SMALL WARS JOURNAL

# Innovation in a Small War

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Journal Article | *Jun 13 2012 - 4:48am*

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*"**Bullets quickly write new tactics**." (14)*

*-Wilhelm Balck*

Innovation—in the way Marines orient on the enemy, analyze and adapt tactics, perform combined arms, and generate tempo within the current and future operating environment of threat and opportunity—is a key tenant of Marine Corps warfighting philosophy. Modern military innovation studies give specific focus to many of these key concepts in an attempt to better understand how and why military praxis change over time. Inherent in many of the current theories are perceptions that can create vulnerabilities and potential catastrophe.

Key theories of this research program relate specifically to several opportunities during Regimental Combat Team 1's (RCT-1's) deployment in support of Operation Enduring Freedom from August 2010 until September 2011. By capitalizing on several of these opportunities and overcoming the intrinsic challenges to innovation in combat, RCT-1 was able to cause a specific tactically-significant change of the combat process in several instances. An examination of this evidence through the lens of maneuver warfare philosophy and the postmodernist paradigm places new importance on bottom-up influences to innovation and presents an anomaly to current models. This article proposes a re-identification of several maneuver warfare tenants in order to further promote a culture of innovation in war and resilience in combat.

**The Promise**

Even as a young boy Superman appeared to transcend human physical limitations. His super-strength, seeming invulnerability, x-ray vision, and dashing cape offered great promise. In maturing on a rural farm under the guidance of his adopted parents, Jonathan and Martha Kent, he is imbued with a strong moral compass and resolves to use his powers to help humanity. Paradoxically, he is not equally gifted with a super share of intelligence or wisdom. Initially, Superman appears to offer a humane solution to the menace of crime and corruption, which appears to confer some kind of moral superiority. His powers yet-unknown (presenting a novelty), he is met with initial success in his fight against human crime as villains attempt to combat him with bullet and fist. The criminal's actions are so ineffectual that they are apprehended with minimal injury and presented to the police by the shirt collar as tame as kittens. A period of apparent stability ensues as criminals realize the futility of fighting superman toe-to-toe. The menace of his super strength alone becomes a deterrent. Humanity adapts to Superman's presence by developing signaling methods to indicate trouble and guide Superman's efforts, avoiding a potentially risky and messy intervention themselves in favor of Superman's powers.

Enter the super-villain. Mass destruction and chaos engulfs the people! The city burns. Criminals run rampant again. In a climactic confrontation, Superman suffers defeat by a devious, unpredicted (yet alluded) novelty—kryptonite. He is not only weakened and vulnerable, but in fact more vulnerable than the average bystanders who surround him. These bystanders are seemingly incapable physically, mentally, and morally of addressing the super-villain, and instead dispatched by his henchmen. In a catastrophic combination, they are unpracticed at basic policing and panicked by the revelation of Superman's combined fallibility and intense vulnerability.

Is there no hope? There is. A supporting and wholly mortal character joins in league with Superman, at risk, directly facing the menace as well, and creates a new vulnerability in the super-villain, which is exploited in a seemingly final confrontation. Sadly, the mortal ally is severely injured or killed. His heroic sacrifice helps vanquish the super-villain for the now. A new apparent stability ensues, but the specter of a new super-villain or new evil scheme remains. Roll credits.

**The Pattern Laid Bare**

The mystique of Superman is symptomatic of a deadly pathology in contemporary society, and thus reflected into the U.S. military: a compulsive yearning for easy answers. Superman finds initial success through massive asymmetric advantage. Significantly, he does not attack the root causes of crime, but the symptom, the criminal in action. Initially, Superman's opponents face him symmetrically, fist-to-fist, or through the application of direct force in the form of firepower. Word travels and the menace of superman becomes a deterrent to crimes. The locals adapt and organize to avoid direct intervention in crime, and instead find ways of directing Superman to criminal acts. They surrender their ability to think and act for themselves--they surrender their initiative.

Human nature capitalizes on this stasis of will. The arch-villain and even petty criminals exploit opportunity, seize the initiative, and visit destruction, misery, and pain upon the citizens. At story's end, crime remains and the menace of further super-villains emerges. Man realizes the folly of his assumptions and a new compact is struck with Superman.

In this light, is Superman a hero or a villain? Do these simplistic categories really even make sense? Superman has allowed man to surrender his humanity to avoid risk, and brought only a new host of problems because of false implicit assumptions on his power and the reaction of nefarious actors. Perhaps there is intense (albeit potentially unintentional) evil visited on the surrounding populace through his overt, although naive goodness. Is this Superman's fault? Superman is a parasite. Man is to blame by over-investing in Superman and misunderstanding the nature of conflict.

The mystique of Superman relates the danger of the current trend which gives rise to top-down concepts of military innovation and our current infatuation with high-technology.

