

### Rethinking “IO:” Complex Operations in the Information Age

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We are in a period of unprecedented and rapid change, and this realization should make us skeptics of wisdoms revealed as recently as a decade and a half ago when the problems the military faced were very different. Paradigms that might have seemed sensible then confuse more than clarify today.

In the years just prior to September 11, 2001, a new American Way of War emerged to replace Cold War paradigms -- those underlying unthinking ways of thinking embedded in our doctrines. The April 2000 Defense Planning Guidance tasked U.S. Joint Forces Command (USJFCOM) to develop “... new Joint warfighting concepts and capabilities that will improve the ability of future Joint force commanders to rapidly and decisively conduct particularly challenging and important operational missions, such as ... coercing an adversary to undertake certain actions or denying the adversary the ability to coerce or attack its neighbors ...” The object of these operations were to be rogue states such as Iraq, North Korea, Libya, and Panama were or had been. What emerged was dubbed the “Rapid Decisive Operations (RDO)” concept. It rested on four pillars. An Air Force and Navy capable of controlling air, space, and sea domains from which to coerce enemies with a hail of precise air and naval missile power; increasingly more capable special operating forces to penetrate enemy territory and provide targets; and a new core capability called “Information Operations” to “*influence, disrupt, corrupt or usurp adversarial human and automated decisionmaking, while protecting our own.*” In this “domain,” as in the others, the term most used in the late 1990’s to describe the product of American technological superiority was not just superiority, but dominance. RDO asserted that leveraging these asymmetric superiorities in the air, space, naval, and information domains would not only conserve scarce ground forces and reduce casualties, but they would also achieve rapid and decisive results. As we saw versions of RDO applied in Kosovo in 2000, in Afghanistan in 2002, and in Iraq in 2003, it became clear to most professionals that this new paradigm oversimplified complexities then not well understood. In fact the chief failing of RDO was an utter lack of respect for the difficulty of what it set out to do: either to achieve *relevant* dominance in any sense; or to coerce any determined adversary to undertake any actions what-so-ever. Even denying an adversary the ability to coerce or attack its neighbors has to be approached with humility today. However, thinking about the Information Operations component of this package has been most resistant to revision, especially two prized and related tenets. One is that “*the integrated employment of the core capabilities of electronic warfare, computer network operations, psychological operations, military deception, and operations security, in concert with specified supporting and related capabilities*” is the best way to

gain the maximum benefit of so-called IO core, supporting, and related capabilities. Another is that when these capabilities are thus integrated, an independent IO “logical line of operations” can influence the behaviors of adversaries and the publics that support them with so-called “information effects” alone. This is an amateurish outlook, and not shared by all IO practitioners, especially those who have been in the trenches, and working closely with the Brigade Combat Teams most involved in the real challenges of trying to “influence” the behaviors of real people under stress. While progress is being made on other fronts of “Defense Transformation,” IO is stuck in a late 20<sup>th</sup> Century time warp. Future Shock author Alvin Toffler, in a passage from a 1996 book, makes this relevant point: “The illiterate of the 21st century will not be those who cannot read and write, but those who cannot learn, unlearn, and relearn.” In this case a Pentagon bureaucracy, the tyranny of a slow-to-change, lowest-common-denominator and top-down-biased Joint Doctrine, plus engrained habits of thought stand in the way of learning, unlearning, and relearning.

In October 2006 the Chief, US Army Information Operations Proponent, who was then LTG David Petreaus, asked me to “take a fresh look at IO.” In December 2007 I briefed my findings to his successor, LTG William Caldwell. The sponsors of this study have asked me to publish the study conclusions.

Since retiring in December 1993, among other things, I have served five Army Chiefs of Staff, and as many US Army Training and Doctrine Command commanders, as a “senior mentor” for their annual series of Title 10 wargame studies. The purpose of these is to see what changes must be initiated now to bear fruit in 10, 15 or 20 years. These have all been about “Defense Transformation” and IO has been a prominent focus of all of these. So I have a recollection of the birth of IO, and its evolution. I understand both the timeless aspects of military operations and the new technologies. And I have a sense of what may lie ahead.

## **Approach**

My approach was to ask a number of questions as I reviewed doctrinal literature, professional journals, and conference reports; conducted interviews of recently deployed IO veterans; visited units in training; and reflected on what I read, heard, and saw. I started from the basis of questions suggested by the current doctrinal definitions, as have other studies and workshops, namely:

“How could we better achieve information superiority” and enhanced “information effects?”

“What is the best way to integrate the core capabilities of electronic warfare, computer network operations, psychological operations, military deception, and operations security, in concert with specified supporting and related capabilities, to influence, disrupt, corrupt or usurp adversarial human and automated decision-making, while protecting our own.”

And “What are the ‘best practices’ in the field.”

Answers to these questions provided a consensus view of the state of IO that revealed symptoms, anomalies and tensions, rather than solutions. I realized the very term “Information Operations” had lost all descriptive and explanatory power and that it would be impossible to fix IO by fixing IO. And asking these same questions again would not provide a “fresh look.”

I progressed to new questions. The principal question, to which I returned repeatedly, was, “Are we getting the most ‘Value Added’ from IO core, supporting, and related capabilities that we could?” These were the others: “What root causes underlie symptoms, anomalies and tensions? How has the nature of the problem posed by current missions changed since the 1990’s? In other words, do current paradigms sufficiently describe and explain cause-and-effect relationships? Do they predict and control outcomes? Are current staff and command processes relevant to the problems? Can one paradigm for planning and action serve the collective employment of core, supporting, and related capabilities? What purposes do core, supporting, and related capabilities serve in practice? What do commanders need IO capabilities to do for them? What exactly do we mean to do when we use some or several of the “IO” bag of tools?” What does “IO” mean to experts in the professional literature, and to IO practitioners in the field? What alternative paradigms meet the needs of the current and future? What staff and command processes need to change? What capabilities need to change and why?” Asking these questions resulted in a lengthy report that is yet unpublished. This article contains broad conclusions and recommendations from that report.

### **Broad Conclusions**

What we now call the “core, supporting, and related capabilities of IO” are absolutely central to achieving success in all foreseeable 21st century military missions, but they remain an odd collection that requires scrutiny from several perspectives to understand the most effective way to integrate them and provide proper staff oversight. However, the current IO paradigm misframes the problems facing IO operators and unit commanders since 9/11, and thus US forces gain less from these capabilities and competencies than they could – far less. The problem the current paradigm is most suited to address is still that framed in the 1990’s: how to rapidly and decisively “take down” a modern, well-defended rogue regime that we see as a mirror image of ourselves -- organized along traditional, hierarchical lines and similarly equipped, and also dependent on modern information age technologies. It is time to give up the practice of “Information Operations (IO)” as a separate “logical line of operations” within our greater military operations, and instead organize for, and develop greater competence in the ever novel and very complex operations we keep encountering in this Information Age.

