THE EPISTEMOLOGY OF STRATEGY

By Richard Maltz

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“If you know the enemy and know yourself, you need not fear the result of a hundred battles.” -- Sun Tzu, Military Theorist and Philosopher

I. Introduction. I have been asked to speak to you today about the most exciting subject in the world … Epistemology. For those of you who are not familiar with the term, Epistemology is the "theory of knowledge". It is that branch of philosophy that explores and illuminates the origins, nature, methods, and limits of human thought, perception, knowledge, understanding, and learning. Epistemology will be one of very few “academic” words that I will inflict on you in this discussion; but I see no way around addressing it by name.

I am to tie Epistemology into the subject of Strategy, which is the focus of this conference. You are all well familiar with the nature of Strategy; but for the sake of completeness, I offer a representative definition of military Strategy as the science or art of combining and employing the means of war in designing, planning, and directing large military movements and operations in support of Grand-Strategy or Policy. I will spend my time with you today discussing the significance and role of Epistemology in Strategy. I hope to demonstrate that sound Epistemology necessarily resides at the center of sound Strategy; and that the latter is impossible without the former. I will conclude with a brief discussion of how, in my view, this subject impinges on that of “Defense Transformation” broadly.
Before I proceed further, I must offer a disclaimer. The views that I am about to present to you are mine alone, and do not represent the official positions of the Strategic Studies Institute, the Army War College, or any business or corporation or government or military agency, directorate, or command. While many of the points that I will mention are not original to me, I alone am responsible for any errors, or deviations from orthodoxy that they may suggest.

If I have any claim on your attention, it is that, in my undertakings in this field, I have sought to express these matters in ways that both demonstrate their practical implications to the common warfighter, and which are readily accessible and comprehensible. These are my two principal challenges today as I see them: I must demonstrate the relevance and criticality of this subject to warfighting; and I must make this discussion easy to understand and simple to apply in practice.

I regard this subject as being tremendously and profoundly important, but widely neglected, and only just now starting to emerge into our professional military consciousness. I will try to make the case today for a practical, accessible Epistemology that can be consciously invoked by anyone, at any time, to help address practical, real-world, day-to-day challenges. It is my hope that if I present this case well, I, through you, may facilitate the practical routine application of this, and other branches of philosophy, in engagement, conflict, and warfighting.
“Our Central Challenge in adapting to the demands of the Twenty-First Century will be epistemological in nature.”

II. Discussion. As we progress through this discussion, we will come to grips with the idea and challenge of “paradigmatic” change. Paradigmatic change is contrasted with more commonly-understood incremental, topical, or transitory change in that it involves a comprehensive, fundamental, and relatively lasting change to the “paradigm”, or basic understanding of the broad nature and order of things. Reality can change without our being aware of it; but the paradigm is how we appreciate and make sense of that reality. It is the expression of our thinking on the subject. It is therefore inherently and fundamentally epistemological in nature.

Our paradigms of engagement, conflict, and war are steadily and speedily growing more complex and indistinct. We are moving increasingly away from predominantly mechanistic, kinetic, and pyrotechnic solutions to those that require us to take account of the complexities of the environment, its inhabitants, our adversaries, and most important, ourselves. Because we are concerned with their behaviors, we must undertake a deeper appreciation for the nuances of perception and motivation of all the parties concerned in real or potential conflict. This is a lot more dimensions of thinking and feeling than we are used to, or organized to, deal with; and it is all pure Epistemology. It is both our greatest weakness and our greatest opportunity. One could argue, and I do argue, that whichever power achieves effective mastery of this dimension of human interaction first and most profoundly will likely be the next global hegemon.

The question of epistemology in strategy is a very broad one, inasmuch as all aspects of military activity, including Strategy, involve perception, thought, and knowledge. This includes every
aspect of Policy, Culture, Doctrine, Organization, Training, Materiel, Leadership, Personnel, and even Facilities (or as I call it, “PCDOTMLPF”). This applies at all levels of war (indeed, all levels of human activity); but seems to apply more as one goes up the continuum of conflict toward Strategy and Policy, where strictly technical and mechanical concerns hold less sway.