**Military Innovation Studies**

> *"**There was a man who sat each day looking out through a narrow vertical opening where a single board had been removed from a tall wooden fence. Each day a wild ass of the desert passed outside the fence and across the narrow opening—first the nose, then the head, the forelegs, the long brown back, the hindlegs, and lastly the tail. One day the man leaped to his feet with the light of discovery in his eyes and he shouted for all who could hear him: 'It is obvious! The nose causes the tail!**'"(359)*

The current field of military innovation studies has evolved considerably in the last 20 years and now

includes several differing theories.[1] Interestingly, academics seem to gravitate towards a definition of *military innovation* which focuses on technologies and macroscopic doctrinal changes. This definition has three components:

> First, an innovation changes the manner in which military formations function in the field. Administrative and bureaucratic measures don't count.
>
> Second, an innovation is significant in scope and impact. Minor reforms or those which had ambiguous effects are excluded.
>
> Third, innovation is tacitly equated with greater military effectiveness. The change must be value-added on the battlefield.

The agreed aim of military innovation is to improve military effectiveness, which is understood as the more efficient application of combat power (or deterrence).[2]

This premise leads current studies to four primary models of military innovation:

> Civil-military model: concludes that military organizations will gradually stagnate and fail unless statesmen and civilians intervene in military service doctrinal development.
>
> Interservice model: posits that inter-service resource rivalry for scarce resources in mission areas results in innovation.
>
> Intraservice model: involves competition between existing service branches and new branches that incorporate new capabilities.
>
> Cultural model: asserts that culture fundamentally shapes organizations' reactions to technology and strategic opportunities.[3]

This paradigm argues that military organizations are large bureaucracies, resistant and fearful of change.[4] Thereby, military innovation must operate from the very top down, in a linear fashion, forcing change. A recent monograph continues, indicating conventional forces lack the required tight distribution of personnel with mental and physical characteristics to successfully innovate in the field without unacceptable risk.[5] Therefore, the lengthy, linear, top-down process of military innovation prevents unacceptable risks for conventional forces.

This leaves operational Marine forces with a few clear options: create certainty by applying more of existing capabilities, wait for the Marine Corps as an institution to develop new technologies and associated doctrine, or, in the face of great uncertainty, rely on Special Operations Forces (SOF). According to the monograph, SOF are able to cross this cognitive gap; and can adapt and innovate technologies during operations and bypass friction without excessive risk. Or, perhaps Superman will save us.

This should not sit well with any veteran's intuition (of any service) and is worthy of analysis. It is interesting to revisit the implicit assumptions in this paradigm through several representative combat experiences:

**The Sniper**

Quick thinking in combat has proved decisive many times. One representative case explains how Marine snipers dealt imaginatively with a distant gunman firing from a building's corner who grasped a child as a shield. "'I shot three to four feet away from him, on the face of the building,' explained one Marine, 'which made the kid run away and the man come out to inspect the impact. That is when my team member

shot the armed individual in the chest.'"**[6]**

**The Sickle Stick**

In a spark of creativity, Gunnery Sergeant Holley, an EOD tech attached to 3rd Battalion, 1st Marines, RCT-1, created an expeditionary technology to dramatic effect. His invention had significant tactical impact to assured mobility in the Improvised Explosive Device (IED)-laden terrain of the Southern Central Helmand River Valley (SCHRV), Afghanistan. The combination of locally available resources; a sickle, bamboo pole, and small length of 550 cord or duct tape, proved an exceptional compliment to other Counter-IED (CIED) technologies, filling a capabilities gap. The new ability to better locate and reduce IEDs provided by the sickle stick lowered the risk of maneuvering by active patrolling and persistent local national engagement in support of Counter-Insurgency (COIN). The development and diffusion of this technology lead to significant changes in basic infantry tactics, techniques, and procedures (TTPs) in the SCHRV. Success was, in turn, met with enemy counter-developments, but under mandate by the RCT-1 Commander and significant coordinated development by the entire RCT, a fluid combined arms CIED concept developed as a method of assured mobility.

**Focused Lethality and Complimentary Forces**

Continuously advancing surface-to-surface and air-to-surface precision guided munitions (PGMs) provide an asymmetric firepower advantage to Marines operating in Afghanistan. In response, the enemy uses human shields, well-developed information operations, and a void in media ethics to threaten and exploit civilian casualties. The enemy forms an asymmetric response, attacking our mental and moral cohesion. Through this insurgent counter-tactic, a balance was struck. Commanders assumed various levels of risk to accommodate the tension between applying overwhelming firepower from greater distance (force protection), and minimizing collateral effects (at increased risk to the force).