<i>Core Capabilities</i>	<i>Supporting Capabilities</i>	<i>Related Capabilities</i>
<b><i>Electronic warfare</i></b> Electronic attack Electronic protection Electronic warfare support <b><i>Computer network operations</i></b> Computer network attack Computer network defense Computer network exploitation <b><i>Psychological operations</i></b> <b><i>Military deception</i></b> <b><i>Operations security</i></b>	<b><i>Information assurance</i></b> <b><i>Physical security</i></b> <b><i>Physical attack</i></b> <b><i>Counterintelligence</i></b> <b><i>Combat camera</i></b>	<b><i>Public affairs</i></b> <b><i>Defense Support to Public Diplomacy</i></b> <b><i>Civil-military operations</i></b>

New ways of thinking are required to achieve the full benefit of these valuable capabilities. Current ways do not provide a relevant logic for getting the most benefit from IO core, supporting and related capabilities for a number of reasons. For instance, it will be more important to integrate words and deeds than to integrate the employment of IO capabilities into one logical line of operations. And it will be more important to tailor planning approaches to the nature of the tool and the causal logic that governs its function than to assume that tools based on a linear logic and those that are based on a non-linear logic can both use the same planning approaches. It will be more important to pursue three ever-present, but practical, mission tasks than to pursue the grander, but over-ambitious, IO tasks set by current Army (achieving “Information Superiority”) and Joint doctrine (“*influence, disrupt, corrupt or usurp adversarial human and automated decisionmaking, while protecting our own*”). One of these is *to win the psychological contest with real and potential adversaries*. Another is *the need to keep the trust and confidence of home and allied publics while gaining the confidence and support of local publics*. The third is *winning the operational and strategic cognitive and technical “Info Age Applications” contest with real or potential adversaries*. These accurately describe the need. They usefully categorize by fields of applicable science, capabilities and competencies. And they facilitate the evolution of deeper expertise. It will also be more important to integrate these capabilities into a “combined arms and capabilities” pursuit of the multiple objectives that characterize today’s “world class” complex missions than to pursue one separate IO logical line of operations. And, the effective application of this collection of tools requires deep expertise in a number of very different “arts and sciences,” therefore, it will be more important to reorganize this collection into several groupings for staff oversight that share common functional purposes, causal logic, and art and science based competencies than to leave this general purpose collection under the staff oversight of one staff officer whose proper preparation and education will increasingly be difficult to achieve. This means that the Army and Joint IO paradigms require radical restructuring rather than patchwork repair.

Once we re-think the way to employ the kinds of tools and competencies now in the IO tool kit, we need to educate, train, organize, and resource the US Army as if we were

serious about their efficacy – as serious as we have been about tools and competencies that “change facts on the ground.” For instance, the scope and scale of the efforts to unify the message of words and deeds and to win the cognitive and technical “Info Age Applications” contest need to be well organized and adequately resourced. They are not. The logic underlying these conclusions is summarized below, and further developed in follow-on articles.

## **Coherence of Words and Deeds**

*New paradigms must build on the imperative coherence of “words and deeds” in every “logical line of operations” in every military operation of any kind.* The combination of these must carry one strong and very clear message to all relevant audiences. Many centuries ago, Sun Tzu emphasized the normal blending of the “physical and moral domains,” this was wisdom practiced by successful military commanders through the ages and later formally endorsed by both Napoleon Bonaparte and Karl von Clausewitz in their the 19th Century teachings. Until recently military theorists and practitioners were agreed that an important defeat mechanism, not only in tactical engagements, but in battles and campaigns as well, was to establish what was called “moral superiority” – the psychological effect of fear of consequences – in advance of action to assure a more complete and rapid success. Today we tend to bifurcate these domains when we relegate the organization of the effort to apply IO capabilities to a separate and distinct IO logical line of operations. What we get as a result of this is like distinct layers of oil and water rather than an integrated, cross reinforcing blending of the physical and psychological.

US Military culture has evolved a bias toward “effects” in the physical dimension that was fostered by the simulated training environments that evolved in the late 20<sup>th</sup> Century. These gave little credit to non-physical psychological battlefield influences. This bias fed the artificial bifurcation of the naturally conjoined “physical” and “moral” domains of war. It is only recently that attention has returned to the second, but not quite. “Kinetic” and “non-kinetic effects,” and “lethal and “non-lethal” are rather different ideas. “Non-kinetic effects” can include Electronic Warfare and Computer Network Operations that still operate in the physical dimension according to physical laws. “Lethal” effects have “morale” consequences. “Non-lethal” ones may not. We need to return to the classical view, without losing our effectiveness in the physical dimension.

Military action may change “facts on the ground,” but they also change perceptions, attitudes, and subsequent behaviors. And actions speak louder than the words and images any military spokes-person might deploy. Demonstrated professional competence engenders respect and fear. Everything we do and convey in words and images must resonate in harmony. It is only when these resonate that words and images acquire a multiplier effect. And let’s be clear on one thing, well thought our facts-on-the-ground-changing actions remain the most convincing way to influence human behavior, and well-chosen, well-targeted words and images that build on such foundations can enhance that sphere of influence greatly. Current staff and command doctrine, training approaches, and education must change to teach this natural fusion of the physical and psychological domains. Our less bureaucratic adversaries “get it.”

## **“World Class” Complex Missions**

The crux of the problem of getting the most “value added” from IO core, supporting and related capabilities and competencies is often applying command and planning processes that were not designed to deal with the levels of mission complexity US Forces now encounter routinely. This is a problem that will only get worse in the future. This is also why studies of “best practices” in the field see such variety, and no “best of breed” has emerged naturally. *Modifying command and planning processes to center on the “world class complex” mission should become a priority.* Not only have most missions of commanders, often down to battalion level, become more complex, but also the useful application of some IO competencies must take complexity into account. In fact, the US Army, the US Marine Corps, as well as the ground forces of some of our allies, have been working on modifications to command processes for complex missions, and both the US Army War College at Carlisle Barracks and the School of Advanced Military Studies at Ft. Leavenworth have modified instruction to address such mission complexity, but no one in authority has yet directed a change in doctrine and general practice based on the “world class complex” missions that prevail today.

US military doctrines are still centered on missions with unambiguous and unitary objectives, involving distinct and hierarchical adversaries and allies, within clear contextual boundaries, involving problems that can be solved using a linear logic. The 1990 to 1991 First Gulf War featured missions of this kind from the U.S. Central Command down. But most other missions since Grenada and El Salvador have been ambiguous. These have required the pursuit of multiple parallel and sequential objectives involving multiple shadowy and non-hierarchical adversaries and local informal alliances with various kinds of partners within unclear contextual boundaries containing problems exhibiting complex, non-linear and interactive causal chains that have no clear “solution,” e.g. “Fix Ramadi.” This is not a condition limited to stability operations or counter insurgencies! These qualities were as present in Operation Iraqi Freedom 1, and Operation Enduring Freedom 1 as they have been in later rotations, and down to battalion level in the ground forces.

The real problem is complexity and novelty combined. Not only have all post 9/11 problems been complex, but also they keep changing. This combination defines what I call “world class” complex missions. In other words, add to the mission description in the previous paragraph the fact that lessons learned in one mission may not transfer to the next, and this makes stabilizing doctrine difficult. When the problem set changes rapidly military institutions cannot develop and propagate applicable doctrinal methods before the problem changes again. This combination of increasing complexity and novelty demands modification of the normal linear Military Decision Making Process (MDMP), Effects Based Planning (EBP) and the Joint Planning Process. The consensus of the work done within the US Army, US Marine Corps, and close allies is that complex missions require as much command attention to “problem formulation” decisions as to “solution implementation” decisions. The first of these is less based on deductive analysis than inductive synthesis, as in a doctor’s diagnosis. When the available doctrine cannot

provide a ready logical template for the problem at hand, the command must try to discover that logic in some disciplined and rigorous way. The second of these are decisions based on deductive logic within a framed problem. “Now that I have a working hypothesis about the logic of the mission-problem, what are the specified and implied tasks, and what courses of action would be most effective within this tentative understanding.” But more than this, complex missions also require “turning inside the learning-adaptation cycle” of other relevant actors in the mission context. The Australians call this cycle “Adaptive Campaigning.” Extended operations inherently and naturally involve iterative cyclical processes of acting, sensing, deciding, and adapting. The nature of interactive complexity is that, even under the best of circumstances, we must initiate operations based on an imperfect understanding of the inherent causal and influence networks relevant to the mission. The commander’s “diagnosis” must arrive at a starting hypothesis as a basis for initial action. Initial actions will aim to improve the situation and clarify understanding. Learning how to “Fix Ramadi” involves many cycles of acting to fix and learn, sensing to understand and decide, deciding what was learned and how to adapt, and acting again based on an improved understanding. This is an approach natural to all organic beings and societies in the animal kingdom. This is what happens naturally during extended operations. We only need to do this deliberately and more scientifically!