It is my contention that, consciously or unconsciously, Epistemology guides everything that we do (beyond the physically reflexive). Since we normally invoke Epistemology without any conscious knowledge of it, our work and productivity (to include combat effectiveness, which is a form of productivity) usually suffer. I offer my own experience as an example. I spent five of the past eight years as a Military Concept Developer. During that time, I had to contend with many “half-baked” ideas, and even entire “concepts”, prominent concepts, “Joint Operating Concepts” (JOCs), which contained no ideas. In one instance, in the case of the “Major Combat Operations” JOC, I watched the original writing team of several retired senior officers from every branch of Service draft dozens of pages of “boilerplate” for six weeks before the government lead thought to ask for an actual idea to animate the concept. In the absence of any sense of Epistemology, no one thought an idea to be important. To this day, in place of ideas, most military concepts contain lists of desired attributes or capabilities. Absent appreciation for and consciousness of Epistemology, few can tell the difference between an idea and a checklist.

As a Concept Developer, I tried, unsuccessfully, to persuade my chain of command that our problems were due primarily to poor Epistemology. In response, my boss asked me, “How often does anyone use Epistemology anyway?” I explained to him that everyone uses Epistemology, all of the time, but usually unconsciously, and therefore usually badly. He finally came to under-
stand this; but we both despaired of ever getting higher echelons to understand. Consequently, “Concept Development” often remained half-baked, generally offering limited or dubious value to warfighters, and it continues to enjoy a poor reputation among those whom it should help.

Indirect awareness of the importance of Epistemology is growing however; facilitated, in my view, by the setbacks and frustrations that we have experienced overseas in the past several years, which have shaken our complacency. For this, we can be thankful that we are learning the hard way in a laboratory of relatively limited stakes, against an adversary that does not pose the existential threat to our nation that Russia or China might. Indications of recent progress can be found in several quarters, including the deployment of “Human Terrain Teams” in theater, and many new programs throughout the services based on “Human-Centricity”, “Human-Design”, “Human-Dimension”, etc. where previously, it was thought that steel on target could solve any problem. Recently, General James Mattis, the US Joint Forces Command Commander, spoke of three principle imperatives: 1. “The character of war has changed - not its nature, which remains brutal and about bending the enemy's will”; 2. “To transform a military, YOU MUST start by clearly identifying the problem you want to fix.”; and 3. “Building trust and harmonious teams among coalition members who are comfortable with surprise and the "uncertain" is the metric officers will be measured by.” It is worth noting that all of these are epistemological in nature.

One might legitimately ask, “As long as we are drifting toward addressing epistemological issues anyway, what benefit derives from calling them that or even being aware of their epistemological nature?” This strikes to the core of my thesis. I would answer that the reasons for doing so lie in the blood and treasure that we expend wastefully or fruitlessly, while we gradually come to
recognize the importance of these key issues. If, instead of slowly and episodically backing into our appreciation of these challenges, at great cost over several years, we instead approached them systemically from the outset with a consciously, deliberately, and coherently epistemological perspective, we could reach the same destinations much sooner and at much less human and material cost. I would go further, and suggest that we are still wastefully floundering about in a process of backward reasoning based solely and slowly on empirical experience and trial and much error. There is still much blood and treasure that may be spared if we, even now, take the shortcut of an explicitly epistemological approach to identifying and addressing our challenges. In sum, taking a systemic, epistemological approach to problem-solving is much more effective, efficient, and economical than are any alternative approaches. This is the essence of strategizing.

“In some ways it was like the debate of a group of savages as to how to extract a screw from a piece of wood. Accustomed only to nails, they had made one effort to pull out the screw by main force, and now that it had failed they were devising methods of applying more force still, of obtaining more efficient pincers, of using levers and fulcrums so that more men could bring their strength to bear. They could hardly be blamed for not guessing that by rotating the screw it would come out after the exertion of far less effort; it would be a notion so different from anything they had ever encountered that they would laugh at the man who suggested it.”

-- C.S. Forester, The General
III. Analysis. In spite of the fact that epistemology touches everything that we do, the limits of our time together today prohibit us from exploring these relationships in their full diversity and depth. Accordingly, I will try to focus on what I regard as the most salient issues relating to our subject: Vision; The Cognitive Domain; and Culture, Productivity, and Combat Effectiveness.

“The United States does not really do strategy. Rather, it tends to jump straight from policy to operations and tactics.”