RCT-1 responded with an effort to combine existing advanced technologies with emergent new combined arms techniques, changing the character of battle. Through new tactics, technological innovations in PGMs and Intelligence Surveillance and Reconnaissance (ISR) were combined with emergent new methods of observer-sensor-shooter-movement integration and in-theater training. 2nd Battalion, 8th Marines, RCT-1 collaborated, developed, elaborated, and executed this concept with exceptional acumen in early 2011.

Focused lethality, the ability to selectively apply force by overt and clandestine means, was the result. Firepower became more efficient as an economy of force measure, supporting movement to achieve maneuver. Enemy counter-PGM TTPs were marginalized. Local attrition of the enemy rose. The character of combat in the SCHRV changed.

**Evidence of Local Battlefield Innovation**

How would these combat experiences be characterized by the current paradigm of military innovation? This aforementioned definition is approximately, "a change in operational technologies or doctrine that produces significant increase in military effectiveness as measured by battlefield results".**[7]**

They were no doubt creative changes. Only one involved a new technology, and this was invented with locally-available materials and developed by field units. None involved a change to Marine Corps keystone, capstone, or operational doctrine. What was the impact of this change on the battlefield? An insurgent was killed by an indirect sniper attack; substantial progress towards assured mobility through a low-technology expedient was achieved; and new combined arms tactics greatly increased attrition, reduced collateral effect, and disrupted insurgent freedom of movement. It is clear that they all

significantly improved military effectiveness on the battlefield.

The aggregate effect of the latter two improvements combined with a myriad of others which occurred during RCT-1's deployment affected the course of the campaign in the SCHRV. However, if we apply the accepted definition, they would not be recognized as military innovations and, instead, either be characterized as minor tactical reforms (from a doctrinal-change view), adaptations (from a technology-centric view), or anomalies (from a linear top-down model). If the traditional definition is adhered to, were they even military innovations?

**Redefining Military Innovation**

If we examine the broader array of studies which focus on innovation in markets, society, and government; the consensus generally defines innovation as the creation of better or more effective processes, products, technologies, or ideas. Is it valuable to distinguish between genuinely new warfighting concepts, such as Operational Maneuver From The Sea (OMFTS), and new adaptations of established concepts, such as electronic warfare in support of COIN?

Maoist infantry tactics were not considered innovative in the late 1960s, if judged by the former definition. However, **the North Vietnamese Army's (NVA) exceptional application of these tactics** against U.S. forces in Vietnam rendered U.S. airpower and armored ground fighting relatively ineffective, allowing for a successful strategy of exhaustion. Importantly, the NVA utilized many creative low-technology expedients on the battlefield. In light of the above, it is apparent that a broader definition of innovation has more utility. Thus, we will proceed with the following definition of military innovation:

> *"**Innovation is manifest by the development of new warfighting concepts and / or new means of integrating technology. New means of integrating technology might include revised doctrine, tactics, training, or support**."(8)*

Though the two are closely related, innovation in warfighting concepts is not the same as technological innovation. Additionally, as demonstrated in combat by the success of IEDs and the sickle stick, military innovation may involve but does not necessarily *require* high technology to increase military effectiveness.

Viewing military innovation through this definition and relating it to previous combat experiences in the context of maneuver warfare philosophy begins to reveal the significant danger of our present infatuation with high technology and a top-down model of innovation.

We proceed by exploring the menace of technocrats and martial implications of our present scientific zeitgeist.

**Superman's Legacy**

Technological innovation can include promise of heightened perception of the environment, self, and others; and a consequent sense of power and transcendence of the limits that usually confront Marines, as well as some kind of a moral evolution. Fantastic predictions of all-seeing sensors and ultra-precise standoff weapons paint a picture of surgical effects which are without defense or collateral effect.**[8]** A more humane form of warfare is promised. While there is no doubt great value in these advanced and costly technologies, they are not *the* answer to tactical, operational, strategic, and most importantly, organizational challenges in combat or otherwise.

In the uncertainty, friction, and disorder of war, where anything can happen, technological advances also mean new kinds of problems. When presented with a new menace, **the nature of war demands that the adversary adapt or die**. A re-investment in the basic expedients of camouflage, leveraging of unfiltered

global communications, exploitation of a void in media ethics, adaptation of IEDs, and presence of human shields has exposed the severe limitations of some of these technologies and their associated tactics and doctrine. This is an example of a fundamental fallacy in our implicit assumptions.

We fell victim to the pathology of Superman, favoring the absolute in a relative universe. The importance of low-technology innovation was devalued. The impact of minor reforms was omitted from military innovation study. There was a failure to identify the significant contribution bottom-up creative influences have in combat. We sought absolute certainty in a relative universe.