Therefore not only are IO practitioners important players in solving their command’s ill-structured problem set, but the problem of getting the most “value added” from most IO core, supporting, and related capabilities is also ill-structured -- composed of complex, non-linear and interactive causal chains. This collection requires different logical approaches to planning. For instance, linear planning processes that apply to fires and targeting may be appropriate for some, but are totally inappropriate for most.

Electronic Warfare, Computer Network Attack, Physical Security, and Physical Attack involve well-structured problems that are suitable for “effects based” planning. They produce predictable first order effects in the physical domain according to a well-understood linear logic. And they create easily recognizable and measurable results. These are essential for effects-based planning.

On the other hand, Psychological Operations (PSYOP), Military Deception (MILDEC), Combat Camera, Public Affairs (PA), and Defense Support to Public Diplomacy are not suitable for effects-based planning because seldom will one “product” or “event” produce a tangible result. They operate purely in the “moral domain” according to a complex logic. Not only is it difficult to predict 1st order effects, but these may at first be difficult to sense and measure.

A third group -- Operations Security (OPSEC), Information Assurance (IA), Counterintelligence (CI), and Civil-Military Operations (CMO) -- operates across both the physical and moral domains. They produce predictable 1st order effects according to the linear logic of physical laws, but their actual primary purpose is the product of 2nd and 3rd order effects that are attained by a far more complex logic. Easily recognizable and measurable 1st order effects of each of these, such as controlling electronic emissions, installing secure and robust communications, capturing a spy, and rebuilding a

water tower can be achieved within the logic of effects based planning. But the 2nd and 3rd order effects that actually produce the broader primary purposes of these, such as denying friendly information to the enemy, being assured of the reliability and availability of friendly data and information flows, and restoring services to deserving potential local allies, result from complex causal chains. Thus the ends of OPSEC, IA, CI, and CMO are properly pursued by the same kind of overall sustained effort of learning and adaptation as applies to capabilities that operate purely in the “moral domain.”

Desired outcomes in these complex arts are the product of a disciplined, sustained, and purposeful iterative cyclical process of acting, sensing, deciding, and adapting in which: there will always be an imperfect understanding of the inherent causal and influence networks; actions or “events” are designed as much to learn as to advance desired ends; and the aim is to “turn inside the learning-adaptation cycle” of other relevant actors in the mission context.

Many known and unknown actors and events beyond the command’s control constantly influence the perceptions of actors and publics the command is also trying to inform or influence. *The command needs to learn how to inform and influence despite this condition.* The first requirement is to maintain coherence of words and deeds because the command’s communicators cannot speak credibly otherwise.

Well-considered acts create advantageous perceptions. The primary role of those who communicate for the command is to clarify and amplify the intended message of the command’s actions to each of the relevant audiences. We often send unclear messages through our actions; fail to cross reinforce words and deeds, and confuse audiences by saying one thing to the media and something else in face-to-face communications. We send messages that are too general rather than confining them to the purpose of the command’s mission and making them relevant and understandable to specific audiences.

Sensings should produce relevant feedback, especially about the consequent behaviors of all relevant actors. These make it possible to make sound decisions about how to modify messages, actions, methods, approaches, modes of sensing, objectives and even the framing of the problem. Learning how to learn about things the command is not organized to learn about is difficult but essential. We are far better organized and equipped to learn about the enemy than to get relevant feedback from publics whose support is critical to the mission. We neglect to test and improve the effectiveness of our sensings thus we fail to learn how to learn. These shortcomings affect our ability to improve our understanding of the causal and influence networks at the core of complex missions and thus impede progress toward mission goals.

This “turning inside the learning-adaptation cycle” logic is a fundamental key to getting the most “value added” from most IO core, supporting, and related capabilities. Follow-on actions should send clearer messages, create more relevant facts and better focused changes in perceptions – all of which lead to more desirable behaviors by relevant actors.

A follow-on article in this series, “A Guide to ‘World Class’ Complex Missions,” will expand on these ideas.

### **Practical and Realistic Purposes**

The most critical element of a paradigm is the purpose to be achieved. This critical element has to be reformulated into useful purposes that can be realistically achieved by a science-based logic. The purpose to which IO core, supporting and related capabilities and competencies are put, given either the joint or Army definitions of IO, are too abstract, thus un-measurable, and far too ambitious, thus unrealistic. In Joint doctrine this is *“to influence, disrupt, corrupt or usurp adversarial human and automated decisionmaking, while protecting our own.”* This is too narrowly focused on adversaries, assumes that IO capabilities are not only necessary but also sufficient to achieve this purpose, and underestimates the complexity of 21<sup>st</sup> Century “adversarial decision-making.” Many things beyond the knowledge or control of IO operators will influence the decisions of our adversaries. This formulation is reminiscent of pre 9/11 “traditional” military missions and information age force-on-force concepts like “Rapid Decisive Operations.” It limits psychological operations and military deception to a contest with adversaries in the cyber-electronic realm; oversimplifies the complexities of influencing, disrupting, corrupting or usurping adversarial human and automated decision-making of modern asymmetric adversaries; and does not address some critical issues of “world class” complex missions like gaining the trust, confidence and support of local populations. In Army doctrine the purpose is *“to gain and maintain information superiority, a condition that allows commanders to seize, retain, and exploit the initiative.”* In actual practice, this abstract ideal purpose is rarely the objective of real IO logical lines of operations. And the purpose is far too idealistic and ambitious for the causal logic outlined in the doctrine. Finally, these formulations together encourage “fuzzy thinking” among IO professionals as evidenced by the common use of terms such as “information effects” (meaning the output of any or all IO capabilities) and “influence operations” (implying that IO capabilities are the only means commanders have to influence human behavior).

My research indicates that, when examined closely, the real aim of commanders and their practitioners for the employment of these valuable IO capabilities is to contribute to *three broad purposes essential to the success of all “world class” complex missions.* One of these is *to win the psychological contest with real and potential adversaries.* Another is *the need to keep the trust and confidence of home and allied publics while gaining the confidence and support of local publics.* The third is *winning the strategic, operational, cognitive and technical “Info Age Applications” contest with real or potential adversaries* over the use of modern communications, information processing, automation, and other network applications. Each of these necessary, realistic and tangible aims relies on distinct and understandable logic and fields of competence. What savvy modern commanders actually do with IO core, supporting, and related” capabilities is both summed up and accurately described by these purposes. And they usefully categorize by “communities of common logic and purpose” -- a distinct but different logic, area of competence, and field of applicable science apply to each of these. And these three

categories exhaust all uses of what is meant by “IO” in current professional usage. This categorization facilitates the evolution of capabilities, competencies, and deeper expertise. While the current categorization is a selective association of capabilities having to do with the manipulation and processing of “information,” a common input to *all* military aims and functions, this approach categorizes more usefully by “outputs” or intended results and the unique way they are achieved. This is a much more useful way to think about solving some of the military operational problems the “world class” complex mission repeatedly presents.

### *PSYWAR*

*Winning the psychological contest with real and potential adversaries* is inherent to the success of all “world class” complex missions. True excellence in military operations depends not only on excellence in the use of force to “create new facts on the ground,” but also excellence in leveraging that reputation of excellence in the physical realm to influence the decisions of real or potential adversaries not yet subject to physical force -- by intimidating, demoralizing, mystifying, misleading and surprising. This holistic approach to real and potential adversaries, what I call psychological warfare or PSYWAR, was natural to Alexander, Scipio Africanus, Julius Ceasar, Attila the Hun, Ghengis Khan, Frederick the Great, Marlborough, Napoleon, Wellington as well as more recent great operational artists of the Industrial Age. This holistic approach continues to be essential to success in the Information Age – and it will be a more challenging art as well. The less we can bring brute force to bear, the more we need to get the most psychological impact possible from any forceful act or display of potential. The more our application of force becomes precise and discriminating, and the more rapidly our capabilities advance and thus may not be appreciated by others, the more artful we need to be in linking deeds, images, and words to leverage the psychological impact of these. In field practice today, deeds, images, and words are insufficiently linked due to segregated staff processes and doctrinal insistence on IO as a separate and distinct logical lines of operations that often deploy empty threats and illusory rewards in pursuit of overly ambitious ends.

