STRATEGY RESEARCH PROJECT

VERSATILITY AND BALANCE: MAINTAINING A FULL SPECTRUM FORCE FOR THE 21ST CENTURY

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ABSTRACT

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In May 1997, with the announcement of Joint Vision 2010, the United States military enthusiastically embraced the technological potential offered through future information and firepower systems. Adopting the premise that an information revolution is creating yet another revolution in military affairs (RMA), the U.S. military developed its future warfighting vision around four operational concepts: dominant maneuver, precision engagement, full dimensional protection and focused logistics. The centerpiece that enables the application of these operational concepts is an improved intelligence and command and control system which will assure information superiority. This paper provides an analysis of the U.S. military's current approach to the integration of technology in regard to strategy and future military operations as recently articulated by the Quadrennial Defense Review (QDR). It begins with a brief overview of technology and the evolution of war.

Next, it describes the Joint Vision 2010 conceptual template and National Security Strategy which governs future military operations. The paper then analyzes the Quadrennial Defense Review along with alternative pathways. The paper's principal conclusion is that the QDR's evolutionary approach to the integration of technology in future forces offers the best pathway as it promises to balance ongoing security demands with a focused modernization plan. In this regard, the paper recommends that our future military force structure should reflect balance and versatility. The paper ends with the conclusion that a technological over-reliance at the cost of force structure reductions limits our capacity to respond to the full spectrum challenges of the future and would undoubtedly call for a new global strategy.

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VERSATILITY AND BALANCE: MAINTAINING A FULL SPECTRUM FORCE FOR THE 21ST CENTURY

> Every age has its own kind of war, its own limiting conditions and its own peculiar preconceptions.
>
> —Carl Von Clausewitz

In his book, Command in War, Martin Van Creveld referred to the period of strategic command that preceded Napoleon as the "stone age of command." Shackled by limited communications systems and poor roads, devoid of a timely, long-range intelligence system and dependent on primitive logistical methods, the "stone-age" commanders could only exercise command from the army itself.[1] In contrast, approximately 175 years after Napoleon was defeated at Waterloo, General Norman Schwarzkopf, the former Commander in Chief, Central Command, planned and directed a successful multi-dimensional campaign that featured a dazzling array of distributed and simultaneous operations. Moreover, Schwarzkopf led the operation from the comfortable confines of his bunker in Saudi Arabia.

To be sure, technology has always played an important role in the transformation and conduct of war.[2] With each passing age, technical innovation affected the weaponry soldiers brought to war, how they fought and more importantly, how nations made war.[3] Some innovations represented improvements of existing weapons and systems while others had much greater impact on organizations and tactics. A survey of history reveals that

enhanced technological innovation by itself did not equate to a military revolution, it only made military revolutions possible.[4] Understanding the implications of new innovations took time. Often, organizations tried to fit the innovative technology into established methods of doing things. Thus, once a break from the past occurred, significant technological innovations contributed to the revolutionizing of warfare by reducing existing weapons, tactics and organizations to obsolescence.[5]

Historically, a full military revolution encompasses a wide spectrum which transcends various societal dimensions. It occurs within the context of broad social and political transformations and takes place when new technologies are incorporated into organizations and individual systems and employed under uniquely different operational concepts. The result is a fundamental alteration of the character and conduct of conflict with major leap-ahead in effectiveness.[6] These epochal periods, or "revolutions in military affairs," reflected major technological developments that resulted in fundamental adaptations in doctrine, organizations and training.[7]

Although there is no general agreement on a precise number, historians argue that there have been as many as ten military revolutions since the fourteenth century.[8] For example, the campaigns of Gustavus Adolphus reflect the melding of technology, military systems, operational concepts and new military

organizations which led to a series of stunning successes on the battlefield.[9] Napoleon integrated the latest technological advances into a military organization that resulted in years of French domination of European land armies.[10] In the American Civil War, the rifle musket with its extended range caused horrendous casualties to massed formations and rendered the decisive cavalry charge obsolete. It further ushered in the beginning of trench warfare.[11] The telegraph and steam engine railroad led to distributed operations on a grander scale than had been previously possible. The overall combination of these technological enhancements, when melded with the industrialization of society, resulted in transforming the character of warfare from a focus on the Napoleonic decisive battle to extended campaigns.[12]

Another such revolution occurred as the internal combustion engine enabled mechanized forces controlled by radio to break the stalemate caused by the machinegun and artillery. Airpower added another revolutionary change to the conduct of warfare. During this period, aircraft carriers, sonar and submarines displaced the primacy of the battleship. Finally, with the advent of strategic nuclear weapons, still another revolutionary dimension occurred that changed warfare forever.[13]

How a nation chooses to employ technology in the conduct of war is an important question with far-reaching strategic impact.