Perhaps it is time to face these challenges. Frank Herbert warns us in proceeding:

> *"The reward of investigating such a universe in fiction or in fact," he says, "is not so much reducing the unknown but increasing it, opening the way to new dangers, new crises."**[9]***

We have no more real control over conflict (or the universe) than anyone else, in fact, sometimes we now have less. All of these ideas are results of the current scientific zeitgeist, postmodernism.

**The Zeitgeist**

Postmodernism developed from advances and cross-references in multiple intellectual disciplines over the last 80 years. New, powerful areas of study emerged on the scene of science and social theory.**[10]** Through this intellectual evolution, the old theories and the accompanying philosophies founded in Newtonian physics were shattered. Postmodernism brought into focus change, learning, relative relationships, connections, and exchanges across a great number of varied viewpoints. It is action-oriented.

Neo-Darwinism carries this theme. Neo-Darwinist theory asserts that the capacity to learn, to propagate successful traits and mental frameworks, and to recombine them in new ways leads to the emergence of adaptation and evolution. This contrasts from classical Darwinism which focuses on chance and random mutation as the genesis of novelty. Neo-Darwinism instead finds the driving force of evolution in **life's inherent tendency to create novelty through spontaneous emergence of complexity and higher order.**

Chaos and complexity theory give rise to models of complex adaptive systems and emergent phenomena, the feature of many current military articles.**[11]** Complex adaptive systems are always exploring, seeking opportunities, and experimenting with novelty, trying new increases in complexity and sometimes inventing solutions that open up the possibility of new structures, **including the possibility of new kinds of complex adaptive system**s.(141) This describes the complex adaptive system's ability to create order through self-organization. The importance of a myriad of connections is primary. A combination of hierarchical and lateral, or heterarchical, connections gives the system resilience, reducing its vulnerability to shock and uncertainty.

Postmodernism shows us a universe in perpetual motion and change. Success in such a paradigm is largely governed by the ability to adapt.

**Martial Implications**

Postmodern sensibility provided the scientific foundation for the defense reform movement in the 1970s and 1980s, led by Colonel John Boyd. Colonel Boyd describes the all-important concept of orientation, made up of genetic heritage, cultural tradition, experience, and unfolding circumstances. **Orientation is shaped by the interplay of these factors and is the framework which determines how an organism or organization thinks and acts**. Something is new when it falls outside our orientation and thus creates a *mismatch*

. Adaptation is required to adjust this orientation to address the mismatch. Maintaining the ability to adapt while negating that ability to the opponent is the **single all-embracing theme of Colonel Boyd's theories**.(273) Military success is thus a result of a **two-way process of adaptation and counter-adaptation**, of shaping and being shaped.

The essence of post-modernism and Colonel Boyd's theories are reflected in our philosophy of maneuver warfare, which places an emphasis on variety, adaptability, and relativity. The formulation and institution of the Marine Corps' doctrine described in *Warfighting* is an effort to incorporate and operationalize the intellectual paradigm of post-modernism and Colonel Boyd's theories in an executable form for the Marine Corps.

Maneuver Warfare Philosophy does not employ relativity, chaos mathematics, or complexity fields in a predictive or physical way, but metaphorically. Through relativity, we are oriented on a specific enemy at a unique time and place. Through neo-darwinism, only against this thinking and adaptive enemy are our strategies designed and effectiveness judged. Through theories of complex adaptive systems the significance with which identification and bounding of a problem shapes the available solutions is realized. The wisdom of a long line of great warriors takes shape in current parlance. In all cases, conflict is a relationship changing in time. All actions are relative to the environment and enemy.

**Is Innovation an Anomaly?**

If our scientific paradigm now tells us that change is normal and adaptability not simply a desirable trait in pursuit of victory, but an imperative to survival, why do we look at innovation as an anomaly? It is indeed shocking to any veteran to think that in war, where risk and opportunity are closest, theories imply that field armies are not driven and required to adapt and innovate--continuously. Only under the stress of combat can we realize the strength and vulnerabilities of our orientations, technologies, and ability to continuously adjust them. Without an irreconcilable, opposing will met in conflict, we are guessing at our effectiveness.

The implication is exceptionally important: **An intrinsic will to transcend a specific*menace incombat* is the driving origin of innovation and adaptation for field armies.**

In this light, it is amazing that military innovation and adaptation of any value can occur without direct connection to conflict. "**War takes its fundamental character from the dynamic of human interaction** ", without this interaction there can be neither a context nor real metric to assess the value of novelty.(20) Our creativity is untested without conflict. This is not to say we should only be looking where rounds are downrange. The combat power exercised through seven decades of nuclear weapons innovation was not manifest in a nuclear exchange, but perceived menace and deterrence.