Current Joint and Army IO doctrine tends to understate, and underrate, the difficulty of influencing desperate and creative people to do what they really don’t want to do. More often than not determined adversaries will creatively avoid consequences they fear and pursue enticing rewards, but we can never presume to understand the fears of others, nor what rewards will entice. Moreover, empty threats and illusionary rewards are increasingly difficult to mask in an increasingly transparent world.

Because we can never be sure how opponents will react to words and images, *concrete actions designed to force choices must inevitably follow*. Therefore the PSYWAR paradigm encompasses both the art of conveying threats and rewards, the subject of Psychological Operations, and also the art of combining this *with actions intended to force choices* -- their synergy. The function of PSYOPS that requires more emphasis is helping the adversary *understand the inevitability of choice forcing actions*.

Moreover, creating and then exploiting a “line of least expectation to the enemy’s greatest vulnerability” is central to any course of action and has long been recognized as the most economical and decisive path to military success. And the art of deceiving an adversary, more specifically mystifying, misleading and surprising, is more than electronic deception, the aspect most emphasized by Joint IO doctrine. In the modern transparent environment it is a very difficult art requiring a “whole of staff” approach. This contest favors those who craft actions that speak clearly to reinforce actions, and create synergy between words and deeds. Coordinating this relationship is as important as understanding the decision criteria and tendencies of the opponent. And expertise in human behavior and tendencies is as important to crafting actions that speak clearly, as it will be to speak clearly to reinforce military actions.

The campaigns of “Great Captains” of the past, notably Alexander and Ghengis Khan, have seamlessly integrated their psychological and physical interaction with adversaries. They always prepared for physical engagements by a thorough reconnaissance and psychological conditioning of their subject. They follow-up their physical actions with a psychological exploitation that extends the effects of their actions to the furthest extent possible. This should become the habit of all US Army commanders at all levels. This will have consequences for military education and for where and how to employ deep expertise in human psychology. US Army and Joint Doctrine are not clear enough about the logic and theory of the ever-present mental contest with implacable foes, warring factions or potential adversaries while this art was well developed by Sun Tzu writing in 500 BC and elaborated by military theorist since. The modern literature of human psychology and decision-making is abundant and this science is rapidly advancing. We only need to add considerations due to modern conditions. One of the follow-on articles in this series, “The Psychological Contest With Adversaries in the Information Age” addresses these ideas in greater detail.

### *Military Public Relations*

*Keeping the trust and confidence of home and allied publics while gaining the confidence and support of local publics* was as crucial to success for both sides in the Greek Peloponnesian War as it is for modern free societies conducting any kind of military operation anywhere today. One big difference is the transparency of the global operating environment, the speed with which publics are informed, the sensitivity of politicians to sudden public mood swings, and the potential this has to make strategic authorities impatient for results and prone to detailed oversight and over-reaction. Another is that the same transparency, speed of information flow, and multiple ways modern publics everywhere are informed, combined with the many ways entrepreneurial adversaries can misinform, distort events and prejudice relevant publics, makes gaining the confidence and support of local publics far more difficult than ever before. The third big difference is that not long ago it was possible to think of *keeping the trust and confidence of home and allied publics* and *gaining the confidence and support of local publics* as two separate problems. This is no longer practical. Military Public Relations is the term that best describes the increasingly important and *indivisible* art of gaining and maintaining

favorable relations with publics at home, in allied countries, and in the area of operations abroad.

Increasingly these publics are the arbiters of success or failure in all military operations, thus military public relations must increasingly become an integral part of operations. When publics at home, and in allied countries, get the impression that the efforts of their forces are ineffective and illegitimate, just what adversaries want them to believe, they will lose heart, and withdraw support. When publics in the area of operations believe the enemy is winning, they will join the winning team, and when they believe our operations are illegitimate and against their interests, they will remain passive at best, and actively opposed at worst.

Before the first physical encounter with the indigenous population occurs, reconnaissance of the “human terrain” and highly focused military public relations efforts must precede to identify and assess potential allies and to condition first impressions. And as “facts on the ground” unfold, the aim of military public relations among the local population is to relate a coherent and credible narrative of success, progress, and positive consequences that extends beyond the reach of the command’s actual physical presence. Given the nature of military operations, this is very difficult work, but one that is increasingly essential for success.

The decisions publics make, to support our operations or not, bear a steep price. And realistically, military forces have to prove worthy of the great risks these publics are being asked to accept in every case. Because of this, lessons from commercial advertising are not necessarily as directly applicable as some practitioners in the field believe. Soldiers and marines are not selling soap.

The challenge of gaining and maintaining the trust and confidence of home and allied publics is becoming increasingly complicated, but it is different from the challenge of gaining the respect, compliance, and support of the publics among which we are “warring” and “pacifying.” Our approach to the former is overly centralized, too slow, inflexible and behind the times, and would benefit from a “mission command” approach to control. The latter work, that of winning local allies and gaining trust and confidence, is grass roots, bottom up work, not susceptible to economies of scale. *Absolute unity of effort is required for success in military public relations because these two related but separate challenges are so entwined today.* You cannot say one thing to the media for broadcast back home and another thing to the village elders in the area of operations. Actions speak louder than words in both cases, and neither audience wants to be propagandized, “influenced,” or lied to -- the common perception of the PSYOP mission. “Winning,” behaving professionally, and telling it straight, simply, and quickly works best.

While the two halves of Military Public Relations are indivisible, and share much, it is important to differentiate the logic, purpose and art of gaining and maintaining favorable relations with publics at home, and in allied countries, from the logic, art, and purpose of gaining and maintaining favorable relations with publics in the area of operations abroad.

Both halves must contend with humans who, as science tells us, find it impossible to maintain strict neutrality, switching between positive and negative attitudes based on changing perceptions. The attitudes of home and allied publics in modern democracies should, at the outset of operations, be positive toward the mission, but the opposite attitude should first be assumed of the strangers US and allied forces encounter in foreign lands. In the first instance the object is to keep the trust and confidence of the people who foot the bill and bear the burden of the operation, but are already favorably disposed to the mission. In the second instance the object could be far more complex and theoretically more difficult. At minimum, the object could be to cause a still hostile indigenous public to accept new and unpleasant “facts on the ground” without active resistance. This can be difficult enough, though initially facilitated by “shock and awe.” But when the mission is to depose one government and facilitate the establishment of a new one more to our liking, a radical and much more challenging shift in indigenous attitudes is necessary. The majority of them need to become real allies!

The art of gaining and maintaining favorable relations with publics at home, and in allied countries has to change to meet new demands. These publics are today informed in many more ways than by the “accredited” media that is either embedded with our forces or invited to periodic command briefings. And the “news cycle” turns more rapidly and more insatiably than ever before. *Being first with the truth is paramount. Minutes and hours matter* whether that “truth” is a notable mission success, a failed enemy initiative, or “bad news.” Not only must the command be organized and drilled to speedily gather the relevant facts, rapidly decide what must be said, and efficiently deploy its truth by all effective channels to reach all relevant audiences quickly, but the outdated traditional mechanisms of vertical message control must be replaced with new ones. In other words, just as “mission command” relies on the judgment of commanders to decide how to implement the intent of higher authorities, the judgment of commanders should be relied on to decide what should and could be said in public about the purposes of the missions, the logic of methods the command has employed, and the specific consequences of mission success for the various publics within the mission area of responsibility. This speeds clearance decisions, keeps spokespersons in their lane, and is *the only control mechanism that has a chance of meeting the essential deadlines for success*. And of course one mechanism, this one, should serve both halves of the military public relations effort. In addition to this, “efficiently deploying its truth by all effective channels” has a new meaning today. It implies taking and maintaining the initiative to aggressively “push-to-inform” based on a rehearsed “battle drill” originating in the unit command post to inform not only the “accredited media” but all media within the area, and all information net works that serve all publics relevant to the mission. And this must be done well and professionally to guard the fragile credibility of the command!

