and selecting metrics has a profound impact in shaping the learning habits of the organization. This process will be the focus of the final chapter of this

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[78] Ibid., CRS-30.

[79] Congress, House, Armed Services Committee, "Are We Winning In Iraq?" Testimony before the House Armed Services Committee, Testimony prepared by Dr. Andrew Krepinevich, 109th Congress, 1st session, March 17, 2005, 9.

[80] Government Performance and Results act of 1993. Section 2, B; available from [http://www.whitehouse.gov/omb/mgmt-gpra/gplaw2m.html]; Internet; accesses on 26 January 2006.

[81] Government Performance and Results act of 1993, Section 4.b.

[82] Ibid., Section 4.b.

[83] Congressional Research Service (CRS) Report RL33160, *Combating Terrorism: The Challenge of Measuring Effectiveness*, by Raphael Perl (23 November 2005), CRS-2.

monograph. To close this section, however it is important to note that a system of performance measurements aids in creating transparency in the transformational process. Transparency aids the organization directly as well as indirectly. The direct benefit is their use in discerning future action. The indirect benefit aids the organization to instill confidence, to assure allies, and to promote internal and well as external buy-in with the organizational vision. In his book, *Leadership*, Rudy Giuliani describes the value of metrics driven learning during his tenure as the Mayor of New York City. The improvements achieved by New York after adopting a metrics based accountability program are astounding. Their availability to everyone within the organization made the organization empowered to take responsibility. "And since the whole idea was to take responsibility and feel invested in the process, involving…the staff created a program that didn't feel as though it were imposed from the top."[84]

Influence Requires Metrics

The transparency created by metrics that drive a sense of personal accountability within an organization has the added benefit of building a shared vision within the organization and within the public sector supporting the organization. As noted by Peter Senge, a shared vision is a requirement for organizational learning.[85] This lesson translates directly to the U.S. Army and transformation. The public provides a key support base for the Army through the election of congress and the administration as well as by being the source of recruitment for both enlisted personnel and officers. Metrics that allow transparency build confidence in the public to continue to provide support accepting the immense expenditures and risks needed to execute national policy. The lack of suitable metrics inspires doubt, and mistrust. The lack of suitable metrics will also prompt outside agencies, to include the media, to generate their own with which to gauge the success or failure of an Army program. A metrics based system of accountability drives not only team learning in regards to the organization's internal objectives, but also provides the basis for building a shared vision throughout the organization and its support base. The purpose of this section is to show how metrics are not only necessary to provide oversight and accountability as noted in the previous section, but also that their absence prevent effective learning by creating an inability to influence perceptions at the strategic level preventing the autonomy needed to learn at the organizational level. To illustrate this point, the use of metrics by the media and resulting reaction by DOD shows

[84] Rudy Giuliani, *Leadership*, (New York: Talk Miramax Book, 2002), 88.
[85] Peter Senge, 9.

that a program for mass accountability and transparency can bolster efforts to achieve organizational learning.

On 27 June 2005, during a radio address in Kansas City, Missouri, Secretary of Defense, Donald Rumsfeld, articulated a mounting frustration by not only the military but also arguably the administration, on the abundant use of negative metrics by the media in informing the public on the progress of the War on Terror and the progress of Reconstruction in Iraq.[86] He continued this theme throughout the summer and fall culminating in another vocal chastisement of the media while speaking at the Johns Hopkins School for Advanced International Studies. In a web-based article from Radio Free Europe/Radio Liberty published on 5 December 2005, the editors paraphrased Secretary Rumsfeld's comments stating, "Far more Americans are killed in a single year in highway accidents than have died in nearly three years of war in Iraq. Yet he said the news media put greater emphasis on the deaths of more than 2,100 U.S. soldiers there."[87] In an effort to counter the media's general focus on negative metrics, the Office of the Assistant Secretary of Defense (Public Affairs) created a nationwide program, "America Supports You," in November of 2004.[88] Secretary Rumsfeld highlighted the programs efforts to provide visibility on positive efforts by not only the nation but also troop responses to those efforts aimed at highlighting public appreciation for the military's efforts in the war. The Washington Times launched an effort to address some of the Secretary's criticism in producing the "On Balance" editorials started on 7 December 2005.[89] While this continuing series of editorials provides poignant snapshots of indicators that could be useful as a tool, the lack of a formal program to harness their potential marginalizes their usefulness.

[86] Doug Sample, Sgt. 1st Class, USA, "Rumsfeld Says Media Show Only 'Negative' Side of Iraq War," American Forces Information Service, 28 June 2005 (on line news service); available from [http://www.defenselink.mil/news/Jun2005 /20050628_1889.html]; Internet; accessed on 27 January 2006.

[87] Radio Free Europe/Radio Liberty, "Rumsfeld Says Media Too Negative About Iraq," 5 December 2005 (on line news service); available from [http://www.rferl.org/featuresarticle/2005/12/48985a40-a07b-43a6-9268-e36527b1b737.html]; Internet: accessed on 30 January 2006.

[88] Department of Defense News Release No. 1190-04, "DOD Announces America Supports You Program," 19 November 2004 (on line news service); available from [http://www.defenselink.mil/releases/2004/nr20041119-1562.html]; Internet; accessed 27 January 2005.

[89] Note that this is a continuing editorial of which only the first is specifically referenced in this citing "On Balance," *The Washington Times*, 7 December 2005 (on line news service); available from [http://www.washingtontimes.com/op-ed/20051206-091140-1752r.htm]; Internet; accessed on 27 January 2006.

In conducting any analysis of counterinsurgency theory, a consensus exists that public perception is the key to undermining the insurgent advantage in intelligence and mobility.[90] Gaining public support away from the insurgent involves detailed metrics used to convey the relative advantage in supporting the government over the insurgent. Sustaining public support in the United States is as critical to U.S. counterinsurgency operations (part of the irregular challenge) in Iraq. In his testimony to the House Armed Services Committee, Andrew Krepinevich, states that the American citizenry is one of the strategic centers of gravity for U.S. Security Operations in Iraq along with the Iraqi citizenry and the American soldier.[91] He further contends that all measurements that show the effectiveness of operations in achieving objectives must also convince the public that the effort is worth the cost in lives and national treasure. Public support directly translates to support for funding in congress and morale within the force. Mayor Giuliani was able to effectively harness public support to increase the learning potential of his organization during his tenure through introduction of a metrics based system of accountability called Compstat. In his book, *Leadership*, he states that giving the public data "reinforced the idea that it [the metrics program] was not only about answering to whoever was above you on the organizational chart, but about answering to the public as well."[92] This system is an example of an effective metrics based approach to developing learning organizations and is one of the base models from which this author will draw recommendations in the subsequent chapter. Metrics then have a profound effect on influencing external support to enable the organizational learning process.

Former Speaker of the House, Newt Gingrich, in a congressional testimony discussed a concept of Entrepreneurial Government and Entrepreneurial Public Management, rather than the current system of bureaucratic government. In describing the vital and essential reasons behind a transformation that in his opinion included the current DOD transformation, he stated, "The public has a right to know about actions which in a totally private company would be legitimately shielded from outside scrutiny."[93] He further states the following about public accountability and the need for metrics to inform the public.