Without the ability to revisit and adjust our orientation, we may become insensitive to the changing character of conflict, and may not even recognize actions as war. In fact, this is the exact strategy which Senior Colonel Qiuo Liang and Senior Colonel Wang Xiangsui propose against the United States and have laid out in detail in their book ***Unrestricted Warfare***. Vulnerabilities are identified which can be exploited through international law, economic action, attack on networks, and terrorism. Our foundations can quickly become boundaries and perceived vulnerabilities if we rely only on the past to determine our actions in the present. Once the walls of a static doctrine are broken, the old mechanical explanations are blown away by new movements. Any military theory which is not built upon the unbroken awareness that the universe moves of itself and in so doing, constantly changes the rules, lacks pragmatism and invites disaster.

**Creativity**

If the value and motivation for adaptation and innovation is clear, what is their mechanism?

Current theories of creativity support a process consisting of four key themes. Creativity results from the invention and bounding of a problem, deconstruction of existing mental concepts, synthesis of these concepts in a new way, and test and development of the novelty to become valuable.**[12]** But creativity and invention do not necessarily imply value. Naivety and ignorance are equally able to invent, because the ability to anticipate value is lacking in a novice. Without education, intuition, and judgment; all things appear possible. Thus, creative thinking is heavily reliant on prior knowledge, can be considered as a combination of several mental processes that reorganize existing concepts to form new ideas, **and is aided by metaphorically or analogously extrapolating concepts from one domain to another** .(63)

This extrapolation and anticipation of value requires generalist thinking. Generalist thinking is an ability to look across the nit-picking of experts and specialists, take a holistic view of a situation, and think in the present by asking "what's changing?" It is the ability to see the trajectory of things, not just their present state or history.

The further development of creative thought into action, which is adaptation or innovation, potentially requires the answer to be communicated to, elaborated by, resourced from, and sponsored through the agent which exercises authority over that action. A new idea needs a patron with the required resources. Ideally, this authority also employs generalist thinking. In the case of the sniper team, the entire process was self-contained; the team leader had the authority to perform the novel tactic. The sickle-stick required many different individuals and units to create, but the RCT-1 Commander's mandate to turn the creation to an RCT-wide innovation.

**Redefining Adaptation and Innovation**

It is useful at this point to differentiate between adaptation and innovation in, perhaps, a new perspective.

> **Adaptability is the ability to*rapidly cope* with novelty, while innovation is the*inception and production* of novelty.**

Implicit in this definition is that the difference between adaptability and innovation depends on the eyes of the beholder. What really matters is the enemy perspective. Novelty leads to surprise. In war, surprise enhances ambiguity, uncertainty, and deception; all of which increase uncertainty and friction for the enemy and ultimately the likelihood of the enemy reacting in an inappropriate or untimely fashion, creating an opportunity which we can exploit.

Individual Marines contribute to this ability to maneuver under the menace of combat through different thinking styles along a continuum of adaptation to innovation. M. J. Kirton observers that:

> *"Adaptors characteristically produce a sufficiency of ideas based closely on, but stretching, existing agreed definitions of the problem and likely solutions. They look at theses in detail and proceed within the established paradigm (theories, policies, mores, practices) that are established in their organisations (sic). Much of their effort in effecting change is improving and 'doing better' … Innovators, by contrast, are more likely in the pursuit of change to reconstruct the problem, separating it from its enveloping accepted thought, paradigms, and customary viewpoints, and emerge with much less expected, and probably less acceptable solutions … They are much less concerned with 'doing things better' and more with 'doing things differently.'"**[13]***

Within an organization, both adaptors and innovators bring strengths and weaknesses. It is especially important to note if an organization is domi-nated by one or the other and **whether the organization is responding to a situation that is highly structured or is inherently unstructured**

.(27) The capacity to adapt or innovate in a myriad of situations is of key importance to resiliency in combat.

Individual Marines use different thinking styles depending on the situation, but exhibit characteristics which can generally categorize their thinking style as adaptive or innovative.

**Resistance to Innovation**

It is clear that we need both innovators and adaptors within the Marine Corps to execute our doctrine. Without a balance we can stagnate or fluctuate wildly, rapidly finding ourselves unable to cope with structured or unstructured situations. While Marines are elite, they still have a spread in distribution of natural talents and attributes and exercise a spectrum of adaptive and innovative thought processes.

Every Marine is not created nor performs equally. This presents a challenge to field enough units large enough to meet force deployment requirements and **still able to perform specific technical tasks effectively and consistently in the friction and uncertainty of combat where the simplest thing is difficult**.(18) The combined spectrum of technical skills required by the modern battlefield is far beyond those of any single warrior. Even with every Marine a rifleman, the Marine Corps is still an organization of specialists on some level. Our specific military occupational specialties define a set of capabilities that are restricted enough so that they can be reliably demonstrated under fire. The Marine Corps compliments this specialization by organizing together in Marine Air Ground Task Forces (MAGTFs) to form a holistic combat force able to conduct combined arms. The limited range of capabilities charged to each MAGTF component also makes them interdependent to execute effectively on the modern battlefield. While the Marine Corps task organizes for each deployment, the Ground Combat Element (GCE) does not typically fight without an accompanying Air Combat Element (ACE) or Logistics Combat Element (LCE). This is part of managing risk. It reduces uncertainty because it sets a consistent and reliable standard of execution and increases the confidence that an assigned combat mission will be within a unit's abilities.