The art of gaining and maintaining favorable relations with publics in the area of operations actually deals with the more formidable challenge, as noted above. And it is not enough to deploy messages by whatever means. And it is not work that lends itself to economies of scale. It is interpersonal alliance building with specific communities of people and their leaders. And this work is very dependent on local social dynamics and cultural knowledge.

We are not well organized and educated for this work. Knowledgeable professionals until very recently were located at division level and above. This work is most usefully done at brigade level and below where savvy commanders have reorganized to perform it with available, but undereducated people. Progress also depends on accurate feedback of local perceptions, and specific knowledge about relationships, agendas, and interests that our intelligence services, which are still primarily oriented toward learning about our adversaries, are ill-equipped to provide. Learning mechanisms in this dimension are stunted and need to grow. Improvisation at this level has had mixed results, and the learning curve has not been steep enough.

US public law permits the use of PSYOP organizations to conduct what I call military public relations, as long as it takes place abroad, even when it aims to influence allied publics in their homelands. Military leaders who are realists understand why this is problematic, and very short sighted, even if sound PSYOP is “truth-based.” PSYOP requires even stricter controls, but controls the employing commander exercises based on his own judgment. Realistically, *PSYOP should only be directed at command-designated adversaries*. And it is increasingly important to oversee the *public* communications of PSYOP agents at every level to avoid damaging the military public relations effort. The problem for commanders in the field today is that without the PSYOP capabilities now available to them, they are short-handed in their military public relations efforts. These efforts increasingly require more competence at lower and lower levels of command. Applicable career fields need to adapt to new demands and to expand capabilities within a broader, more realistic military public relations paradigm. And military public relations professionals require deep expertise relevant to span both challenges that comprise this necessarily unified field of competence.

A follow-on article in this series, entitled “*Keeping Friends and Winning Allies*” expands on these ideas.

### *Net War*

*Winning the strategic, operational, cognitive and technical “Info Age Applications” contest with real or potential adversaries* over the use of modern communications, information processing, automation, and other network applications is becoming increasingly an essential ingredient to “World Class” complex mission success. While saying this is almost a cliché, its full significance is often misunderstood. Since the beginning of warfare, command decisions have depended on knowledge resident in the commander’s brain, immediately acquirable by his own senses, or from those within voice contact. As warfare grew in scale and complexity, key decisions began to depend more on information that needed to make its way to the commander’s brain from beyond his eyesight and hearing. Whatever the medium or method of transmission, information could now be manipulated, distorted or interrupted on the way there, thus affecting the quality of his decision. Thus the early version of this contest was born thousands of years ago as civilizations emerged. Since the first telegraph was set up in 1844, the electron has been harnessed to facilitate the transmission of such information, and this, and the

harnessing of the electro-magnetic spectrum about one century ago, constituted the beginnings of the second stage of this contest. We are now at the beginning of a third stage that is as yet not clearly defined. We already live in a world of information technology-enhanced networks of great variety and scope. Some of these constitute a new global environment for human intercourse in general, and are aspects of operating in an interconnected and interdependent world. Rapidly evolving technologies are increasing not only the speed and efficiency of modern networks, but their effectiveness, power and adaptability. These will greatly affect modern contests of force.

As mentioned earlier, the idea of being somehow able to dominate an “information domain,” achieve “information superiority,” or even “*influence, disrupt, corrupt or usurp adversarial human and automated decisionmaking, while protecting our own*” through only technical superiority and psychological operations is now naïve. But if we focus instead on the nature of modern communications, information processing, automation, and other rapidly evolving network applications, and how to advantage our own operations, and disadvantage the various kinds of adversaries we may face, we will do much to succeed in the “World Class” Complex Missions of this Century.

The art of achieving, maintaining, and employing advantages over our adversaries in the application of modern communications, information processing, automation, and other rapidly evolving network applications *requires deep expertise of a specific and new kind centered on the science of electro-physics, cyber-electronics, complex cyber network behaviors and how these relate to military tactics, operations, and strategy*, expertise that is now much too scarce. It elevates what is now a collection of narrow technical and tactical capabilities to dominating a cognitive contest with our adversaries at the operational and strategic level. This art has not been named, although some people, here and abroad, use the term Information Operations, in this stricter science of electro-physics and cyber-electronics centered sense. (This is also broader than the term Command and Control Warfare used in the 1990’s to describe the tactical attack and defense of military command and control infrastructures.) To avoid confusion I will use the term Network Warfare or the abbreviation NetWar until a better term is agreed. This art is applied in a number of related spheres of endeavor, all of which are primarily based on the science of electro-physics, cyber-electronics and complex cyber network behaviors.

First is the use of modern automation enhanced networks to make better decisions than the enemy in less time. This is an area in which the US Army has made rapid strides recently, and will continue to lead as the networking and command system of the Future Combat System is proliferated by 2012.

The second is to deploy this technology to construct “super-efficient” pro-active and reactive strike networks better than the enemy can. Army strike networks will increasingly assimilate EW, CNO, Artillery, Air Defense and Attack Aviation. In practice, strike networks have long been constructed for a number of purposes ranging from the wire detonated booby traps of the Vietnamese guerilla, through radar and automation enhanced counter battery networks, to very elaborate national missile and air

defense networks. In theory, and as information technologies advance and proliferate, reactive strike networks will become the backbone of 21<sup>st</sup> Century defenses, and the bane of 21<sup>st</sup> Century offensives. Advanced pro-active strike networks will become essential to undoing such defenses, as well as for facilitating the next sphere of endeavor. Reactive strike networks operate on the principle of achieving the greatest possible *efficiency* when the enemy has the initiative. The proactive kind operates on the principle of achieving the greatest possible *effectiveness* when the initiative is on the friendly side.

The third is to deny this same potential to adversaries by destroying, disrupting, corrupting, and usurping the enemy's networks and the information gathered and processed within them. This holistic approach includes all forms of electronic warfare, cyber-electronic deception, computer network operations, as well as clandestine operatives and well informed surgical precision air and missile strikes. Such efforts must be closely coordinated with the intelligence functions that depend on clandestinely harvesting valuable information from such networks.

The fourth is to assure the speed, efficiency and integrity of our own networks and information processing capabilities. This is an area that requires a holistic approach as well, and broadly assigned, but specific, responsibilities and increased leader awareness and education. It will require a new way of thinking and new rules more functional in a time when the power of a byte of information has a very short half-life, and only when it is pushed very far forward, within a small window of time, and to a specific tactical element not normally privy to the product of highly classified sources. At the same time our networks and information processing capabilities will be seen as our Achilles Heel, and thus will become the focus of effort of all of our adversaries.

New paradigms must also take a realistic and comprehensive approach to contesting our adversaries in the dark corners of the Internet. "Cyberwar" is a catchy term but currently lacking content, and limited by reasoning based on old naval and airpower analogies. Notions of controlling or dominating a "domain," are absolutely unrealistic.

The fifth focus area of Net War is to deny terrorists and extremists the unfettered ability to post their websites and recruit new members, spread propaganda and plan attacks across the world. The speed, ubiquity, and potential anonymity of Internet media – email, web sites, and Internet forums – make them ideal communication channels for militant groups and terrorist organizations.

The sixth focus area of Net War is to deny adversaries of whatever kind the ability to attack our Internet accessible national financial, transportation, power generation, and other information infrastructures in times of war. Some thinkers in foreign lands advance the notion of "active defense" and even pre-emptive attacks attributable to others in case of threat. Others see such capabilities in their possession as powerful deterrents. There is no doubt that Army forces should play a part in defenses of our strategic infrastructures and in counteroffensives against adversaries who attack them.