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[90] A survey of leading theorists Roger Trinquier, David Galula, Frank Kitson and Bard O'Neil, support this statement. All three authors are included in the bibliography. For a contemporary comparison, see the work of Robert R. Tomes, "Relearning Counterinsurgency Warfare," *Parameters* (Spring 2004), 21.

[91] Congress, House, Armed Services Committee, "Are We Winning In Iraq?" Testimony prepared by Dr. Andrew Krepinevich, 5-6.

[92] Rudy Giuliani, *Leadership*, 89.

[93] Congress, House, Committee on Government Reform, "Moving the Federal Government to an Entrepreneurial Model," Testimony before the Committee on Government Reform, Testimony prepared by the Honorable Newt Gingrich. 109th Congress, 1st session, 13 July 2005, 3.

> "It is important to recognize that there are legitimate requirements of public activity and public responsibility which will be just as true in this new model as they were in the older model. Simply throwing the doors open to market oriented, entrepreneurial incentives with information age systems will not get the job done. The system we are developing has to meet the higher standards of accountability, prudence, and honesty which are inherent in a public activity."[94]

Gingrich's argument for entrepreneurial government was that transparency enabled public acceptance, confidence and support for government activities, particularly, the use of force. The lack of a system that provides sufficient transparency to illicit confidence even when the consequences are not as intended only encourages alternate interpretation. While metrics that inform the public allows the learning process to take place within the context of military campaigns.

The author contends that metrics drive learning in military organizations as opposed to doctrine that simply captures some organizational lessons. Specifically, doctrine did not capture lessons in asymmetric warfare and did not therefore enable generative learning in anticipation of Phase Four operations in OIF. The author further contends that metrics drive learning in civilian government and that the accountability for learning is a regulatory requirement. The QDR process and the oversight requirements by congress express this requirement for the Army as part of the DOD. The author finally contends that the transparency associated with good metrics, made public, enables the learning process to continue in military organizations. In counterinsurgency operations, the mainstay of the irregular challenge, public confidence in the besieged country is a fundamental requirement for success. United States public confidence is also essential because it allows the public to accept with the temporary setbacks associated with organizational learning. Any organizational hierarchy needs metrics, even flat ones, in order to force the necessary creative tension that is essential in generative learning and therefore essential to building learning organizations.

CHAPTER 4: METRICS FOR THE LEARNING MILITARY ORGANIZATION

In the first chapter, the author discussed the significance of learning in the context of the information age and the asymmetric challenges that are emerging as the preeminent risk to national security. In the second chapter, the author discussed the significance of metrics in driving learning. Doctrine has a limited ability to drive learning, compared to the power of metrics to set the

[94] Congress, House, Committee on Government Reform, "Moving the Federal Government to an Entrepreneurial Model," 4.

conditions necessary for organizational learning. The demand for performance measures at the operational and strategic levels displays the potential for metrics-based learning systems to improve organizational learning. This chapter will provide a discussion on the role of metrics to gauge organizational learning rates, the key indicator of progress in transformation. Additionally the author will present three emerging examples of effective metrics based learning frameworks: Systemic Operational Design, the Compstat Model used in New York, and the Balanced Score Card Model. The chapter will conclude with a discussion of screening criteria for assessing the effectiveness of metrics collected within operational organizations as well as some theoretical metrics proposed for gauging organizational learning rates.

The Role of Metrics

Metrics have three functions. They are to inform decision-making, to enforce accountability and to provide transparency in the methods of execution adopted by the organization. The challenges in designing appropriate measurements are the delay involved in seeing the possible second order effects, the lack of a common set of criteria for measuring success and the difficulty in assessing qualitative improvement. The development of adverse second order effects has the potential to reverse the progress of the organization in learning about the environment in which it operates.

Metrics inform decision-making. Metrics-based learning allows trend analysis to generate behavioral patterns (allowing that any complex environment defies prediction with absolute reliance).[95] Decision-making is the 21st Century requires compressed analysis and proactive organizations. The availability of comprehensive measurements of trends and of linkages between environmental nodes greatly enhances decision-making. The availability and access to a database of measurements collected daily that are logically related to the desired system performance not only enhances the speed of the decisions but also offers insight into related effects of the actions being considered.

[95] For more information on the principle of indeterminacy, see the Heisenberg Uncertainty Principle. The principle states that the "more precisely the position is determined, the less precisely the momentum is known in this instant and vice versa," (Heisenberg, uncertainty paper 1927). This relation implies that causality and determination of the future behavior of atomic particles is impacted as much by the method of measurement as by the natural forces at work. So the attempt to measure the environment changes it, thereby reducing the accuracy of the measurement as well as the accuracy of the prediction based on the measurement. David Cassidy, May 2002 (on line web log); available from [http://www.aip.org/history/heisenberg/p08.htm]; Internet; accessed on 1 February 2006.

The second function of metrics is to enforce accountability. Metrics generate a natural tendency for the organization to correct discrepancies that negatively influence the metric. President Reagan was fond of saying, "Trust but check." Another common aphorism amongst Army leaders is that "Soldiers do what Leaders Check." This idea, while simply described, is the psychological forcing function exerted by metrics. A healthy tension between the organization's expectations as expressed in the metrics selected and the drive to enhance performance by improving the performance associated with those metrics creates an opportunity to harness creativity. Mayor Rudy Giuliani expresses the power of a metrics based system to enforce accountability within the New York City Police Department. Giuliani writes, "The mere fact that one knew that one was going to be called to account provided the motivation to try new strategies."[96]

The third function is to provide transparency for both members of the organization as well as those above and around it. Transparency within an organization frees it from the limitation of hierarchical based solutions. As Senge noted, one of the basic learning disabilities is the myth of management. Transparency empowers everyone within the organization to work towards creating better solutions. Margaret Wheatley in writing about the changing nature of leadership notes that the effect of releasing and sharing information is that the members engage in the process of finding solutions because they can relate to how the indicator affects them personally.[97] In his book, *Leading Change*, John Kotter, writes that to sustain urgency through any transformational process, requires high quality information systems that are available to everyone in the organization.

> "First and foremost, performance information systems that are far superior tow hat we generally see today…More people, more often will need data…The systems that supply this information cannot be designed, as are some today, to make the or4ganziation or one of the units look good. They will need to be created to provide honest and unvarnished news, especially about performance."[98]

In providing transparency to the elements above an organization and around it, a system of metrics provides confidence, reducing suspicion and disengagement, while encouraging constructive criticism.

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[96] Rudy Giuliani, *Leadership*, 77.

[97] Margaret Wheatley, "How is Your Leadership Changing?" 2005 (on line web log), 2; available from [http://www.margaretwheatley.com/articles/howisyourleadership.html]; Internet; accessed on 1 February 2006.

[98] John Kotter, *Leading Change*, (Boston: Harvard Business School Press, 1996), 162.