Within each MOS and unit we find a spectrum of natural talents and attributes which pre-dispose Marines to adapt or innovate. Even so, the translation of creativity into action depends greatly on the unit, task force, or institutional culture. Marines ground much of their elite character in discipline, but perverted to the extreme it can prove an initial boon to adaptation but poison to innovation. It can create a bureaucracy.

T.E. Lawrence noted this danger in his time:

> "***The aim was to render the unit a unit, the man a type; in order that their effort might be calculable, and the collective output even in grain and bulk. The deeper the discipline, the lower was the individual excellence; also the more sure the performance.***
>
> ***By this substitution of a sure job for a possible masterpiece, military science made a deliberate sacrifice of capacity in order to reduce the uncertain element***".(339)

Discipline is a hallmark of the Marines' elite character and an imperative attribute which helps fight amongst friction. Even so, care must be exercised to refrain from destroying the freedom to express and ability to listen to creative thinking and unconventional solutions which may challenge the boundaries of established TTPs and require communication outside of hierarchical command relationships. As discussed above, adaptability and innovation require a multi-theoretical and often multi-specialty view. In a MAGTF full of specialists, elaboration of a creative idea often requires lateral communication at many levels.

> "***The person who takes the banal and ordinary and illuminates it in a new way can terrify, we do not want our ideas changed. We feel threatened by such demands. "I already know the important things!" we say. Then changer comes and throws our old ideas away."***

Innovation requires us to change the past. We must adjust our theories, projections, and prejudices to account for the novelty. This may alter our history and change the present value of some ideas and things. The publication of *Warfighting* cast past Marine Corps doctrine in different light, and inspired reinterpretations of some battles.

Because of pride and its ugly twin vanity, accepting and investing scarce resources, intellectual or material, in developing innovative ideas not our own under the extreme stress of combat can be a difficult proposal. Bureaucrats do not like their ideas shifted by someone else because it makes them feel inept.

The structure and size alone of a unit or organization can provide significant obstacles to adaptation and innovation in combat. A recent RAND study describing the organizational innovation of high-value interagency target teams, observed that, "**the closer one was to the battlefield and the more immediate the physical threat**," the "**less departmental differences mattered…Conversely, bureaucratic divisions in comparatively safe areas were more prominent**".(38-39)

This parochialism is a distinct danger for the MAGTF in Afghanistan where the threat exists at the infantry squad, aircraft section, and logistics convoy level. It posed significant challenges to process innovations which required investment of ground combat, aviation, electronic warfare, or joint assets.

The level of approval and tasking authority for these assets rests far above the point of battle. Efforts to better integrate electronic warfare assets with traditional kinetic fires faced the organizational friction of four levels of command; three of them joint. Ad hoc, informal, operator-to-operator relationships allowed for rapid development and experimentation, but this was an unsustainable and inefficient methodology. Because of its personality-dependent and informal nature, personnel rotations alone would upset this axis of innovation.

Innovative plans, TTPs, or experiments can suffer significant friction from the sheer size and volume of shareholding staffs which have to be navigated to reach approval levels. This organizational friction is the most complex, forming an admixture of the other two forms of resistance to innovation or adaptation in a potentially nefarious synergy.

Much of this resistance is neither consciously malign, nor wholly avoidable. Even so, certain active practices and conditions were instrumental in successfully fostering adaptation and innovation in RCT-1. They include:

- A high tolerance for experimentation and failure, rewarding of rational risk-taking and unconventional thinking.
- Encouragement of lateral communication.
- Flat organizational hierarchies to invest and enable operators with the authority and capability to rapidly make decisions within the commander's intent or identify opportunities and gain command advocacy to support adaptation or innovation.

While these practices are an integral part of Marine command and control philosophy, they are often uniquely found in practice.

**The Turn**

With this new perspective, it is important to revisit several of the key concepts thus far developed:

- The universe and life are defined as entities of perpetual motion and change.
- Novelty is an inherent and required force driving this universe.