A. Vision. Strategy is a function of leadership; and leadership is based, most fundamentally, on vision, which, residing in the mind, is an epistemological function. Hence, Strategy itself is predominantly a function of Epistemology. It is a process of visualizing, solving problems based on that visualizing, visualizing how others, notably the adversary are also visualizing, how they will likely solve problems based on their visualizing, and how their visualizing and solutions can be rolled into our visualizing so that we may take proper account of how they will likely act in the course of our broader problem-solving. This should, of course, take proper account of their attempting to visualize our visualization and consequent actions, in endless layers and permutations. It is an inherently cognitive, and therefore inherently epistemological, function.

While describing my work to my family, I was once asked by my teenage son, “why do people insist on wasting so much time, money, and effort to do things that can usually be done more
quickly, cheaply, and easily?” I pondered this question, and offered an answer that I think may be useful to all of us in all of our undertakings.

I suggested that, in all organizations, there are people with authority to make decisions on investments of time, money, and effort to be expended on achieving desired outcomes. These decisions must be based on something. A visionary decision-maker will envision the actual starting point, the desired end-point, and the means of getting from the first to the second; and will then design, plan, decide, and act in accordance with that vision. The soundness of their designs, plans, decisions, and actions will be largely determined by the soundness of their vision.

Very few people in general, or decision-makers in particular, are naturally visionary; and vision is not something that can be taught. Vision is not a function of intelligence, education, training, technical abilities, or virtue, labor, or dedication. It is an innate and ineffable quality, derived from undetermined sources. It may be honed where it already exists; but it cannot be created. Many people (possibly most) are so bereft of vision that they are often incapable of recognizing a good idea or a sound solution even when it is presented to them. They are without any relevant frames of reference; in effect, stumbling in the dark. Many do not even grasp the idea of vision.

In the absence of vision, decision-makers must exercise their responsibilities to plan and decide through other means, struggling to make decisions based on other factors. In order to justify their decisions, to themselves and to others, they must establish a decision-making framework based on considerations that seem reasonable. This framework is usually built upon “objective” criteria that the decision-maker believes (or hopes) are relevant to the decision(s) to be made.
These criteria, in order to be deemed objective, must be widely understood, and must generally be quantifiable. Hence, they usually include such factors as: money, time, manpower, credentials, consensus, etc. Inasmuch as these criteria are selected based on personal predilection and cultural norms; by a decision-maker who, absent vision, has little if any understanding of the true issues at hand; their relevance to any particular decision is generally random; and any belief that their relevance is more than random could usually be characterized as “superstition”.

Accordingly, most decision-makers, in most organizations, make most of their decisions based upon how much something costs, how long it took (or will take) to accomplish, how easy it was, the formal credentials of those advocating a particular solution, the numbers of people doing so, etc. This may make perfect sense when dealing with simple, linear problems; but will likely be utterly irrelevant in deciding other values, where complexity and non-linearity impinge.

Ultimately therefore, because of the scarcity of vision, most decisions end up being based on superstition, and necessarily yield random outcomes, few of them favorable or desired, even if they have generally come to be expected and tolerated. This creates tremendous institutional friction and waste, and explains why it usually requires so much to produce so little. This is sometimes known as “bureaucratic inertia” or “red tape”.

That was my explanation. I hope and believe it to be sound; but if sound, it begs the question of how and why we (as a society, perhaps as a species) select and appoint decision-makers so routinely bereft of the single most important prerequisite for decision (and by extension, for leadership): vision. On reflection, I think this is attributable to multiple complementary factors;
chief among them the fact that decision-makers without vision are appointed to positions of
decision-making authority by the decisions of other decision-making authorities similarly
without vision, in reflexive acts of self-replication buttressed by objective criteria in the form of
formal credentials similarly awarded based on other objective criteria similarly generally
selected in the absence of any vision. This spiral of “the blind leading (and appointing) the blind”
is the current culmination of a trend that started when some of our primordial ancestors first
asserted decision-making authority over other of our primordial ancestors through recourse to the
use of blunt and edged instruments, rather than to compelling argument of a non-kinetic type.