One of the challenges in using metrics based learning systems is the difficulty in establishing a common set of metrics with which to measure performance. An organization must take a thorough holistic view of the system to provide a description of the logical relationships within it. A thorough view appreciates the uniqueness of every system. The unique nature of each system makes the selection of a common set of metrics that equally apply extremely unlikely. The solution then is in the creation of common criteria for selecting applicable metrics and adapting them through iterative feedback from the system to allow learning. Screening criteria for the selection of metrics rather than an existing set allows the flexibility to counter the complex nature of the system.

Another challenge is using metrics based learning systems is a focus on quantitative data. In a recent Congressional Research Services Report, Raphael Perl writes that the challenges of measuring progress in countering terrorism is an "over reliance of quantitative indicators, particularly those which may correlate with progress but not accurately measure it, such as the amount of money spent on anti-terror efforts."[99] A dependence on quantitative data alone without a holistic view of the entire system can lead to bad conclusions. An example of questionable quantitative metrics is in a recent article by Elaine Grossman, published by *Inside the Pentagon*, on 26 January 2006. Grossman posits that post-transformation brigade combat teams have less relative combat power then legacy brigades.[100] What the article fails to consider however is the increasingly complex nature of the problems facing brigade combat teams in the 21st Century, as well as the balance required between capabilities and manpower in a resource constrained military. The essential tasks for brigade combat teams operating in media enhanced, full spectrum environments, with multi-national, interagency, and joint responsibilities are disproportionately more than those of a legacy brigade. The increase in staff then is necessary to mitigate the overwhelming nature of the new task sets. The smaller size organizations perhaps contribute to striking the balance necessary to maintain not only the rate of material development, but also the immediate impacts of operational tempo on the force. Her use of only battalion size formations as the main metric for combat power can lead to simplistic if not wrong conclusions.

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[99] Congressional Research Service (CRS) Report RL33160, *Combating Terrorism: The Challenge of Measuring Effectiveness*, by Raphael Perl (23 November 2005), CRS-1,

[100] Elaine Grossman, "Study Finds Army Transformation Plan Weakens Combat Capability," *Inside the Pentagon*, 26 January 2006 (on line news agency); available from [http://www.d-n-i.net /grossman/army_transformation.htm]; Internet; accessed on 12 February 2006.

A third challenge of metrics based systems is that of measuring the wrong thing. In a 2001 article by William S. Murray published in *Parameters*, about the challenges of Measures of Effectiveness (MOE) in military decision-making, Murray writes, "In addition to misrepresenting that which they purport to depict (with potentially disastrous consequences), the collection and analysis of inappropriate MOE wastes resources and efforts."[101] Murray is describing the effects of what Senge calls a "system delay".[102] In complex environments, the effects of an action will likely require some time to be measurable. This makes its measurement increasingly difficult since the causal link will not be obvious. Resources may in fact measure behavioral relationships that do not relate to solving the problem. What Murray fails to see however is that variance in metrics has the added benefit of providing multiple aspects in viewing the system, and though can lead to an excessive use of resources, still can provide valuable insight. One should expect that some metrics adopted by organizations to measure progress would prove less productive than others. The nature of complexity prevents prediction with assurance so why would every metric in isolation provide productive results. It is more reasonable to assume that some metrics will be more useful than others will and that the analysis of trends from a collection of indicators is more likely to provide useful information than not.[103] Therefore, while some metrics are unproductive, holistically, the careful selection of metrics will drive the organization towards a better understanding of the environment. Senge describes the process as "seeing interrelationships rather than linear cause-effect chains, and seeing processes of change rather than snapshots."[104]

Hurricane Katrina hit the coast of Louisiana, Mississippi and Alabama on 29 August 2005. The federal government launched a massive recovery operation. Joint Task Force Katrina, a military organization outside the auspices of the Federal Emergency Relief Agency (FEMA), augmented the federal effort. The selection of metrics by this organization differed from those selected by FEMA. Undoubtedly, the collection of data was at times contradictory to each organization's perceived responsibilities. It is also true however that the existence of varied and multiple metrics for measuring progress drove the distinct organizations towards improving and thus learning from the environment in such a way that would have been impossible without them. Another added benefit beyond the generative learning that occurred through the selection of

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[101] William S. Murray, "A Will to Measure: Measures of Effectiveness In Military Decision Making," *Parameters* (Autumn 2001), 134.

[102] Peter Senge, 89.

[103] For more information on selection in complex environments see Robert Axelrod and Michael D. Cohen, *Harnessing Complexity: Organizational Implications of a Scientific Frontier*, (New York, Basic Books, 2000), 122.

[104] Peter Senge, 73.

metrics, was the realization that metrics are more useful if they are selected ahead of time and a system for capturing the measurement is included as part of the planning effort. Initial intervention in the aftermath of the hurricane was chaotic due to the lack of systemic measures by both FEMA and JTF Katrina. While a sense of general understanding continually emerged as each day passed, a faster learning rate was possible if a set of metrics existed within the construct of the National Response Plan.[105]

The need for organizations to embrace learning by design is the focal point of two emerging concepts for organizational planning and design: Systemic Operational Design and Compstat. The author will describe both of these concepts in the next two sections and will relate it to the assessment of learning rates in military organizations.

Systemic Operational Design

Organizational Learning implies that learning is necessary to understand the complex aspects of a developing environment. The emerging threats fueled by globalization and asymmetric challenges to national security at the operational and strategic level constitute the new environment. The process of learning is not linear. Quite the contrary, the process will have to contend with the dynamic nature of the evolving environment and so in the process of learning actions initiated will not have desired effects and require corrections. The initial set of metrics selected as indicators will fail to describe the environment sufficiently and require additions or deletions. Learning therefore is an iterative process that by design must accept that the course of action will undoubtedly require modifications. An emerging concept that applies systems theory and complexity theory to operational planning by the application of an iterative learning methodology is Systemic Operational Design (SOD). This concept offers insight into the importance of gauging learning rates in military organizations by providing a conceptual framework for a metrics-based approach to organizational learning.

A short overview of SOD is necessary to understand its application as a framework for organizational learning. Systemic Operational Design refutes a linear campaign framework that

[105] Information on JTF Katrina is taken from personal participation as part of the SAMS Planning Group Katrina, assembled to support planning efforts by FEMA in Baton Rouge Louisiana. The National Response Plan, published in December 2004 is widely available and while it does provide guidance to establish performance measures, the measures themselves are not articulated and instead were discerned after Katrina hit the coast. Available from [http://www.dhs.gov/dhspublic/interapp /editorial/editorial_0566.xml]; Internet; accessed on 1 February 2006.