Net War is a natural growth area, and new focus areas will emerge within the broader science of electro-physics and cyber-electronics centered paradigm outlined here. And clear thinking must precede a disciplined and scientifically layered approach to the evolution of this paradigm.

A follow-on article in this series, entitled “***Winning the Strategic, Operational, Cognitive and Technical “Info Age Applications” Contest***” expands on these ideas.

### *Three Powerful Advantages*

Current IO doctrine describes and explains cause-and-effect relationships within abstract mental constructs and assumes linear causal chains absent historical experience and scientific proof. This paradigm of three broad purposes inherent in every mission, as outlined above, is based on ample historical evidence, established military theory and scientific studies. Consequently this conceptual formulation has three powerful advantages: it results in easily identifiable, tangible, and measurable mission tasks; it highlights the necessity but insufficiency of IO core, supporting, and related capabilities and thus addresses the issue of essential synergies with capabilities outside the IO basket currently not addressed; and it provides a more realistic path to deep expertise of a more pertinent and clearly focused kind.

In the context of a specific mission, these purposes easily translate into tangible and measurable mission tasks. In other words, every “world class” complex mission will involve one or more psychological contests with specific real or potential adversaries, or both, based on the logic of human behavior derived from historical evidence and science. Every such mission will require commanders and their staffs to build and maintain relationships of trust, confidence and support with several very specific publics, and how to do that will be based on logic derived from historical evidence and science regarding not only on how modern humans are informed, but also on how humans adopt or reject ideas, and on human social dynamics. And every such mission will also include the inevitable contest with real or potential adversaries over the use of modern communications, information processing, automation, and other network applications. These will be manifest in very specific and concrete ways in every mission context. How to win these contests, however, will be based on the logic of the sciences of electro-magnetic wave propagation, electro-physics, cyber-electronics, and complex cyber network behaviors.

However, while IO core, supporting, and related activities are normally necessary to achieve these broad purposes, they alone would rarely be sufficient. Sufficiency will result from a combined and coherent application of these with capabilities outside the IO basket of capabilities. For instance, as powerful as words and images can be in the modern world, actions still speak louder. And as much as NetWar contests will center on information technologies, sometimes sufficiency will depend on combined action with other capabilities outside that field.

A “Jack or Jill” of all IO “trades” approach cannot lead to “world class” expertise across the three broad purposes outlined above. Getting the most value added from all IO core, supporting and related capabilities requires a far greater depth of expertise than is achievable by “IO experts” within the current IO paradigm. Even within the confines of pre-9/11 operational concepts thinking, such as Rapid Decisive Operations for which IO was conceived to be an enabling tool along with standoff precision weapons, the required span of knowledge was challenging for any one person to acquire. However, deep expertise can develop within these three “communities of common logic and purpose” each of which applies a distinct but different logic and area of competence.

### **Integration, Staff Oversight, and Necessary Organizational Changes**

Finally, these essential IO capabilities and competencies require proper integration, the right staff oversight to optimize their “value added,” a more useful approach to planning, and some adjustments in scope, scale and focus.

#### *Rationales for Integration*

The notion of supporting and related IO capabilities has always struck me as strange as labeling artillery, intelligence and other supporting or related branches as “supporting or related Infantry capabilities.” In the Army’s concept of combined arms operations, the various branches, capabilities and competencies of the Army are all related and mutually supporting when they serve a common purpose beyond the technical purpose for which they are differentiated. The common practice is to combine capabilities necessary and sufficient to achieve the objective of the taskforce.

“World class” complex missions require the pursuit of multiple parallel and sequential objectives. Each objective requires influencing a different set of actors in ways relevant to the mission. Each resulting logical line of operations will address problems exhibiting complex, non-linear and interactive causal chains, and the taskforce assigned the objective will integrate the appropriate arms and capabilities necessary and sufficient to obtain the objective. Thus, rather than the integrated employment of IO Core, supporting and related capabilities in one logical line of operations, the output of these capabilities must be integrated into the multiple logical lines of operations of the command, each of which must not only create new “facts on the ground” but also speak coherently to the various audiences that matter to the mission. Not only that but the combined chorus of all the logical lines of operations must sing in harmony with the message implied by the mission of the command. This logic trumps the mandate of joint doctrine to first integrate the “...*employment of the core capabilities of electronic warfare, computer network operations, psychological operations, military deception, and operations security, in concert with specified supporting and related capabilities....*”

#### *Logic for staff oversight*

What rationale should guide the oversight of this collection of capabilities? In one sense, elements of this collection naturally fit under staff sections that already integrate like

functions. Electronic Warfare and Computer Network Attack are weapons systems in a very real sense because these tools can be aimed at targets, just like artillery and attack aircraft, and they can temporarily suppress the functioning of equipment, vital networks and command posts or render them inoperable. This means they belong under the Commander's agent for planning and coordinating the employment and effects of such weapons. Before the advent of IO, OPSEC was a command responsibility assigned to the G-3 for planning and oversight. OPSEC included responsibilities for safeguarding documents containing radio frequencies, codes, and plans, as well as for practicing proper camouflage discipline. Some aspects of OPSEC should return to G-3 oversight, but the OPSEC of networks, as does Information Assurance already, properly belongs to G-6 oversight.

PA and PSYOP need to be coordinated within the staff on two axes. One axis is between the proper realm of PSYOP and the proper realm of Public Affairs. In 2006 the IO proponent recommended that the G-7 led by a Functional Area (FA) 30 Information Operations Officer whose education would span both fields be charged with not just "deconflicting" the work of these two, but with ensuring their coherence and cross reinforcement. (FA 30 would be a natural alternate functional area for both PSYOP and Public Affairs Officers. FA 30 should now be relabeled "Military Public Relations" or "Information Engagement.") The law properly restricts PSYOP to "foreign" publics to prohibit "influencing" domestic audiences. (In practice, this is now very difficult to do for reasons mentioned earlier.) The logic presented in this report would further restrict the focus of PSYOP only to groups designated by the command as rivals, opponents, or "the enemy." This designation is no longer apparent and is truly a command decision in every case. It is clearly not a decision that should be left to tradition or to the broad outlines of the law. The mission of PSYOP must be to clarify and amplify for real and potential adversaries the implied messages of the unit's mission and actions. Meanwhile the mission focus of "military public relations" must be to speak for the command to all foreign and domestic audiences, because whatever is said to any audience has to be suitable for all. (Broad and open discussions with only "the enemy" are no longer possible, therefore no open communications must disadvantage the campaigns of military public relations. And therefore PSYOP messages to the enemy must travel by means least likely to reach or influence non-enemy designated publics.)

The other axis requiring close coordination is the one between words and deeds. As was argued earlier, neither the psychological contest with adversaries, nor the important effort to keep friends and gain allies will succeed unless the physical and moral domain efforts are unified. The current cleavage between these two can be overcome only when education and training reinforces the unity of the moral and physical domains. Staff college problems and case studies, and Combat Training Center scenarios and simulations continue to emphasize the "facts on the ground" consequences of action over "perception" consequences. This has to be balanced so that commanders and their planners instinctively understand the necessary unity of these. Because actions speak louder than words, the important nexus of this unity is in the commander's, the G-3's and the G-5's minds, and it is the supervision of the planning and execution of the command that brings this nexus about in practice. The command's planning staff should include

officers with deeper expertise in both the arts of PSYWAR and Public Relations than the normal command and staff course graduate can. A start has been made in that direction, because the School of Advanced Military Studies (SAMS), the primary source of division and corps planners, has been directed to educate its students in the art of Military Deception (MILDEC), and the MILDEC staff responsibility is assigned to the G-3. SAMS graduates need deeper expertise not only in MILDEC but also in the broader arts of PSYWAR and "Military Public Relations." The G-3 should be responsible for insuring that the actions of the command speak clearly toward the objectives of every logical line of operations and toward the mission as a whole. The G-7 should be responsible for advising the G-3 and commander about the impact of actions on perceptions, and for amplifying and clarifying the intended messages of the command's actions in support of all of its logical lines of operations.