Given the massive friction and waste generated by this method of allocating decision-making
authority, and the increasingly competitive nature of the world as a whole (including the fact that
we are currently engaged in a global war that will likely shape our world for millennia to come),
it behooves us to seriously explore ways of making better decisions more reliably. This clearly
means finding ways to systemically identify individuals with sound vision, and to invest them
with decision-making authority everywhere where we deem decisions to be important. This is
likely to be the catalyst of the “Transformation” that we so ardently seek, the source of our (or, if
we are not serious or careful, someone else’s) next “Revolution in Military Affairs” (RMA).
These things must necessarily be derived from our ability to better harness natural human
resources; they cannot be derived from contrivances based on machines or processes.

This, of course, requires us to find a way to judge the soundness of vision, its inherent wisdom,
and to differentiate vision from delusion; but the difficulties attendant to this challenge do not
obviate our need to master them. The alternative is too horrible to contemplate.
"The war was fought on many fronts. At that time the most important one was American public opinion. Military power is not the decisive factor in war. Human beings! Human beings are the decisive factor."

-- General Vo Nguyen Giap, former NVA CinC, on the Tet Offensive

B. The Nature and Importance of the Cognitive Domain. Now, I will address how the central arena of engagement, conflict, and war can best be understood in epistemological terms.

The “Cognitive Domain” is where decision, and will reside. The Cognitive Domain is intrinsically and completely epistemological. It is the sphere of human interaction where perception, emotion, thought, decision, and will reside. It is distinct from the “Physical Domain” where physical interaction occurs (such as blowing things up); and from the “Information Domain” where data is transmitted. These domains influence each other however; and the cognitive domain is shaped by its appreciation of what it observes in those domains.

The Cognitive Domain incorporates the Psychological and Sociological (or Cultural). This is a matter of some controversy; which I consider to be inconsequential. For our purposes, these are the elements of the cognitive domain; and they exist on multiple levels at the same time. These levels extend from the individual (the Psychological), through various layers of group identity, consciousness, and affiliation, from the family through the highest level of overarching identity - nationality, ethnicity, religion, etc. (the Sociological).
Culture is the most direct and powerful influence on human behavior, including in war. To the extent that these levels reflect layers of shared values, beliefs, and customs, they can be called cultures. These cultures therefore exist in multiple levels within each person and group of people. They define “frames of reference” through which everything perceived is understood; they similarly constitute the most direct and powerful driver of human behavior at every level. Culture is the key to influencing behavior; and it can only be reached in the Cognitive Domain.

Conflict and war are contests of will in the Cognitive Domain. Human conflict, to include war, is at its essence, a social activity; it is a contest of wills between two or more parties. Accordingly, decision in conflict (outcomes), and decisions made during conflict, and the will or lack of will to act, all reside in the Cognitive Domain.

The Cognitive Domain lies at the center of conflict and war. The Cognitive Domain is therefore at the center of conflict and war. All strategy, design, planning, decision, and execution in the physical and information domains should therefore have desired outcomes in the Cognitive Domain as both their goals, and points of departure.

The physical and information domains must be subordinated to the Cognitive Domain. Because outcomes in conflict and war are determined in the Cognitive Domain, focusing operations of all types toward achieving those outcomes where they are determined is necessarily more direct, and therefore the most effective, efficient, and economical approach. Failure to do so by, say, attempting to achieve decision in the physical or information domains without direct reference to the Cognitive Domain (our traditional approaches to conflict and war) are often ineffective, and ultimately successful or not, are usually hugely wasteful.
The Cognitive Domain touches everybody. Target audiences for operations focused on the Cognitive Domain may include any combination of one’s own forces (this is normally called morale), adversary forces, allied forces, neutral forces, populations and leaders in the area(s) of operations, the adversary polity or leadership, allied polities and leadership, neutral polities and leadership, and one’s own polity and leadership (and anyone else you can think of).