- As strategic entities, an organism or organization's effectiveness in a competitive and uncertain universe is directly determined by its ability to cope with (adapt) and create (innovate) novelty.
- Conflict is a dynamic, a relationship, an exchange.
- The belligerent *best able* to *adapt* and *innovate* will have an *asymmetric advantage*.
- Through creativity a belligerent discovers or invents a problem.
- Problem-solvers deconstruct and synthesize existing concepts in a new way, requiring information exchange between orientations, within an individual or between multiple individuals.
- In a hierarchical organization, a generalist and an authority (who may or may not be the same person) must elaborate the novelty and sponsor its diffusion by mandate and with resources to become innovation.
- In shaping the novelty, all parties' orientations are further shaped to include novel information--learning occurs.
- This new orientation can decrease an exposed vulnerability: adaptation copes in realtime with surprise generated by the enemy and environment.
- It can also exploit an enemy vulnerability through innovation by requiring the enemy to adapt.
- Adaptation is judged from the *friendly perspective* and innovation is judged from the *enemy perspective.***[14]**

**The Pattern Laid Bare**

The elements which give rise to innovation and adaptation are:

- the menace of combat;
- communication via multiple top-down, bottom-up, and lateral connections;
- empathy beyond a single orientation;
- topsight to anticipate and shape value;
- training to diffuse novelty;
- discipline to learn and execute;
- decisiveness to commit resources in order to bring will into action.

Much of this paradigm should sound familiar to Marines. The elements sound like component concepts which give rise to appreciation of the battlespace (situational awareness) and leadership (command).

> **Thereby, innovation and adaptability are*emergent* phenomena of an organization or individual exercising an*evolving* philosophy of maneuver warfare. For the individual or organization, they thus become a*qualitative measure of effectiveness*.**

All levels and commodities of an organization, from individual to institution can be subject to novelty and subject the enemy to it. Top-down models of innovation are incomplete.**[15]** Models which ignore the battlefield results of adaptability and innovation in micro or even single combat are of limited value.

Within overly technology-focused solutions lies vulnerability. Though the battlefield value of advanced military technologies is extremely high, a doctrine or plan which discounts or underestimates the certainty of the enemy's asymmetric response creates the potential for catastrophe. In viewing technology as the easy answer, the exceptional importance of developing sound tactical thought and leadership is discounted. Risk/adaptation and opportunity/innovation are closest in conflict and meaningless without it. Mission accomplishment comes first, but if we are unable to function in an adaptive and innovative way, we are unlikely to construct an orientation which can recognize the enemy, define an appropriate mission, or execute it in war.

**Looking Forward, Learning**

If the reader agrees, what can be done now? Active measures must be taken to better engage academics and defense industry with current operators. Deliberate efforts must unite operator peers across MAGTF chains of command and joint equities without the filter of sometimes divested staffs in order to allow them to develop and advocate innovative ideas and reduce vulnerabilities from specialization and bureaucracy. The participation must be scalable and the frequency as required by the emergence of risk and opportunity. Patrol debriefs, working groups, tactics roundtables, lessons learned trips, and theater weapons and tactics conferences are a minute list of potential vehicles. Members must enter these forums with flexible minds and ask the right questions. A direct venue for resultant proposals must be provided to commanders in company of their staffs for evaluation and potential advocacy, providing the opportunity to better appreciate the battlespace and exercise leadership in accordance with our philosophy of command and control. This can provide a decision executed under a bias for action during combat operations which allows adaptability, reducing risk, and innovation, which can lead to a change in the character of combat and menace the enemy.

The field of military innovation studies must expand its orientation and re-examine the interconnectedness of adaptability and innovation, appreciation and leadership, and military effectiveness. Specific focus should be given to the aforementioned instances of resistance to innovation. It created stagnation and inhibited learning, a sign of ineffectiveness under this theory, and deserving of analysis.

**What's Changing?**

Current science describes an uncertain universe which moves of itself, constantly changing the rules. For our daily lives in war and peace, our beliefs are a dominant force. They are our heritage, our experience, our military culture, and our unit command environment. These all form our orientation, which is our *schwerpunkt*. In this moment of strategic transition, our enemies are equally faced with an unknowable future and resource constraints. Now is a time of opportunity. The focus must be on human and intellectual capital. If we cling to tradition in the face of advancing science and the evolving realities of war, we invite disaster. Without a keen sense of the inherent vulnerabilities, technologies and reliance on top-down innovation, like Superman, can lead us to surrender our responsibility to think and act for ourselves. It is every warrior's responsibility to be either an adaptor or innovator, if even for just one critical moment. Instead of looking for easy answers in technology or relying on the creativity of higher headquarters, we need to continue to invest at every level in the hard things: tactics and leadership. They are the only real strategic insurance.

The title of this article began as "Innovation in a Small War", but it has evolved to "Appreciation and Leadership in a Small War", and then grown to "Maneuver Warfare in a Small War".

Perhaps it is most fitting that it should end as "Taking the Initiative in a Small War".