And the G-2 should support the G-7's work as much as the G-3's. Most reviews of IO have ignored the weakness in the G-2's ability to provide sensings useful to the G-7's work. The bulk of the G-2's capability is oriented toward discovering relevant physical facts. The G-7 gets very little G-2 support toward discovering relevant perceptions. This is a legacy of the Cold War that needs to be remedied.

Of the IO supporting capabilities, Information Assurance and Combat Camera now belong to the G-6, Physical security and Physical attack belong to the G-3, and Counterintelligence belongs to the G-2. Only Combat Camera needs a new source of staff oversight. By doctrine their historic mission has been to document on film the operations of the Army. The G-3 is responsible for assigning them to units for that purpose. In recent practice, enterprising IO and PSYOP officers have enlisted their help toward documenting the unit's version of the truth in their work. The Army needs to officially assign these to the oversight of the G-7. (But ultimately the Army needs to decide whether it wants multi-purpose camera units, as these have become, and how to organize a greater capability. For instance, every infantry platoon in Iraq and Afghanistan now has digital cameras, and PA units also have photographers.)

All three of the IO related activities (Public Affairs, Defense Support to Public Diplomacy, and Civil-military operations) properly belong under G-7 oversight. Public Affairs is a branch with real competencies and capabilities under the supervision of the PA Officer, a special staff officer. Defense Support to Public Diplomacy is an additional duty of soldiers, sailors, marines and airmen in general, and for their commanders in particular. The art of Defense Support to Public Diplomacy is the art of military public relations, and the Public Affairs Officer should organize and supervise this effort under the over all G-7 effort. It stands to reason however, that Civil-military operations (CMO) should join the G-7 "inform and influence" family rather than remain a separate G-9 staff agency. In most cases today, CMO improve the living conditions for local populations. Such "facts on the ground" also speak louder than words. They reward those who benefit, and create perceptions of relative deprivation in those who do not. Under the current staff arrangement there is no guarantee that the logic for deciding CMO projects reflects the aims of the "inform and influence" campaign unless the commander himself makes CMO

project decisions. Civil-affairs units are also potent “inform and influence” agents because they must meet with local public officials in their work.

### *A More Useful Approach to Planning*

Planning for success in “World Class” Complex Missions is different than planning for missions with unambiguous and unitary objectives, involving distinct and hierarchical adversaries and allies, within clear contextual boundaries, involving problems that can be solved using a linear logic. The latter is a good fit for our doctrine, especially for our command and control doctrine and the “best practices” we find in the field. The former is not. Instead of the unitary objective the entire staff fixes on and pursues in concert along one “logical line of operations,” the ambiguous “Fix Ramadi” kind of mission that most commands encounter today requires the command and its staff to organize for multiple “logical lines of operations” in pursuit of multiple parallel and sequential objectives. The unitary objective could be disassembled into implied and specified tasks by a straightforward analysis that would either become missions of subordinate maneuver units or shaping, and supporting actions by supporting organizations. The ambiguous “world class” complex mission, on the other hand, requires the commander, with staff help, to construct a theory of what “Fix Ramadi” might mean, and then a theory of cause and effect that leads him to that end. This theory will inevitably be along the following lines, “If I can get group A to behave in this way, and group B another specific way, and groups C still another way, and so on and on.” Though, as the new Counter Insurgency manual suggests, changing the behaviour of mission relevant groups might be organized into “logical lines of operations” labelled “security,” “economic development,” and “governance,” progress is measurable when people relevant to those labels change their behaviours.

The important point is that each line of operations has to do with influencing human group behaviour to change, and that only when those behaviours change can such objectives be attained. A further point is that the path from the current to the future involves non-linear and interactive causal chains, shadowy and non-hierarchical adversaries and local informal alliances with various kinds of partners within unclear contextual boundaries. And, to change human behaviours under these conditions, words, images, and actions have to be very much “in sync.” That is, a separate IO line of operations, or an over all “effects” process, is less likely to work well. All relevant tools required to advance along each line of operations have to be integrated to maximize synergy. And the only way to gauge progress is to gauge progress toward these discrete objectives that together “Fix Ramadi.” Finally, every such “logical line of operations” has to be treated as a campaign within the larger campaign in the sense that desired outcomes require “turning inside the learning-adaptation cycle” of other relevant actors in the context of that logical line of operation. This means the command and staff process of the headquarters has to be a disciplined, sustained, and purposeful iterative cyclical process of acting, sensing, deciding, and adapting along multiple “logical lines of operations” in which: there will always be an imperfect understanding of the inherent causal and influence networks; and actions or “events” are designed as much to learn as to advance desired ends. This is not the practice today.

### *Rationales for Organizational Adjustments*

In future complex missions the impact of facts on the ground and perceptions are equally important. It is therefore essential that staffs and organizations essential to both realms be equally well organized and robustly manned. PSYOP, CMO and Public Affairs organizations and G-7 staffs need adjustments. Until we do this, we may be *sincere* about this work, but we are not *serious* about it!

The G-7 should be manned well enough to participate in normal principle staff planning and coordination duties implied by the foregoing discussion, but also to “circulate the battlefield.” Current staffing does not even provide for 24 hr minimum manning within the head quarters, much less to visit subordinate headquarters and local communities to sense progress, and to advance public relations ends with relevant local communities, with the local press, or with selected community leaders.

It is difficult to imagine any mission in the future when some baseline PSYOP, CMO and Public Affairs capability would not be needed in the conventional force down to the Brigade Combat Team level. There should be nothing “special” or “unconventional” about these organizations. A sizeable proportion of them should be organic to the conventional side of the Army. Strangers, who come and go, even though more expert, will not be as useful as “good enough” organic resources.

Staffs sense, plan, coordinate and supervise, but they are not executors of actions. For that we need more units and detachments of doers working for the S/G-7 from the BCT on up. And they need to be of a different kind than we now use. Active PSYOP units are scarce and tend to deploy under the supervision of Special Operating Component Commands of Joint Task Forces. This will more than likely also be the normal practice in the future. Active PSYOP units should specialize to serve the Special Operating Forces community exclusively and more expertly. Currently, the conventional force tends to be augmented with reserve component PSYOP units. These cycle into and out of active operations at a different rhythm than the units they support. It would be better if they could synchronize with the supported unit’s force generation life-cycle. What these units do for the conventional force is now vital because they fill a void. In some cases their work supports combat operations against the enemy by providing loudspeaker or leaflet support. But PSYOP units are also, and more often, used to inform and gain support of local communities. For the reasons already stated, this use of PSYOP detachments is dysfunctional because, being PSYOP, they are associated in the public mind with propaganda. Even when PSYOP units use a cover name – Military Information Team, for example – this practice can backfire when revealed.

What the conventional force really needs is an ever present, but “good enough” organic “military public relations” capability down to the lowest level. This can be in the form of inexpensive equipment in the hands of troops with some baseline knowledge acquired in the education system and reinforced in training. Inexpensive loudspeaker systems for use by assigned interpreters, or with prerecorded messages in the local language, can be very

useful, as would inexpensive multi-purpose digital cameras to record events. (Most combat platoons already are issued cameras to record combat information and evidence to support legal prosecution of terrorists.) This dual-purpose equipment can be used in both the psychological contest with adversaries and also in the effort to inform and engage local publics. How to use them effectively is now a combat skill on an equal plane with a “call for fire,” and thus needs to be taught to NCOs and junior officers. The conventional force also needs an organic baseline of “military public relations” detachments. This is not a function easily done by strangers coming and going. Every brigade combat team commander requires a small specialized detachment to engage the ever present media, to reinforce the local “inform and engage” effort where needed, to cultivate specific communities, and to arrange and organize the “public relations” events of the command. It would be far better that these be Public Affairs detachments working under the supervision of the command’s public affairs officer, rather than reserve component PSYOP detachments under the supervision of the command’s PSYOP officer.