starts at Phase 0 and continues unerringly through to some fictional static transition point where the environment conforms to national interests. Parallel concepts that share the SOD non-linear ideology include the Effects Based Operations (EBO).[106] Systemic Operational Design however differs in that it starts with an operational design as part of mission analysis that attempts to identify the range of behavior demonstrated by an organization with respect to the system. An example is the conflicting aims that influence Al Qaeda in Iraq to target Iraqi citizens whose support they need rather than "infidel" forces who present a much more difficult target. The metrics selected serve to gauge the dynamics of this tension. The EBO process proposes the selection of measures associated with the desired outcome, which while relevant, do not necessarily inform the organization of how the system operates, grows, and evolves. Colonel Bob Johnson from the Future Warfare Studies Division, Futures Center, U.S. Training and Doctrine Command, describes EBO as having a "strong strategy-to-task linkage, but it provides no methodology for the integration of the desired effects in a broader campaign or major operation."[107] What EBO lacks is a focus on learning as part of the entire process, not just during the initial stages of campaign design. In a monograph by LTC William Sorrells, SOD's most essential aspect is learning. "Learning is necessary in order to recognize new possibilities, events, or logic, which do not meet established design or terminating conditions and therefore mandate a new design or structure. Learning takes place inside boundaries established within time and space as it relates to the rival [enemy]."[108]

Sorrells further states that predictive analysis is not an effective means of campaign planning. He states that, "Prediction of the rival's response, while serving as possible food for discourse, is no basis upon which to plan."[109] Rather Sorrells suggests that learning must be included in the design and that learning will guide new action. As learning occurs for the rival simultaneously, prediction of the rival's action lacks sufficient rigor to use as a basis for planning. Organizational learning then comes from two areas: observation of the enemy's response and through direct contact with the tactical units interacting with the enemy and the environment. The

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[106] Joint Warfighting Center Pam 7, *Operational Implications of Effects Based Operations*, (Norfolk: Headquarters, United States Joint Forces Command, 17 November 2004), 2.

[107] Bob Johnson, COL USA, "Executive Overview: Systemic Operational Design," (Fort Monroe, VA: Concept Development & Experimentation Directorate, US Forces Command, Version 4.2, 5 Jul 05.

[108] William T. Sorrells (LTC, USA), Lieutenant Colonel Glen R. Downing (USAF), Major Paul J. Blakesley (British Army), Major David W. Pendall (USA), Major Jason K. Walk (Australian Army), Major Richard D. Wallwork (British Army), "Systemic Operational Design: An Introduction." (Monograph, School of Advanced Military Studies, US Army Command and General Staff College, Leavenworth, KS, AY 04-05), 27.

[109] Ibid., 34.

networked array of sensors that currently comprise the U.S. military C4ISR capabilities provides the ability to observe the enemy. The metrics delegated to the tactical commanders from the operational commands to collect and report are an effective means of guiding the organizational learning of both the tactical and operational echelon.

Systemic Operational Design offers a military organization a theoretical model for gauging learning rates by having at its base a framework for the selection, analysis and assessment of both quantitative and qualitative observations in order to confirm or correct action. Trends based on the behavioral patterns of the system rival, informed by the metrics collected by the organization, leads to the next iteration of operational design, enhancing understanding of the system. Rival behavior that is inconsistent with expectations instigates a process to reframe the system or redefine logical relationships and the measures of those tensions. The system's logical relationships, tested through a strategic raid (a means of introducing energy into the system to generate a system response, allowing observation of the relationships) allow the process of observation and reframing as necessary to start over again.

The concept enables decision making by observing and recording information on the system in close cooperation with each echelon of command. It also allows each echelon to be accountable for recording their interactions with the system. Finally SOD as a system, depends on transparent logical relationships to enable operational planning. This metrics based approach is one way of using metrics to drive learning although it is still mainly developing as a theoretical model. The following section introduces another way, with proven results in its application to complex systems.

Compstat

The successes achieved in New York by the Mayor Rudy Giuliani after the adoption of the Compstat system is another example of the success possible through metrics based learning systems. The monograph already contains references to some of the success achieved in New York. Relating specific metrics and the methodology used to achieve organizational learning within the city government will enhance the recognition of learning within other organizations.

Compstat is a metrics based learning system. Giuliani describes it as a system that "uses intensive crime analysis sessions, up to the minute crime statistics, and computer 'pin-mapping'

technology as basic crime fighting tools."[110] The system has two basic parts. First is the collection of carefully selected data on a daily basis to serve as indicators of the desired results within the city. The ubiquitous availability of on-line database systems enables the collection process. Before introducing Compstat, crime statistics in New York lagged as much as three months behind actual events because of a dependence on FBI statistical data collection.[111] This delay in seeing any data made seeing behavioral patterns extremely difficult. The type of data collected—murder, rape, robbery assault, burglary and larceny—made their use for preventing crime impossible. While internal automated auditing systems increased the confidence of the data, correlative statistical analysis helped suggest trends. The selection and collection of indicators coupled with their wide dissemination enabled the department to improve their understanding of the system within each borough as well as among all of them to suggest actions that could affect certain trends.

The second part of the Compstat system is the use of frequent regular meetings to explain the trends identified by the performance indicators. In New York, under Mayor Giuliani, each of the borough police precinct commanders met twice weekly, taking turns in defending their precinct's performance over the previous four to eight weeks before their peers and superiors.[112] Entire staffs were present with their commanders to address decision-making, accountability and transparency.

As a result of the Compstat system, crime within the city of New York fell immediately. "Major felonies fell 12.3 percent from 1993 to 1994. In two of the most serious categories—murder and robbery—the city's reductions were the largest one-year drops ever—17.9 percent and 15.5 percent, respectively…New York's crime reduction far surpassed that of any other American city."[113] Additional indicators generated additional improvement. Crime rates continued dropping suggesting the expansion of the system to other parts of the city's government. The corrections department adopted the metrics based learning system and generated similar results, reducing the occurrences of inmate on inmate violence from 1093 in 1995 to 70 in 2000.[114] The welfare system adopted the same system and reduced the number of welfare recipients by 245,000, nearly one-fifth

[110] Congress, House, Committee on Government, Testimony before the House Committee on Government Reform, prepared by the Honorable Rudy Giuliani, 105th Congress, 1st session, 13 March 1997, 2.
[111] Rudy Giuliani. *Leadership*, 73.
[112] Rudy Giuliani. *Leadership*, 75.
[113] Ibid., 77.
[114] Ibid., 85.

of the total on welfare, within the first two years.[115] In a recent address before the Command and General Staff College at Fort Leavenworth, Kansas, former Speaker of the House Newt Gingrich applauded the effectiveness of the COMPSTAT model. He stated, "The absence of Compstat systems, the absence of Assessment Rooms, and the absence of routine review is a major factor in the ineffectiveness and inefficiency of the Federal Government in almost every department."[116]

How can the Compstat model help drive learning in military organizations? Firstly, the idea behind a metrics based approach like Compstat, is to provide direction with command emphasis in a form that is measurable to break the "stay in your lane" mentality that has rendered straight bureaucratic functions obsolete. Speaker Gingrich refers to this as staying within your "silo of responsibility….As long as you were doing your job within that system of accountability you were succeeding even if the larger system were collapsing or failing. In the information age this internally oriented approach is doomed to fail."[117] Secondly, like SOD, Compstat provides a methodology for learning from the actions taken to modify the system. The practical nature of it however allows for easier conceptual application within a military organization. The model's primary advantage is enabling decision-making, which it achieves by providing common mental models and a shared vision in the form of the actual desired metrics. The old adage of organizations doing what is checked is true. As the active measurement of metrics unfold, transparency of results push team members to benchmark successful techniques and improve them. The assessment of overall strategy on a regular basis can then result in generative learning as these processes take root and become normal operations.