**[1]** The Military Innovation studies literature is vast. This article focuses on the key arguments of current works in the field. For a few key examples, see Grissom, Adam. "The Future of Military Innovation Studies." *The Journal of Strategic Studies*, Vol. 29, No. 5, October 2006, pp. 905-934; Evangelista, Matthew A. *Innovation and the Arms Race: How the United States and the Soviet Union Develop New Military Technologies*. Princeton UP, 1988; Zisk, Kimberly M. *Engaging the Enemy: Organization Theory and Soviet Military Innovation 1955-1991*. Princeton UP, 1993; Isaacson, Jeffery A. et al. *Predicting Military Innovation*, Santa Monica, CA: RAND, 1999.

**[2]** Grissom, Adam. "The Future of Military Innovation Studies." *The Journal of Strategic Studies*, Vol. 29, No. 5, October 2006, pp. 905-934.

**[3]** Ibid, pp. 908-919.

**[4]** Ibid, p. 919.

**[5]** Spulack, Robert G., Jr. *Innovate or Die: Innovation and Technology for Special Operations*. MacDill Air Force Base, FL: JSOU Press, 2010, pp. 2, 5-8, 10, 14, 16, 20, 23, 25, 43, 47, 53.

**[6]** Plaster, John L. "Stalkers and Shooters Part II: Sniping in Iraq and Afghanistan." *VFW Magazine*, August 2009. *VFW Magazine* Editor's Note: This article was derived from MAJ Plaster's book, *The History of Sniping & Sharpshooting.*

**[7]** Grissom, Adam. p. 907.

**[8]** Joint Chiefs of Staff, *Joint Vision 2010.* Washington D.C.: Department of Defense, United States Government, 1997, p.17. For a short but adequate description of *JV2010* see Major General Charles Link, '21st Century Armed Forces – Joint Vision 2010.' *Joint Forces Quarterly*, Autumn 1996, pp. 69-73

**[9]** O'Reilly, Timothy. *Frank Herbert*. Frederick Ungar Publishing Co., Inc., 1981, p. 80.

**[10] Evolutionary biology and ecology, quantum mechanics and relativity theory, cybernetics and information theory, and chaos and complexity theory emerged on the scene of science and social theory as a break from the mechanistic, reductionist, naïve realist, and determinist worldview of Newtonian physics.** (286)

**[11]** For a finite sample of current literature addressing chaoplexity and wicked problems and their martial and social implications see: See Greenwood, **T. C., and T. X. Hammes. "War Planning for Wicked Problems: Where Joint Doctrine Fails."** ***Armed Forces Journal*****, December 2009. http://www.armedforcesjournal.com/2009/12/4252237/ Last accessed 03 January 2012;** Conklin, Jeffery. *Wicked Problems and Social Complexity.* CogNexus Institute, 2008. http://cognexus.org/wpf/wickedproblems.pdf Last accessed 03 January 2012; Shimon, Naveh. *In Pursuit of Military Excellence: The Evolution of Operational Theory.* New York: Frank Cass Publishers, 2004, p. xiii.; Ryan, Mick. *"Measuring Success and Failure in an 'Adaptive' Army." Australian Army Journal For the Profession of Arms,* Volume VI, Number 3, Duntroon: Land Warfare Studies Centre, 2009, p. 23.; Taleb, Nassim. *The Black Swan.* New York, Random House, 2007. An entire graduate course at the Naval Postgraduate School has been dedicated to this subject.

**[12]** The choice of *invention* instead of *discovery* is deliberate, as discovery implies the issue was there waiting to be found in some absolute universe, *invention* implies a change of mental orientation.

**[13]** Kirton, M. J. "Adaptors and Innovators: Why New Initiatives Get Blocked," *Long-Range Planning*, 1984, 17, pp. 137-143; reprinted in Hellriegel & Slocum (eds.), Companion to Organisational Behaviour, West Publishing and Richards, M.D. (ed.), *Readings in Management*, South-Western Publishing Co., 1986.

**[14]** The "enemy" may be better thought of as the target of the innovative process, idea, tactic, or technology; it is most important to recognize that the *value of innovation is relative* not absolute.

**[15]** See Grissom, Adam. "The Future of Military Innovation Studies." *The Journal of Strategic Studies*, Vol. 29, No. 5, October 2006, pp. 905-934. Grissom identifies this potential anomaly in *The Future of Military Innovation Studies*, but does not further develop potential theories which would account for it.

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## About the Author


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Richard J. Allain is an Officer of Marines. Currently assigned to Marine Aircraft Group 11, he is a qualified F/A-18 pilot, a former F-3 Tornado pilot, a growing Western Europe Regional Affairs Officer, and an Air Officer. While influenced by this training, his education began with his combat tours in Iraq and Afghanistan. He most recently returned from a tour with Regimental Combat Team 1 in Southern Helmand Province, supporting Operation Enduring Freedom.

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