The Cognitive Domain encompasses many critical aspects of conflict and war. There are many aspects of operations in the Cognitive Domain that are important at different levels. At the highest and most fundamental level, there is the issue of “National Iconography” (some people call this “brand”). What do people (of all targeted audiences) think of us (Americans) at first blush? Are they favorably or unfavorably disposed toward us at a visceral level. Related to this is the issue of “Narrative”. What policy are we trying to promote or obstruct? Historical examples of this include Democracy vs. National Autocracy during World War Two, and Capitalism vs. Communism during the Cold War. As policies exist on many levels, so must the narratives that accompany them. The relationships between greater and lesser policies/narratives are fractal in nature, with each supporting, or providing a framework, for those above or below it. Examples of policies may include strategies, designs, plans, and discrete decisions (a military leader may decide to accelerate the pace of operations to achieve a quick victory before hostile domestic or international forces can bring political pressures to bear to paralyze or end operations). The Israelis always have to take this into consideration; and the dubious outcome of their 2006 operations against Hezbollah in Lebanon is a classic example of falling afoul of this imperative. Examples of widely-recognized operations in the Cognitive Domain include Propaganda, Subversion, Psychological Operations, and “Strategic Communication”.

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“Political Warfare” is the best model for achieving victory in the Cognitive Domain. The best practical model of the effective fusion of all efforts in every sphere, dimension, and domain in support of achieving desired outcomes in the Cognitive Domain is that of Political Warfare, as practiced by Leon Trotsky during the Russian Civil War. The body of theory on this subject composed by Italian Communist Antonio Gramsci in the 1920’s, is also very instructive.

“Fifth Generation Warfare”. The approaches theorized by Gramsci and practiced by Trotsky were further refined with great success by various Communist forces during the first and second Vietnam Wars, and by Arab insurgents in the Algerian War of Independence. Then, as earlier, combat operations in the theater of battle were incidental; the true center of gravity of operations was in the polities of the states involved. Outcomes were determined in the minds of decision-makers far distant, in Paris and Washington, DC; even when events on the ground suggested an opposite direction. This approach has been practiced with mixed results many times since. Some theoreticians have now come to refer to this approach as Fifth Generation Warfare.

Determining centers of gravity is certainly a primary function of Strategy. For Strategy to be drawn to such determinations based on their epistemological roles, natures, and values certainly demonstrates the central role that Epistemology now necessarily plays in Strategy.

“If I had only 60 minutes to save the world, I would spend 59 minutes defining the problem, and one minute in solving it.”

-- Albert Einstein, Physicist and “Cracker-Barrel” Philosopher
“Every war ... is a struggle between two or more learning institutions ... the course of events is shaped, even determined, by which side learns fastest and adapts more quickly.”


C. Culture, Productivity, Combat-Effectiveness: Learning and Adapting Under Pressure.

There has been a great deal of discussion in the past several years on the subject of Situational and Shared Situational Awareness and Understanding. Much of that is tied up in discussions concerning, and programs purporting to offer: “Common Operational Pictures”, “Common Relevant Operational Pictures”, and the grandest of all, the “Operational Net Assessment”. Each of these is supposed to eliminate fog and friction in war and stimulate “Self-Synchronization” between friendly units, by providing uniform and comprehensive information to all cognizant parties concerning everything of interest in the operating environment. Needless to say, there are problems. As with most such projects, the problems start with poor (generally no) philosophical foundation. In each instance, it is assumed that human decision-makers are essentially interchangeable and need only access to a common set of data to achieve “Shared Situational Awareness”. This is generally presumed to result in “Shared Situational Understanding”; which, in turn, is presumed to yield the ultimate goal of Self-Synchronization (disparate units acting in concert, even with limited communications). Aside from the fact that, in general, this chain of causality presumes a great deal too much, and therefore cannot be relied upon; other fundamental philosophical errors and important unaddressed questions revolve around issues that I will now address. I highlight these because I have observed that even in very sophisticated environments,
populated with first-rate minds, such concerns are generally overlooked in favor of those to which our cultures of productivity and warfighting reflexively drive us.

"Situational Understanding" and Shared Situational Understanding are two related but distinct sets of challenges. Similarly, “Awareness” is not the same thing as “Understanding” (unlike awareness, understanding requires some useful grasp of the information at hand). One could argue further that understanding is different from, and inferior to, “Insight” or “Wisdom”; and that either of these should be a recognized goal on the path toward Self-Synchronization (which does not automatically result, even from shared situational insight or wisdom). Shared Situational Understanding is not a desired end in itself. It is valuable only as a means of enabling desired emergent behaviors, notably those of: synergy, adaptability, and opportunism. These, in turn, facilitate Self-Synchronization (and vice-versa). All of this promotes the ultimate values of any military (or other) enterprise, enhanced: effectiveness, efficiency, and economy. It is in order to achieve these, and only in order to achieve these, that Shared Understanding is needed. If we keep this hierarchy of needs and purposes in mind, it will help us in addressing the related challenges without sub-optimizing the greater solution in favor of lesser ones.