With the rapid pace of technological change in the world threatening to reduce our present organizations and weapons to obsolescence, it is clear that we face decisions of great magnitude in regard to structuring the military for the 21st century. The primary issue is how does the U. S. military plan to use technology as a future element of combat power. Moreover, in light of ongoing security demands, limited defense budgets, and an uncertain future, what is the best approach to modernize forces that will dominate 21st century warfare?

This study seeks to examine the U.S. military's current approach to the integration of technology as it relates to strategy, future military operations and force structure. By way of previewing the study that follows, the paper begins by providing a brief overview of technology and its impact on the transformation of war. Next, is a description of the conceptual template provided in Joint Vision 2010 which will govern future military operations. The paper will then establish the linkage of Joint Vision 2010 to the National Security Strategy and National Military Strategy. Following that, it will discuss the recently completed Quadrennial Defense Review which outlines the current Department of Defense approach to the integration of technology along with alternative pathways. The study will then analyze strengths and weaknesses of the alternative approaches. Because the debate regarding national security is far from over,

the paper provides cautions of potential dangers if the recommended QDR pathway is circumvented. Finally, the study ends with conclusions for future consideration.

> This era will be one of accelerating technological change. Critical advances will have enormous impact on all military forces. Successful adaptation of new and improved technologies may provide great increases in specific capabilities. Conversely, failure to understand and adapt could lead today's militaries into premature obsolescence and greatly increase the risks that such forces will be incapable of effective operations against forces with high technology.
>
> —Joint Vision 2010

BACKGROUND

In light of the United States' long-standing reliance on industry to help wage its unique form of warfare, it comes as no surprise that with the announcement of Joint Vision 2010 the Department of Defense enthusiastically embraced the technological potential offered through future information and firepower systems. Driven largely by the rapid pace of technology, the end of the Cold War and a decline in defense budgets, the U.S. military had clearly bought into the concept that an information revolution is creating yet another revolution in military affairs.[14] Developing its future warfighting vision around four operational concepts: dominant maneuver, precision engagement, full dimensional protection and focused logistics, the U.S. military intends to exploit information as a stepping stone to revolutionizing warfare. The centerpiece that enables the

application of these operational concepts is an improved intelligence and command and control system which will assure information superiority. In short, Joint Vision 2010 seeks to exploit the anticipated revolution in military affairs through combining information superiority systems with a force that features high quality people, doctrine and training. When fully realized, the highly technical force envisioned in Joint Vision 2010 will enable the United States to achieve full spectrum dominance across the range of military operations well into the 21st century.[15]

Closely linked to the conceptual template articulated in Joint Vision 2010 is the President's National Security Strategy of Engagement. Extremely ambitious in its operational vision, the strategy calls for a flexible military with the capacity to conduct smaller-scale contingency operations and major theater war in two different theaters from a continuous posture of global engagement.[16] To provide the enabling foundation necessary to support military forces with multi-dimensional quality, the strategy depends heavily on enhanced technology. Thus, to meet the requirements to shape the strategic environment, respond to multiple threats and prepare for future dangers, the strategy emphasizes critical capabilities which include the dimensions of intelligence, space, missile defense and information infrastructure. Moreover, it strikes a balance between future

modernization and selective increases of procurement funding. Finally, the strategy seeks to prepare the nation against the asymmetrical threats of terrorism, weapons of mass destruction, or sabotage.[17]

The recently revised National Military Strategy echoes a similar theme regarding the integration of technology and modernization of future operational forces. The strategy contends that capitalizing on technology is central to maintaining military superiority. It further emphasizes that future modernization will focus on technologies that will improve the combat effectiveness of the Armed Forces while enhancing interoperability and integration of the Total Force.[18]

Although the strategy relies heavily on future information and intelligence systems to achieve full spectrum dominance, it clearly strikes a balance between high-tech and people. Arguing that the force levels recommended by the Chairman represent the minimum necessary to carry out the strategy at prudent military risk,[19] the strategy acknowledges that technology cannot substitute for high quality people.[20] Thus, the strategy strives to balance the exploitation of advanced technology with the recognition that most future operational military missions will remain manpower intensive.