### **The Revision of Manuals**

It would be counterproductive to further stretch and modify the current paradigm based on irrelevant logic. A paradigm shift, as Defense Transformation intends, is required. This “shift” can occur in two steps. The revision of FM 3-13 could be the first step by explaining why IO core, supporting and related capabilities have become more important, and by explaining the logic for getting the most value added from them, as I have done in this report. After an introductory chapter, subsequent chapters should address the logic of making progress when confronted with complex missions and tasks. The next three chapters should address the specific logics of PSYWAR, Military Public Relations, and Net War. The final chapter should address staff organization and battle command issues.

The next step should be a revision of Joint Pub 3-13. Consideration should be given to producing two manuals. One could be called “Inform and Engage” – the function the Army has assigned to the G-7 as modified here. The other manual would be a more developed version of what I have labeled Net War -- the art of achieving, maintaining, and employing advantages over our adversaries in the application of modern communications, information processing, automation, and other rapidly evolving network applications. The one focuses on the modern twist to an ancient art in the “moral” domain, the other on a new and rapidly evolving art within the “physical” domain.

Whatever we do, we need to bear in mind what doctrines are and what they need to do. Doctrines are a profession’s theories about how to perform its mission looking forward. When these theories become a shared and unthinking way of thinking, they are called paradigms.

In any scientific field, theory begins as hypothesis, and sound theory is a tested hypothesis. Sound theory is also built one level at a time. No military doctrine can be as theoretically sound as the established theories of the physical sciences, but they ought to be built from the bottom up in a logical way. Valid and useful doctrinal paradigms must, at minimum, be able to describe and explain observed phenomena, and must provide

some basis for forecasting outcomes. This basis may be no more than accumulated experiential evidence. Some doctrinal paradigms, especially those closely related to the physical sciences can reliably predict outcomes, and a rare few in the physical realm, can even control the phenomena in question through a deliberate manipulation of its parameters.

Level of Theory	Corresponding Requirements of Theory
<i>Describe</i>	<i>Concept Exhaustiveness</i>
	<i>Concept Mutual Exclusiveness</i>
	<i>Descriptive Scheme Supports Explanation</i>
<i>Explain</i>	<i>Description of System Causality</i>
	<i>Description of System Conditions</i>
	<i>Description of External Conditions</i>
<i>Predict</i>	<i>Forecast of External Conditions</i>
	<i>Forecast of System Conditions</i>
	<i>Forecast of System based on Conditions</i>
<i>Control</i>	<i>Capability to Change System Conditions</i>
	<i>Capability to Change External Conditions</i>
	<i>Capability to Change System Laws</i>

The schema above is a very useful model for reflecting on the utility and reliability of our doctrinal paradigms. It also provides a basis for understanding the requirements of the sequential layers. The 1st layer of a theory or paradigm is descriptive. Descriptions should be thorough (comprehensive), differentiate the described task from any other, and promote its explanation. The explanatory layer is second -- to be able to explain the logic of systemic cause and effect, and the impact of relevant internal and external conditions. The third level of theory development is to be able to predict a change in outcome depending on a changed input to the system, a different internal condition prevailing, or a new external factor impinging on the system. The fourth, control, layer of theory forecasts changes in outcome based on changed parameters of the system, changed internal conditions impinging on the system, or changed system laws.

The current paradigm does not score well against this standard. It is “descriptive” only in the sense that IO has to do with information. What real phenomena does it explain, predict or control? The doctrines of its sub-component parts fare far better. But there appears to be no real common thread of theory to explain, predict or control phenomena due to the integrated application of the IO core capabilities beyond assertions.

This standard is a tough one, especially because this doctrine must address complex phenomena. For instance, describing how to place munitions on an enemy position (what is commonly called the “kill chain”) is more easily done than describing how to defeat a

well-dug-in enemy. And that is simpler than describing how to discourage the planting of bombs. But describing how to persuade a particular group within a local population to support your military mission is much more difficult. This is because not only do the numbers of links and nodes of the system for accomplishing these tasks increase, but causal relationships become more interactive than simply linear, and more variation of internal and external conditions are possible. Explanation is more difficult than description, and prediction more difficult than that. But doctrine need not be perfect, it only needs to be useful, and it will be useful only if it is built one sound layer at a time, first to describe, then to explain and so on.

The purpose of doctrine also ought to be to provide a reliable basis for learning and adaptation, because only in the simplest technical case will any paradigm for action endure. Not only will rapid technological change shorten the practical half-life of paradigms in this era, but novel situations and missions will place a premium on learning and adaptation.

There are certain historical inevitabilities. No plan survives first contact with the real enemy. No paradigm survives substantial progress and change. It has always been survival of the fittest, even for ideas. And fitness is a function of evolutionary adaptation. So it will be for “IO” and the “IO community.” The current paradigm is not theoretically sound. Therefore “IO” and its context need a foundational re-think.

### **Impediments to Change**

According to an old saying about the human brain, “It is easier to get a new idea in, than an old one out.” The ideas presented here resonate most with the growing number of IO Realists who understand the issues of complexity and practicality I have raised. Impediments to the radical changes advanced here come from several quarters.

There are those who fear that Information Operations has become a bureaucratic creature with a life of its own, and with its own Department of Defense champions and budget lines. They argue that the current categorization by capabilities having to do with the manipulation and processing of “information,” to advantage the friendly side and disadvantage the adversary, has a modern Information Age cachet, and thus it identifies and promotes a grouping of capabilities for funding. (This is in fact the case.) They reason that these champions of IO core capabilities would be too difficult to re-educate, and the bureaucracy would be impossible to reorganize, and IO core capabilities would lose funding. (Better the devil you know.) Therefore they advocate various “half-loaf” solutions. The problem is that paradigms are not bread. Half of a paradigm is nothing. It is in the nature of paradigms to be organic wholes. It is also in the nature of human intellectual progress to break old paradigms and construct new ones to replace them. Being a great power, and very large compared to our adversaries, we consume more intellectual energy in our internal struggles for resources, power and influence, and relatively less on how to succeed in today’s “world class” complex missions. The Joint and Department of Defense way of thinking must change also, but not necessarily first. The ground forces must combine to lead the way!

Then there are those who believe it is more important to follow the thinking of the joint community than to strike out in an independent direction, thus they advocate waiting to change Army doctrine until joint doctrine changes. There are two problems with this approach to change and adaptation. It is too slow. Our more entrepreneurial adversaries will continually turn within our learning and adaptation cycle. And the joint doctrine change process naturally tends toward the lowest common denominator, unless more than one service is convinced and committed to “convert” the others.

Then there are those within the Army who strongly believe in the primacy of “facts on the ground,” but they sense that this business of perceptions can’t be ignored, especially during counter-insurgency operations, even though they don’t quite understand it. These people are most comfortable handing over all of the non-kinetic IO core, supporting, and related capabilities to one staff officer, or to several who sit in the same room and work their magic. To them the old paradigm makes sense and fits their style. These will be most difficult to convert.

Finally there are the long serving IO Veterans who helped build the old paradigm. They joined the IO fraternity when they were young and the idea of IO was fresh. They were its crusading champions. Consequently they worked for commanders who gave them an opportunity to “work their magic” independently. They believe they were successful. And in a relative sense they were, but they worked against great odds. These veterans will also be difficult to convert because these recommendations imply they will have to be crusaders again, and they will have to chose one of the two axes – the people oriented “Inform and Engage” axis, or the very technical “Net War” axis. Personally, I believe many of this vital group will rise to the challenge.

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