The Balanced Scorecard

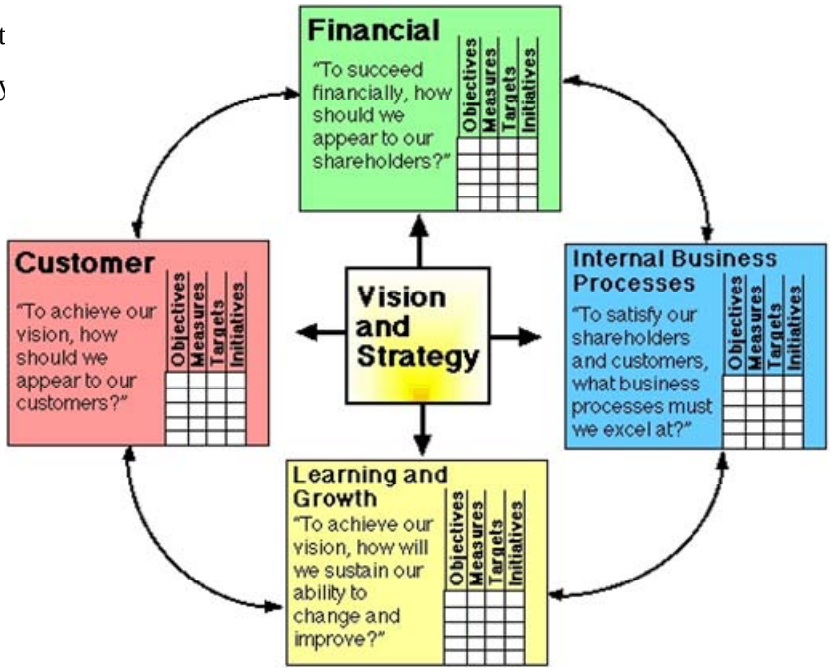
The balanced Scorecard is an approach developed by Dr. Robert F. Kaplan of the Harvard Business and School and David P. Norton. This management system is a metrics based approach to linking corporate strategic vision to the daily tasks executed by corporate members. The approach suggests viewing an organization from four perspectives and developing metrics, collecting data

[115] Congress, House, Committee on Government, Testimony before the House Committee on Government Reform, prepared by the Honorable Rudy Giuliani, 105th Congress, 1st session, 13 March 1997, 4.

[116] Newt Gingrich, "21st Century Entrepreneurial Public Management as a Replacement for Bureaucratic Public Administration: Getting Government to Move and the Speed and Effectiveness of the Information Age," (paper presented at the Command and General Staff College, Fort Leavenworth, Kansas. October 21, 2005) Gingrich Communications, 10.

and analyzing it relative to each of those four. As highlighted in Figure 5, the four perspectives are Financial Processes, Internal Business Processes, Learning and Growth Processes, and Customer Processes.[118] Following a short description of each perspective, describing how each contributes to organizational learning, this section will conclude with an introduction to the concept of the Office of Strategic Management already in use by the United States Army, which implements the Balanced Scorecard Model.[119]

At the heart of any corporate strategic vision is profit. However, this viewpoint, focused only on the core end state, fails to realize the corresponding associated systemic processes that can either enable or disable its execution. A simple example of this point is a business that focuses only on profit and inadvertently creates conditions for a labor dispute that later erodes profit margins and undermines the corporate vision. The Balanced Scorecard model while actively gauging progress along this perspective, seeks to temper the secondary effects of a profit only mindset to create a synergy within the corporation of people, tools, products and service that directly link back to the strategic vision. Active measurement of financial data is necessary as part of this process and the design of met ıaking, accountabilit



[117] Newt Gingrich, 12.

[118] Paul Arveson, "What is the Balanced Scorecard?" The Balanced Scorecard Institute, 1998 (on line resource); available from [http://www.balancedscorecard.org]; Internet; accessed on 23 March 2006.

[119] Robert F. Kaplan and David Norton, "Office of Strategy Management," *Harvard Business Review* (October 2005), 74.

Figure 5. Robert F. Kaplan's Balanced Scorecard[120]

The Internal Business Perspective focuses on the whether the right products and services are available and whether they conform to customer needs. Both mission and support practices fall under this perspective. Metrics that gauge effectiveness and enable trend analysis inform organizational leaders and subordinates as to whether they are meeting their mission goals and completing supporting functions. This focus area allows for the extension of the corporate vision to all facets of the organization.

The Learning and Growth Perspective incorporates the ideas of Senge's disciplines of Personal Mastery, and Mental Models. The conceptual framework is in the belief that the individual members are the only repository for knowledge in an organization that intends to operate effectively in the Information Age due to the rapid advances in technological tools and high performance work systems like the Internet. Therefore, the development of metrics that allow organizational leaders to focus education and training on developing the right capabilities and in creating the right cultural viewpoint is essential to balancing the overall strategic vision for the organization.

The Customer Perspective seeks to ensure that the organization actively seeks the feedback from the customer to identify gaps and strengths in performance. It further attempts to implement metrics that gauge whether appropriate care and service is available to satisfy those needs. In essence, the Customer Perspective seeks to gauge whether an organization cares about the people it serves.

The synergistic effect of this concept creates the conditions for team learning by allowing self-discovery as an organization that would not be available to each independent part or individual. Data collected from customers are available to the rest of the organization (transparency) and informs internal business practices as well as allowing the specific targeting of key areas for training and education to enhance performance. Financial metrics allow subdivisions to be accountable for the practices it selects and allows the benchmarking of successful practices. Like the Compstat Model, the Balanced Scorecard provides the information necessary and the conditions that contribute to a holistic view of options and therefore allows for not only adaptive learning, but also for the proactive agility necessary to compete in the Information Age (generative learning).

[120] Paul Arveson; Internet; accessed on 23 March 2006

The Army currently is experimenting with the Balanced Scorecard model, creating an Office of Strategy Management (OSM) and implementing the Strategic Readiness System. The OSM as a concept also put forth by Kaplan and Cohen, suggests the need for a high-level capability to integrate strategic vision with execution.[121] Activities include the creation of the right metrics, the iterative review of strategy to ensure its applicability to the changing environment, the communication of strategy throughout the organization and the integration of strategic priorities throughout the supporting functions of the organization. According to General (Ret) Jack Keane, Vice Chief of the Army during the concept's implementation, the program had many direct benefits to fill the strategy to execution void.

> "The Army's Strategic Readiness System was implemented in October 2002 as a comprehensive strategic management and readiness assessment tool. It provides Army leadership with accurate, objective, predictive, and actionable readiness information to dramatically enhance strategic resource management….This reporting system markedly improves how we measure readiness by gathering timely information with precision and expands the scope of the data considered. We are further developing this system to leverage leading indicators and predict trends—avoiding issues that affect readiness before they become problems."[122]

A sampling of major commands implementing the concept includes the U.S. Army Corps of Engineers, The U.S. Space and Missile Command, and the U.S. Army Medical Corp. In the subsequent section, a review of concept implementation at U.S. Southern Command will inform the understanding of a metrics based strategy for creating organizations that are agile and prepared for the dynamic threat environment.