The 1997 Quadrennial Defense Review (QDR) published in May, 1997, by Secretary of Defense William S. Cohen, further outlines

a defense strategy which is technologically dependent, but follows a process of balanced evolution toward revolutionary capabilities.[21] In projecting its outlook to the 2015 timeframe, the QDR maintained consistency with the national security strategy of shape, respond and prepare, and sought to restructure the force to enable the strategy to succeed. Seeking to balance the security challenges facing the United States against the fiscal constraints of unexpected contingencies, modernization and defense procurement which has declined 53 percent since 1990, the QDR represents a fundamental reassessment of America's national security strategy and defense establishment.[22]

Assuming that future defense budgets would remain at approximately $250 billion, the QDR highlighted the principal dilemma facing the department of defense: how to maintain a vigorous strategy of engagement while simultaneously replacing aging equipment and exploiting the potential of the beckoning information revolution in military affairs.[23] Outlining a four-part approach which includes pursuing a focused modernization effort, exploiting the revolution in military as well as business affairs, and ensuring a broad research and development effort, Secretary Cohen opted on an approach that balanced current demands to address near-term challenges with focused investments to counter longer-term threats.[24] The decision reflected the need for the U.S to maintain a vigorous role in the international

arena while it simultaneously modernized aging forces and leveraged technological enhancements to counter long-term threats.[25]

> War is nothing but a duel on a larger scale. Countless duels go to make up a war, but a picture of it as a whole can be formed by imagining a pair of wrestlers. Each tries through physical force to compel the other to do his will, his immediate aim is to throw his opponent in order to make him incapable of further resistance. War is an act of force to compel our enemy to do our will.
>
> —Carl Von Clausewitz

ANALYSIS

As the ten month review process unfolded, two principal alternative paths emerged. The first alternative, Path 1, concentrated on achieving the present at the cost of preparing for the future. In maintaining the present military force at current levels, this path meets near-term security needs while accepting risk over the long-term. Modernization is largely deferred, thus, the potential offered from a revolution in military affairs is not exploited.[26]

The second alternative, Path 2, focused on preparing for a more distant threat by trading off force structure for future modernization. Assuming the absence of a current or projected threat to the U.S for a number of years, this path proposed to vigorously exploit the revolution in military affairs with the objective of achieving long-term technological dominance of future competitors.[27] Because the path envisions the heaviest

force reductions in order to free procurement dollars, it assumes greater risk over the near-term to better prepare for the future.

Although both alternatives represent feasible pathways that contain certain advantages, each path also embodies serious weaknesses. If either approach were pursued, the effect could be to inhibit or jeopardize the military's capacity to conduct the shape, prepare and respond strategy. For example, Path 1 continues on a course much like the present. The principal advantage is that forces are maintained at similar levels, thus, the path avoids projected force reductions and enables the best possible posture to meet our present overseas commitments and current strategic requirements. Maintaining near-present force levels would signal a continued U.S. commitment thus reassuring friends and allies. Finally, Path 1 offers adequate flexibility in the event that the United States is forced to respond to multiple contingency operations.

However, the deferred modernization approach that is central to path 1 is not without costs and risks. As aging equipment begins to wear out, risk would become greater as the continued shortfall of procurement dollars would eventually lead to a decline in military power. The result would be a weakened U.S. military capacity to dominate in any future conflict. Furthermore, because program replacement costs would most likely continue to spiral several years from now, this path could lead

to greater reductions in force structure to pay for the years of deferred modernization. Unless it is interrupted through a massive injection of dollars, this trend could encourage the emergence of potential regional threats as the U.S. struggles to balance ongoing security demands with an aging force structure. Finally, with the reduced procurement funding, this path does not enable the military to reap the more promising potential gains offered by a more vigorous approach to the revolution in military affairs.