Emergent (indeed, all) behaviors are most directly determined by culture (personal and shared beliefs and values). The culture of warfighting (which is a type of culture of productivity) determines if, and how, a warfighter decides to lift his weapon and place himself in harm's way. It also determines (through "Frames of Reference") what a warfighter sees, hears, tastes, smells, feels, emotes, and thinks in response to any given stimulus, individually and in groups (in multiple layers of group identity). It does this to a greater degree than does intelligence, aptitude, or any training, instruction, orders, material, technology, or anything else. Any stimulus that we
may try to convey in order to foster Shared Situational Understanding will have meaning to the recipients only in the context of the disparate frames of reference through which it must pass within the minds of those recipients. The same image, viewed by 100 people, may mean 100 very different things to them, unless we focus on how to shape their frames of reference to increase their predisposition to attain Shared Understanding. Shared "Warfighting Culture" must therefore be the ultimate key to Shared Situational Understanding in the operating environment.

In trying to shape and promulgate “Shared Frames of Reference”, it is important to guard against any tendency toward tunnel vision or “Group Think”. One should differentiate between Cognitive Preferences (such as linear, reductive, analytic vs. non-linear, constructive, intuitive problem-solving), where there is a critical need to diversify our ranks further by expanding the numbers of those who favor the latter approach; and the issue of group culture, per se’. These levels share a fractal relationship reflected in the organizational structure, and beyond. At each level, disparate lower-level cultures must be reconciled so that a common vision can be pursued at that level, in support of the vision at a higher level. The common culture formed at each level can be viewed as an overlay in relationship to the subordinate cultures. These overlays can form haphazardly or by design, or by some combination of the two. We need to leverage the tendency of such overlays to occur spontaneously while consciously seeking to incorporate elements that we deem desirable or essential. With an adequate cultural overlay, each decision-maker will intuitively understand what their colleagues are likely to infer from the same information; and they will similarly intuit their colleagues' likely responses, permitting "instinctive" "self-synchronization". The establishment of shared frames of reference can be accomplished without destroying existing frames of reference shared with other groups.
The practice of attempting to control or substitute the Situational Understanding of rear command elements by or for those of forward commanders dates back many years. During the First World War, it was called "Chateau Generalship". Now, some call it "Network Centric Warfare". It has never worked as expected because it is based on several techno-centric fallacies that do not adequately take into account immutable aspects of warfighting and warfighters, and the primacy of warfighting culture, not machines, in ultimately determining actions in battle. In this, it strongly resembles other age-old techno-centric delusions that continually disappoint, such as the notions that airpower alone can reliably win wars; that precision-engagement will destroy all threats; or that elaborate Intelligence, Surveillance, & Reconnaissance will eliminate ambiguity, uncertainty, and deception from the operating environment. Our enduring infatuation with such shibboleths illustrates the philosophical and theoretical poverty of our efforts in general; and deprives our otherwise generally expert planning and execution of context, and a sound "trajectory" along which to plan and execute, leading to random outcomes, and the systemic predisposition to expend infinite resources without any assurance of achieving desired outcomes.

Shared Situational Understanding consists of multiple subordinate elements. Many observers reduce these to the single issue of "Connectivity". This is partially true; but connectivity manifests itself in two distinct ways: "Technical Connectivity" and "Perceptual Connectivity". Technical Connectivity is the material network of sensor and communications grids that link a network of users through mechanical and electronic interfaces in order to acquire and share information. Perceptual Connectivity is a network of shared frames of reference within the users themselves that enables them to make sense of the information transmitted via the technical
connections, and to intuitively understand what other, similar users will infer from that information. In the absence of reliable technical connections, it can help bridge inevitable gaps in communications through logical assumptions based on shared perspectives. Of the two types of connectivity, the latter is superior. In its absence, the former conveys only empty symbols, not meaning; but in the absence of the former, the latter can go a long way toward facilitating shared understanding and self-synchronization, even with very little data. Our culture embraces and invests heavily in Technical Connectivity; but cannot generally be bothered with the imponderables associated with Perceptual Connectivity. This too is a model for investing vast treasures in projects that, incomplete, can never deliver promised or hoped-for outcomes.