A Metrics Based Strategy

The chapter will conclude with a discussion of a strategy for assessing the effectiveness of metrics collected within operational organizations. While SOD, Compstat and the Balanced Scorecard are examples of effective methodologies employed to harness the power of a metrics based approach to organizational learning, the discussion of metrics must consider the challenges of selection. A strategy for driving learning in military organizations through the careful screening and selection of its metrics provides the organization the ability to manage chaos and complexity, to

[121] Robert F. Kaplan and David Norton, 72.

[122] Jack Keane, GEN, USA RET, quoted in "CorVu's Balanced Scorecard Hall of Fame Inductees," 2004 (on line announcement); available at [http://www.corvu.com/documents/casestudies/Case%20Study%20Hall%20of%20Fame%20v4.pdf]; Internet; accessed on 22 March 2006.

cull successful metrics and to leverage advantages discerned from tactical, operational and strategic actions.

The chaotic nature of military action coupled with the continually changing complexity of the asymmetric warfare prevalent on today's battlefields almost suggests a sense of helplessness in attempting to select metrics. However, Colin Gray suggests, "War is not like competitive ice skating where points are gained for technique and artistic presentation."[123] Rather war is a matter of being just good enough. Doctor Colin Gray further suggests, "Although war is a gamble, it is not a realm of pure chance."[124] Just like gambling is an activity engaged by individuals attempting to manage chance, the house is still likely to win. In such a way, a strategy for selection and assessment of organizational metrics leveraged by a military organization can tilt the balance of chance in the organization's favor. No individual metric is likely to provide overwhelming insight that propels one side over the other in victory. However, organizations learn only if they share the same mental models and vision, an achievement that comes from the analysis and refinement of the selection process.

The selection process requires careful analysis, but in the end good-enough criteria can spur the intervention in the system that will allow for refinement. The selection process is iterative, continually correcting and spiraling towards a more effective employment of resources. In *Harnessing Complexity*, Axelrod suggests that goals expressed as organizational metrics, are not fixed. Their selection and collection serve to change the system in which they operate.

> "Performance measures can be seen as instruments that shape what events are likely to occur. Even the preservation of life is not a goal that trumps all others, as human willingness to die for principles so dramatically reveals. Since goals are not seen as fixed, setting goals, the criteria that govern processes of selection is one of the main interventions for those who would harness complexity."[125]

According to Axelrod, this leads to two significant observations. The first is that whatever the metric, the organization that will use it should formulate it. Its use and eventual abandonment is only relevant to the organization using it and only as much as it informs the organization's learning process. While one organization may find a metric useful, another may find it distracting.[126]

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[123] Colin S. Gray, Strategy for Chaos: Revolutions in Military Affairs and the Evidence of History. (London: Frank Cass & Co, Ltd., 2002), 102.

[124] Ibid.

[125] Robert Axelrod and Michael D. Cohen, 12.

[126] Ibid.

The second observation made by Axelrod is that the way an organization defines its metrics affects its chances of learning about the system. As an example of this observation, Axelrod offers the game of checkers. How difficult would learning from the system become if the only measure of success were victory? "The typical way to do this is to use criteria that can be measured in the course of the game….In a seeming paradox, you increase the chance of winning by concentrating on a set of criteria that does not include winning."[127]

Andrew Krepinevich, the Director of the Center for Strategic and Budgetary Assessment in Washington DC suggests four more considerations in any strategy for developing metrics in an organization.

> "First, metrics must focus on trends in the war, not snapshots at a particular moment. Insurgencies are protracted affairs, and success can be gauged only over time. Second in selecting metrics, one must consider their possible second-order or "hidden" effects…Third, metrics should be reviewed on a frequent basis to insure that have proven (or remain) valid. Finally, metrics should not be viewed in isolation. They must always be linked back to the war's centers of gravity."[128]

A careful synthesis of the suggestions by Gray, Axelrod and Krepinevich suggest an overall strategy for the selection of metrics. Certainly, any strategy must appreciate the importance of good analysis and balance that with the realities of friction in a complex system. The strategy must include the actual organization that will utilize the metrics to develop a clear understanding of what the metrics are intended to measure and why the metrics are to measure it. This mitigates the collection of data for the sake of collecting data a common obstruction to organizational learning. The metrics must focus on capturing trends that indicate changes related to the organization's objectives in relation to the environment. Metrics must be in place early to allow the organization to intervene within the system in a constructive way with a better appreciation of the potential second order effects and a disciplined vigilance for noting trends that either confirm or deny the organization's original understanding, allowing it to learn.

U.S. Southern Command recently experimented with a metrics based strategy in the conduct of a regional exercise, Blue Advance 06.[129] The exercise, the second in a three part series,

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[127] Ibid., 122.

[128] Congress, House, Armed Services Committee, "Are We Winning In Iraq?" Testimony prepared by Dr. Andrew Krepinevich, 8.

[129] Rafael Lopez, MAJ, USA, School and Advance Military Studies, with temporary duty at U.S. Southern Command for exercise Blue Advance 06, 1-18 March 2006. The author is able to provide first

focused on harnessing interagency capabilities throughout the area of responsibility. The experiment was the application of an Effects Based Approach to planning within the staff.[130] This initiative, spawned by a realization of potential strategy to task disconnects hindering the advancement of regional objectives within the command, resulted in the creation of an OSM like structure to monitor the implementation of strategy across the command. The balanced scorecard construct manifested itself in the discernment of 13 desired effects necessary to achieve the commander's regional objectives. The exercise provided a change opportunity to experiment with a set of new structures that were fundamentally different from traditional hierarchical military structures and would require a different approach to solving asymmetric challenges (See Figure 6).

The first new structure was an independent Effects Assessment Working Group chaired by a general officer, composed of a cross functional group with a J7 lead. The purpose of this working group was to assess the effectiveness of the operations underway in achieving operational and strategic objectives (realizing that a hazy line exists between these levels of war). The assessment team informed their assessment of objectives by the assessment of the desired effects prioritized by phase of the campaign design. While this group did not select the effects or the metrics, they were primarily responsible for discerning the trends and linking them to strategic objectives. The experiment had mixed results in that the exercise duration was insufficient to allow for the development and refinement of a predictive capability, that while not expected to be prescient, could inform the planning team by providing an independent assessment of the effectiveness of contingency operations to achieve strategic objectives.