Path 2 promises to avoid this dismal picture by taking risk now in order to have a dominant force for the future. As it involves a retooling of the military through large force reductions, this path seeks to offset physical mass with enhanced technology. Because Path 2 invests large procurement funding into the latest technology, the clear advantage is that it plays to our national capabilities and industrial potential. Moreover, the risk would be manageable as the strategic landscape is easier to predict with greater certainty now than 10-15 years in the future. In summary, the appealing argument supporting this path is that for the same amount of budget expenditures, the U.S could possess a military equipped with such dominant technological advantages that no potential threat could possibly prevail.

However, a closer examination of the second path reveals several disadvantages. The first disadvantage is that Path 2

with its reliance on high-tech at the cost of a reduced force, significantly undersells landpower and the shaping role derived from overseas presence.[28] With projected reductions of 20% or more, U.S. global presence would most certainly decline or the combat readiness of remaining forces would face tremendous strain in attempting to meet similar demands with a smaller force. The reduction of U.S. military presence in the global arena would contribute towards the growth of aggressive regional powers. If, along with the reduced presence, a perception that a reduced U.S. military capability exists, certain regional powers may choose to exploit new-found strategic opportunities at the expense of our interests. This could lead to increased pressure from allies and friends to either step up commitments or continue to lose influence. In either situation, our capacity to exercise global leadership would be diminished.

Another disadvantage is that until modernization actually occurs, the U.S. would further diminish its overall capacity to conduct nearly simultaneous major theater war in multiple theaters. Some skeptics would argue that even with the present force structure the U.S. would be hard-pressed to confront two major threats. A smaller force structure would almost certainly limit the United States to react to a single major contingency.

Perhaps the most serious flaw in Path 2 is that it oversells technology. Moreover, it fails to recognize the limitations of

technology in regard to the essence and nature of warfare and its surrounding climate. Central to the argument is the premise that technology may provide certain weapons and capability, but it is merely a means to an end.[29] In short, while certain sophisticated weapons can contribute to victory, technology in and of itself cannot win wars.[30]

As the earlier discussion regarding military revolutions reflected, new technology can help secure victory, but it has not yet proven to alter the essence of warfare. The essence of war as Clausewitz reminds us consists of "an act of force to compel our enemy to do our will."[31] In short, as Clausewitz observed, force is the means of war; the real object is to impose our will on the enemy.[32]

Clausewitz further argues that in any war, the political object is the most essential factor. "War, he states, is not a mere act of policy but a true political instrument, a continuation of political activity by other means."[33] Thus, the political object, which represents the original motive for the war, will determine the military objective to be reached and the amount of effort it requires.[34] The possession of overwhelming technological advantage will not guarantee U.S. success. Implicit here is that just as they have been in the past, future U.S. military leaders will be forced to temper operations in view of the political considerations and objectives.

For example, despite overwhelming technological advantages, President Lyndon B. Johnson and Secretary of Defense Robert S. McNamara adopted graduated pressure as a strategic concept for the Vietnam War largely due to the President's fixation on short-term political goals and desire to avoid jeopardizing chances that his domestic programs would pass through Congress.[35] In the recent Gulf War, despite the continued viability of Saddam Hussein's repressive regime and the existence of viable Iraqi forces, hostilities ended when President Bush and leaders of the Allied Coalition agreed that the political objectives had been attained.[36]

Although technology transforms the means of conducting war, it has not eliminated the "climate of war" that Clausewitz describes as consisting of danger, exertion, uncertainty and chance.[37] To be sure, future military commanders will plan and lead operations within this climate. They will face decisions involving great consequence within an environment consisting of the elements of danger, fighting, injury and death to soldiers and civilians alike. Just as their predecessors suffered, the demands of combat will affect the thoughts and actions of future commanders and soldiers.[38] They will be forced to make decisions with imperfect information and the outcome may hinge on unseen variables often determined by chance, and good or bad luck.