“Shared Situational Understanding On The Move” adds additional, special requirements that are primarily cultural in nature. These requirements result from both the challenges of less support, less time, and the need to think, understand, design, plan, etc. while physically moving; and the additional challenges associated with the greater dynamism and complexity of the environment through which you (and your adversary(ies)) are moving. This greater dynamism and complexity require a greater emphasis on emergent behaviors, to include the need to continuously adapt mentally while the objective circumstances around you are in constant flux; the need for disparate elements to arrive at complementary conclusions based on limited communications; and the need to generate self-synchronizing actions thereby. This, in itself, requires a very different philosophy of conflict and command than we are normally accustomed to. It renders most of our traditional assumptions on these subjects dangerous anachronisms. Principal among these changes is the fact that, in a complex, dynamic environment, with “Post-Industrial-Age”, “Third-Generation” forces, what we traditionally hold to constitute "control" of one's own forces
in battle is generally an "illusion of control" when applied to actual outcomes in the operating environment; true control of outcomes can usually only be obtained by abandoning direct, prescriptive control of one's own forces, giving them the latitude to adapt freely to circumstances in pursuit of shared goals as defined by the vision embodied in the Commander's Intent.

Building shared frames of reference is a daunting challenge; but success in doing so is not unprecedented. It generally requires a high level of socialization on the part of the persons and forces involved. W. Edwards Deming's "Theory of 'Profound Knowledge'” does a great deal to illuminate the challenges here; as does the work of many other experts in civilian organizational productivity theory. The best example of successfully implementing this in a warfighting organization can be drawn from studying the Prussian "Scharnhorst Reforms" of 1808. There, Gerhard Von Scharnhorst, applying lessons that he and his coterie (the "Militarische Gesellschaft", or “Military Society”) had learned before and during the Napoleonic Wars, set in motion a process that was to culminate in 1917 under Erich Von Ludendorff as "Stormtroop Tactics", later evolving into the "Blitzkrieg". This process was later emulated with great success by the Israel Defense Force; and our own Marine Corps has been trying to assimilate it since the 1980's under the confusing name, "Maneuver Warfare Doctrine". At their core, all of these approaches are Post-Industrial-Age, Third-Generation techniques of warfighting that, by their nature, focus on strong shared cultural overlays as a means of consciously, systemically, and routinely unleashing latent human creativity, stimulating desired emergent behaviors, and facilitating self-synchronization, even in the absence of direct guidance and assured communication.
IV. Summary.

Epistemology is the "theory of knowledge", that branch of philosophy that explores the origins, nature, methods, and limits of human thought, perception, knowledge, understanding, and learning. Sound Epistemology resides at the center of sound Strategy. The latter is impossible without the former. This field is tremendously and profoundly important, but widely neglected. It is only just now emerging into our professional military consciousness. We are experiencing paradigmatic change, moving away from mechanistic, kinetic, & pyrotechnic solutions to those that require us to consider the complexities of the environment, its inhabitants, our adversaries, and most important, ourselves. Whichever power achieves effective mastery of this dimension of human interaction first and most profoundly will likely be the next global hegemon.

All aspects of military activity, including strategy, involve perception, thought, and knowledge. This applies at all levels of war. Epistemology guides everything that we do. In this discussion, we are only scratching the surface of an immense area of inquiry. Indirect awareness of the importance of Epistemology is growing. Reasons for focusing on it lie in the blood and treasure that we expend wastefully or fruitlessly. If, instead of slowly and episodically backing into our appreciation of epistemological challenges, we instead approached them systemically from the outset with a consciously and deliberately epistemological perspective, we could reach the same conclusions that we ultimately do much sooner, and at much less human and material cost. There is still much blood and treasure that may be spared if we, even now, take the shortcut of an explicitly epistemological approach to identifying and addressing our challenges. Taking a systemic, epistemological approach to problem-solving is much more effective, efficient, and economical than are any alternative approaches. This is the essence of strategizing.
VI. Conclusion. Epistemology and Defense Transformation. An appreciation of Strategy as inherently epistemological is, for the reasons already discussed, inherently revolutionary and “Transformational”. That being said, I believe that it behooves us to explore how we might best apply this appreciation to shaping useful transformation that would incorporate, but also transcend, the issue of Strategy, except insofar as it represents a Strategy for Transformation.