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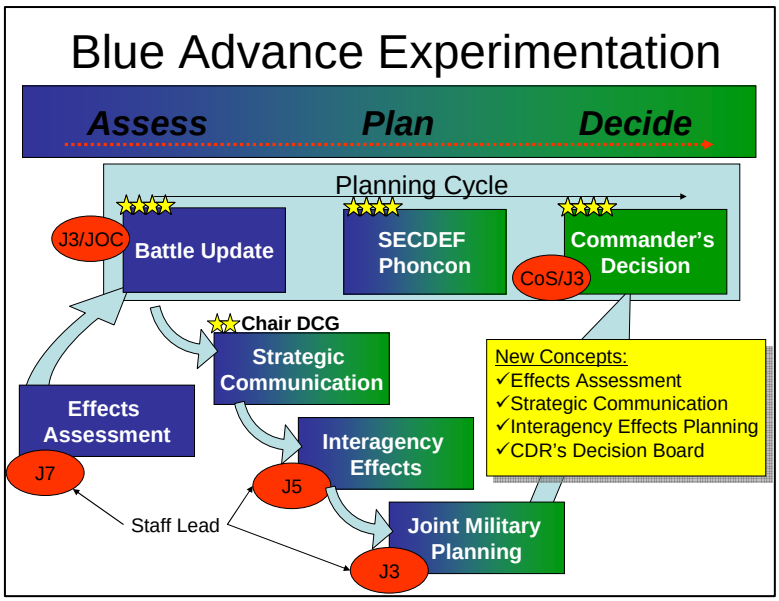
person observations of the exercise as had the fortune of participating as a member of the Commander's Decision Board Working Group and primary author for the Commander's Decision Board Briefs.

[130] For a discussion on Effects Based Approach, see Joint Pub 5-0, III-1.

Figure 6. Blue Advance Experimentation[131]



The second structure was the Strategic Communication Board, chaired by the deputy commander and primarily responsible for the synthesis of mission requirements, national policy and regional concerns to provide guidance to the planning teams as part of the commander's estimate. This function closely parallels the functions of Office of Strategy Management as described earlier. They original concept for this board included policy advisors, public affairs, psychological operations, interagency representatives and operational planners, with the charter of identifying and frame the problem that needing solving. The experiment designer separated this function from the joint planning group in order to prevent solutions from becoming overly kinetic as well as to inculcate an appreciation for the power inherent in all the elements of national power. The results were both positive and negative. The cultural biases of military organizations towards traditional functional capabilities resisted the concept that communicating intentions to achieve effects was a construct consistent with military operations. In other words, while a tank communicates a very effective message, the staff found it difficult to accept the idea of framing all solutions from the perspective of communicating a message. The working group successfully increased the interconnectedness of operational planning with strategic objectives and effects. A useful modification would be to change the name of the board to the "Strategy Board." This simple change creates an entire different mental model for its function.

[131] Bryan Sparling, LTC USA, "BA-06 Experimentation," (Miami, FL: Long Range Strategy Team, US Southern Command, Jan 2006).

The third structure was the Interagency Effects Board, chaired by a general officer, composed of a cross-functional composite of military and interagency planners, with a J5 lead. Their purpose was to expand on the guidance received from the Strategic Communication Board and synchronize the government effort to influence the solution to the problem. They in essence provided a portion of the solution space. The biggest success achieved during the experiment was the successful framing of a functional plan with prioritized major mission elements. The functional plan, although a draft, was a product of interagency collaboration, with department of state leads at the Ambassadorial level, with buy in from both the Principal's Committee and the Regional Combatant Commander.[132]

The last structure was the Commander's Decision Board Working Group and Commander's Decision Board, chaired by the regional combatant commander, composed of the command's structural leads (functional and operational commands) facilitated by the Chief of Staff and the J3's Chief of Plans. The purpose of the working group was to insure appropriate staffing prior to presenting issues for decision to the commander. The purpose of the board was to provide a regular venue for the commander to issue feedback and guidance to the staff, functional commands and operational commands within his area of responsibility. The board, broadcast by VTC to each participant that was not physically present, provided recommendations on products from each board to include critical points in the planning process for joint planning groups. Changes to guidance, approval of priority effects and associated metrics, decision points, and planning milestones were all part of the board allowing all participants to see the data and forcing accountability on the staff to properly resource and conduct planning. The results were positive in this regard in that access to the commander was available to everyone, and the commander was able to influence his organization by communicating his intent through the approval or modification of his staff's products.

At its root, a metrics based strategy is a cognitive change. Formative development in an organization comes from the things we measure and the resulting actions from the associated analysis. In the case of US Southern Command's experiment, the metrics chosen to drive the organizational learning process were in the form of effects for the region as well as in the form of structural changes to support the active monitoring and revising of the desired effects. The challenges were in developing a common understanding of how the new structure was to work and

[132] JWFC Pam 8, *U.S. Government Draft Planning Framework for Reconstruction*, (Norfolk: U.S Department of State and U.S. Joint Forces Command, 1 December 2005), 14.

how it was to achieve the results sought by the commander of linking actions to direct support of strategic objectives. The experiment successfully forced the staff to grapple with the challenges while simultaneously negotiating the real world problems outside of the exercise. Feedback following termination of the exercise suggests that as soon as the organization stopped requiring the metrics (both the effects and the structural requirements), the previous practices resumed in spite of the existing strategy to task disconnects.

CHAPTER 5: CONCLUSIONS AND RECOMMEDATIONS

Kids learn at incredible rates. As kids interact with their environment, they learn to adjust it and at the same time how to adjust themselves within it. As they get older, they get standards to which they must adhere, but that allows them the flexibility to continue to experiment with their limits, to expand them, to mold them around their own views. They get older still and books form a basis of knowledge, but the standards expected by their peers become an almost overwhelming force upon them, causing yet more changes and mistakes, while still emerging better, stronger and more enabled to deal with the continuing cycle of complex forces that shape their environment. This lifecycle is not unlike the lifecycle of an organization. An organization emerges and must contend with the structure it is given and the resources it possesses to achieve certain strategic objectives. As it grows and becomes more capable, it discerns changes in its environment that require reassessing its objectives. It modifies them and grows to meet them. This iterative process continues as long as the organization learns from its system and adapts. The method in which it interacts with the system then becomes critical to controlling the rate at which it learns. The better the organization interacts with the environment, then the better it understands the logical relationships within it. Therefore, it stands to reason that the metrics it uses have the potential to not only inform the common understanding, but also to manage the rate of understanding and learning within the organization. That has been the subject of this monograph.

The purpose was to provide a discussion of how metrics are the key aspect of learning and how learning is the key to defeating asymmetric threats or any other adaptive threat. The discussion contained in this monograph has three parts. The first, found in Chapter Two, describes why learning is the key to defeating asymmetric threats. The advent of the information age coupled with the emerging dominance by the U.S. military in conventional warfare propels the use of asymmetric warfare as the greatest threat to U.S. national security. The nature of asymmetric warfare is to attack gaps in capabilities that offset the dominant strengths. Only by creating dynamic innovative

learning organizations, can the U.S. military sustain its battlefield dominance while simultaneously executing the full spectrum missions expected of it.

Chapter Three contained a discussion on why metrics drive learning. The information-enabled processes of the current environment require a structured means of interacting with it in order to guide the learning process. Regulatory and policy guidance predetermine some of those metrics. As a military responsible to the nation, a means of providing feedback is essential. As a military attempting to grapple with highly complex adaptive systems, a means of structuring the learning process is a requirement.