However, unless a way is found to speed up the rate that leaders can think, many will find that the deluge of information brought about by the information revolution may actually hamper their decision-making.[39] As the Army wrestles with the integration of digital command and control systems, the real challenge of the digital revolution will be to design a system that the military commander can control and avoid a system that controls him.[40] But unlike those who fought in previous wars, present and future leader's will operate under the added pressure of knowing that a multitude of sophisticated communication networks will instantaneously communicate their actions and decisions throughout the world to millions.

To be sure, future technology will not erase the requirement for close combat from future warfare. Sir Michael Howad, the noted military historian, recently observed that in spite of all the technology of the industrial and post-industrial age, future combat will require a need to engage in the basic, primitive encounters of the agrarian age. Thus, societies that put their soldiers in harms way must ensure that the soldiers must not only know how to kill, but must also be prepared to see them die and their bodies dragged through the dusty streets of some far-away city.[41]

Moreover, as technology will not eliminate the climate of war, neither will it eliminate the fog of battle or "friction"

that is so starkly apparent to soldiers who have strained mightily against the ever-present elements of resistance. Classically summarized by the pithy Clausewitzian statement, "Everything in war is very simple, but the simplest thing is difficult,"[42] friction distinguishes the difference between real war and war on paper. When combined with the effects of the climate of war, Clausewitz asserted that "friction or the countless minor incidents the kind you can never really foresee combine to lower the general level of performance so that one always falls far short of the intended goal."[43] Despite advanced technologies, future war will encompass fog, uncertainty, friction and chaos. Thus, military leaders will be well served to heed Clausewitz's words when he observed: "It is the exceptional man who keeps his powers of quick decision intact if he has never been through this experience before."[44]

Two observations from the recent Gulf War illustrate manifestations that the Clausewitzian concept of friction is alive and well.[45] The first is the high rate of fratricide that occurred in U.S. units. In VII Corps, of the forty six U.S. soldiers killed in action, 10 were classified as killed by their own fire.[46]

The second observation concerns the ground offensive. Although not immediately realized by General Schwarzkopf, a gap began to open between the tactical forces led by VII Corps

Commander, LTG Fred Franks, and the operation envisioned by Schwarzkopf in Riyadh.[47] As the ground offensive unfolded, the gap widened to the point that the easily agitated Schwarzkopf was ultimately forced to relay Chairman Powell's message to "get moving" to the 3rd Army Commander, LTG Yeosock.[48] In his defense, LTG Franks cites the effects of friction: an accelerated attack time, bad weather, ambiguity of the situation in regard to the Republican Guard, lack of communications with subordinates and the reality of maneuvering a large combat formation against a determined enemy as an explanation for any perceived inability to move his force in a timely manner.[49] With technology providing feedback to the highest military authority in the nation, one can sympathize with LTG Frank's dilemma. Moreover, while future military operations do not predict an absence of Clausewitz's enduring elements, technology with increased complexity may actually make the military commander's job even more difficult.[50]

A final concern with Path 2 and its emphasis on the enhancement of technology is the never-ending search for the "silver bullet" with its implication of bloodless, distant warfare. Americans have long been enamored with the search for a technological answer to the realities of warfare.[51] The airpower enthusiasts of World War II argued for a strategic bombing campaign that would strike at the vitals of the enemy and ultimately make land campaigns unnecessary.[52] In 1950, the

strategic concept of massive retaliation with the atomic bomb as its centerpiece was intended to make invasions by large formation land armies unattainable. Designed to maximize air power and minimize the foot soldier, the massive retaliation strategy represented an attempt to deter war by making the consequence of complete nuclear destruction unthinkable.[53] In 1964, the "Whiz Kids" led by Secretary of Defense Robert S. McNamara developed a strategy of graduated pressure while simultaneously pursuing a strategic bombing campaign designed to dissuade North Vietnam from continuing the war.[54] In the Gulf War, the high priests of airpower guaranteed President Bush they could destroy the Iraqi Army in place.[55]

Although Path 2 would undoubtedly enable domination of a future enemy in selected theaters that favor the use of precision weapons, a singular high-tech approach to warfare is fraught with danger because it tends to underestimate the intangible aspects of warfare, particularly in regard to the moral domain and human dimension. This approach further underestimates the will of an enemy to absorb punishment and continue to resist. Most importantly, it overlooks the contribution of strategy. Even under the conditions of technological dominance, a high-tech force engaged in an operation against a determined enemy if not appropriately connected to a larger, nationally supported, politically acceptable strategy with well articulated objectives

could result in disaster. In the end, good strategy counts most. Mistakes in operations and tactics can be corrected, but political and strategic mistakes live forever.[56]