According to DoD policy, in order to remain viable, the Armed Forces of the United States, the Department of Defense, and the Defense Community must “Transform”. The nature of that transformation however, is far from clear. Admiral Arthur Cebrowski, the former Director of the DoD’s former Office of Force Transformation stated that “transformation is ultimately about -- new values, new attitudes, and new beliefs and how those are expressed in the behavior of people and institutions … nations, states, and others who wage war, do so in ways appropriate to their culture and values. Accordingly, our American fixation has been on the technical and industrial, means of waging war. Our collective over-awe at the significance of our industrial achievements often leads us to expect strategic effects from systems and capabilities designed for tactical or operational impact. If our adversaries operate at the speed of business while we're operating at the speed of doctrine -- who wins?” This suggests that the needed transformation is primarily cultural in nature, and linked to society’s broader transformation from the Industrial-Age to an as yet undefined Post-Industrial-Age steeped in “Human-Centricity”.

This, in turn, requires a new appreciation of organizational productivity, such as are reflected in the words of W. Edwards Deming: “Best efforts are killing us. Unfortunately, best efforts …
without guidance of principles, can do a lot of damage. … Long-term commitment to new learning and new philosophy is required of any management that seeks transformation … (that) can only be accomplished by man, not by hardware. … Benefits from massive expansion of new machinery also constitute a vain hope.” Presently, Transformation is widely confused with mere change, and is usually mistakenly thought of as being primarily technological in nature. Until these misconceptions are corrected, we will never succeed in achieving anything of lasting and practical consequence. How might genuine transformation be best achieved in the US Defense Community? I would suggest that it would likely possess the following key attributes:

A. Its myriad properties will be bounded by three overarching aspects:
   - A Framework of: Continuous Global Shaping,
   - A Focus on: the Cognitive Domain, and
   - A Foundation of: a Third Generation (Post-Industrial-Age) Warfighting Culture

We have already discussed the nature and importance of the “Focus” on the Cognitive Domain and the “Foundation” of a Post-Industrial-Age, Third Generation Warfighting Culture. The “Framework” of Continuous Global Shaping is less explicitly epistemological; and more detailed discussion of it will have to await another opportunity; but I would suggest that it provides necessary structure and context for the other two aspects.

B. It will be explicitly and liberally informed by the necessary foundations of all cognitive enterprise: History, Philosophy, and Theory. These inherently epistemological and eminently practical functions (when they are properly focused) are essential to provide context and the foundation for “designing” a sound “trajectory” along which planning and execution can be conducted to predictably desired (as opposed to random) effect, as we previously discussed.
C. It will be consciously and explicitly designed to be oriented outward, toward the adversary, the environment, and accomplishment of the mission (as opposed to inward, toward perpetuating and replicating itself). Accordingly, it will be designed to routinely and systemically stimulate key desired Emergent Behaviors, notably: Synergy, Adaptability, and Opportunism.

D. Every element of this effort will be consciously focused on enhancing the three transcendent values for any enterprise, enhanced: Effectiveness, Efficiency, and Economy (in that order).

I assert that this is a coherent, though I’m sure not perfect, structure for Defense Transformation. It is the only coherent structure for Defense Transformation that I have seen or heard of. It incorporates both Strategy and Epistemology in what, I suggest, is a useful and necessarily human-centric synergy. You will notice that my discussion of Transformation is “descriptive” rather than “prescriptive”. I have deliberately focused on what it should be like, as opposed to how to achieve it. In that connection, I can only state that: such prescription is a major undertaking in its own right, beyond the scope of this presentation; there are already many scholarly works on the subject, notably by Doug Macgregor, Martin Van Creveld, Wick Murray, and Donald Vandergriff, among others; and in the brief time that I have remaining to discuss this; I would again suggest emulating the example of Gerhard Von Scharnhorst and his successors.

I invite each of you to comment freely on this presentation, especially on this last section. It has been a great pleasure for me to speak with you on this subject; and I thank you for your time and attention. Please feel free to write to me by e-mail at richard.maltz@us.army.mil.
“There is nothing more practical than a sound philosophy.”