Chapter Four highlights sample metrics-based systems for learning and synthesizes a strategy for capturing lessons from these systems for their application within the military. One key lesson was the importance of analysis to understand the system. Another key lesson was the importance of organizations actively participating in the definition of its own indicators resulting in a shared vision. The objective assessment of results to allow for growth and learning was another lesson. Organizational metrics must focus on trends and not only quantitative data. Metrics must be in place early with the full expectation that they will require refinement as a better understanding of the system emerges and as the system itself adapts and changes. Finally, this chapter highlights the significance of unintended effects and accepts that every decision has them.

A description of three metrics based approaches to learning—Systemic Operational Design, Compstat, and Balanced Scorecards—while no way inclusive of all the examples available, are indicative of some common fundamentals to organizational learning. As Senge identified, a personal commitment to understanding the system in which the organization will operate and its purpose for operating in it, is fundamental to creating learning enriched organizations. Creating shared understanding of the strategic mission, and not just a passing knowledge of it is essential to harnessing the creative and cognitive abilities of the organization. Every learning organization must be able to generate understanding of the effect of an action and must understand how that action ties in to the strategic intent. Unlike Senge's writing however, but just as pertinent is the significance of selecting the method through which an organization interacts with the environment. It interacts through the metrics it measures. These become the principal method for interaction and become a base from which the learning process emerges. In SOD, strategic raids create learning opportunities to measure the relationships defined in the system design. In the Compstat model, indicators and assessments identify trends, the organization then acts upon the trends and then reassesses to inform the actors of the success or failure of the intervention. In the Balanced Scorecard model, the

organization discerns metrics within the construct of certain perspectives to balance the intended effects with the unintended effects. US Southern Command's experiment resulted in a clear indication that the metrics of import directed the actions of the organization to create the intended effects and as soon as those metrics changed, the organization realigned to suit.

To conclude, metrics drive learning and the cognitive realization by an organization of learning, only comes with measures and checks, otherwise learning remains illusory.

Answering The Research Questions

The conclusions of this research start where this monograph began. Why is learning critical? It is critical because transformation is a necessary part of warfare in the 21st Century. The emergence of asymmetric threats, enhanced by the global connectivity, makes the need for adaptive innovative information age structures preeminent amongst the Department of Defense methods for meeting the national strategies outlined by the president.

Why measure learning? Doctrine cannot be the measure of learning for organizations. It is far too slow and unresponsive in its development to be an effective metric. The system itself changes faster than doctrine can develop consensual solutions. Without the application of metrics to drive the learning process of an organization then it cannot learn within the every increasing cycle of environmental changes characteristic of the Information Age.

If an organization is going to learn in a complex environment, it must give great thought as to what it measures, but it must capture and measure performance by some form of metric. The metric must be open ended and qualitative, or seek to measure trends from an assortment of indicators, avoiding the bureaucratic slavery of "tasks, conditions and standards," that inadvertently sets limits for organizations. An organization must be aware of the second-order effects of its actions and understand that any intervention in a complex system creates positive and negative aftershocks. Finally, an organization must expect to change actions and strategies regularly without necessarily associating an admonition of failure with the change. The system itself is changing so no strategy can sustain success indefinitely, and in attempting to find a working strategy, modifications are inevitable. Change itself, if approached carefully is also a measure of success.

Recommendations

The analysis and synthesis of the collective body of knowledge related to this topic suggests three recommendations for future actions. The first is a revisiting of organizational dynamics as part of all programs of instruction within the institutional Army. The second is the need for military organizations to institute a separate process for selecting operational metrics within the planning process. The third recommendation is for military organizations to conduct a regular review of operational metrics. An expansion of each recommendation follows.

The Army should revisit the significance of organizational dynamics as it directly informs the process of change and leading change. Currently this is only part of the Field Grade program of instruction at the Command and General Staff College. Transformation affects everyone however and an understanding by senior noncommissioned officers and junior officers of those same dynamics (beginning no later than the Advanced Non-commissioned Officer Course) enables them to better participate as change agents for a transformed military in the information age. Related to this is the evolving understanding by leaders at all levels that the "American Way of War" reflects at least a lack of cultural appreciation and at worst an outright resistance towards accepting viewpoints that come from external sources.[133] Metrics based strategies serve to help leaders change these attitudes. Accepting this persistent institutional block to learning at least allows us to begin the process of getting past it.

All Army organizations can be involved with strategic level operations. Units from both the institutional and operational Army operate within the ubiquitousness of media penetration as well as being accessible to the international military community. What and how organizations measure their progress can and often does have adverse impacts, the worst case affecting national level objectives. The immense power of properly derived operational metrics requires even more care and reflection put into their creation. A military organization should institute a separate process from the planning function to discern the critical metrics for achieving the strategic vision of the organization. Whether we call those metrics "effects" or critical information requirements or something else is not as relevant as the need to consciously implement a method for discerning them that is separate from the planning process. This will preclude the all too common haphazard "guess" which lacks the analytical power or organizational backing to be of use, as often happens in the traditional use of CCIR. While the Army is currently working through its implementation of a

Balance Scorecard model, it should accelerate and expand the experiment to assure direct tie-in between actions taken within the regional commands and national objectives. The rapid changes of the asymmetric threat environment will continue to undermine military capabilities unless adaptive organizations learn at a faster pace. Metrics based systems provide a way of directing the learning rates for those organizations. Likewise, regional commanders should implement their own versions of a "strategy board" to construct their own strategy and manage its implementation, measurement methods, and assessment within the organization. Whether the Effects Based Approach is adopted or whether its is eventually replaced with Systemic Operational Design is a matter of time and education, but they must not wait to institute a metrics based system that closes the strategy to action disconnect while enabling decision making and enforcing accountability at pace with the speed of the Information Age.

A systemic methodology for reviewing organizational metrics is necessary within operational headquarters. Military organizations already have various forms of this type of review, but the review focuses on quantitative performance in mechanistic processes (the science of warfare). Endless meetings to force accountability and transparency in readiness rates and personnel status as well as logistics flows permeate the culture. What does not commonly exist however is the same mentality for the operational processes (the art of warfare). All headquarters must assess their effectiveness in achieving their intended vision in order to link the actions of its departments to its vision. Like the accountability meetings held by Mayor Giuliani in New York, this process ensures the penetration of the commander's vision and creates team-learning opportunities. U.S. Southern Command's use of a Commander's Decision Board to elevate visibility of the primary metrics is a method. It forced the investment of intellectual capital in the development and assessment of the organizational drivers for learning, allowing a common understanding to permeate the command. This practice should continue at least at echelons above brigade, although experiments at brigade level would be required to determine more appropriately their utility.

The three recommendations while simple represent a cognitive appreciation for the power of metrics to drive learning. In the face of the asymmetric challenges of today's environment, an appreciation for influencing our organizations, a conscious process for selecting the metrics that are

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[133] Colin Gray, "The American Way of War," *Rethinking the Principles of War*, edited by Anthony McIvor. (Annapolis: Naval Institute Press, 2005), 23.

key to achieving successful strategic outcomes and a method for assessing that success, will do much to create information age learning organizations.

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