A host of recent studies including the National Security Strategy, National Military Strategy, and Quadrennial Defense Review agree that the world remains a dangerous and highly uncertain place, and that the United States will most likely face a number of significant challenges.[57] These challenges range from large-scale cross-border aggression to regional dangers, asymmetric challenges, transnational threats, terrorism, and the proliferation and possible use of weapons of mass destruction. If recent history is any indication, US forces can expect to deploy on a multiple smaller-scale contingency operations such as peace enforcement in Bosnia, or enforcing a no-fly zone in Iraq.

Based on the preceding analysis, a number of concerns arise that suggest that we should adopt a cautious approach to the future as we embark on a path to reshape our military. The first concern is that we over-rely on technology and build a one-dimensional force that is unable to respond to the full spectrum of crisis. As the budget wars continue in Congress, certain congressional leaders will argue that force enhancements will provide a suitable substitute for soldiers.[58] Our disastrous experience in Korea with a woefully inadequate force designed under the one-dimensional concept of massive retaliation and

nuclear weapons offers an example of the disastrous after-effects stemming from this troubled strategy. We must remain mindful of the false promise of technology that high-tech machines and weapons can be used to resolve human conflict without putting people at risk.[59] General Gordon Sullivan, the former Army Chief of Staff said it best when he observed, "Force structure counts, better is better."[60]

Another concern is that an over-reliance on technology could lead us to embrace a flawed and dangerous myth of the "silver bullet" or bloodless, distant, warfare.[61] Appealing to many interest groups inside the Beltway, this approach would likely jeopardize the continued development of a balanced force structure. Although airpower is a tremendous asset, we must be mindful of its limitations. In the Second World War, four years of strategic bombing did not bring Germany to her knees. Despite the continuous pounding, near-perfect conditions and overwhelming air supremacy enjoyed by coalition aircraft in the Gulf War, Iraq did not withdraw its forces from Kuwait. Precision-strike weapons have limits as well. Giddy with the initial estimated effects from the repeated air and missile attacks, the airpower and precision-strike enthusiasts were later chagrined to discover that the high-tech weapons were dramatically oversold.[62] Moreover, a recent study indicates that firepower alone even when

delivered on a massive scale has rarely been successful in ejecting determined troops from the ground they occupy.[63]

The third concern is that we develop a high-tech force that is uniquely dominant against certain enemies in selected theaters but is irrelevant to third tier armies or to new emerging warrior societies.[64] Our experience in Vietnam reflects that technological superiority although capable of delivering brutal pressure cannot overcome a flawed strategy. The recent U.S. intervention in Somalia proved that a determined enemy from one of the world's poorest regions can confront a high-tech force that possesses information and military superiority and still emerge with a measure of success.[65] One of the lessons we should have learned from Somalia is that information superiority does not equal decisive operations. Another lesson is that new technology brings new vulnerabilities and a transformation in warfare does not make all other forms of warfare irrelevant.[66] Overwhelming technological superiority did not result in victory in Vietnam or Somalia. In these conflicts, the role of the infantryman remained paramount.[67] As we move into the 21st century, our enemies will seek ways to circumvent the latest technological advances to achieve their objectives in forms that avoid our strength.

> Technological advancements are vital to the operational concepts of Joint Vision 2010, but they share center stage with our dedicated and quality people.

—John M. Shalikashvili

CONCLUSIONS

One of the principal conclusions resulting from the study is that the QDR recommended a sound approach to shape a viable force for the future.[68] To adequately meet the multitude of future security challenges, our armed forces must have the capacity to respond to the full spectrum of crisis. As the former Commander in Chief, Atlantic Command, General Sheehan noted, "the world's population is shifting towards coastal, urbanized areas. . . combat in an urban area does not require airplanes . . . it requires tough infantrymen."[69] History suggests that balanced capabilities are intrinsic to this capacity. This paper therefore recommends that as we build a military force structure for the 21st century, it should reflect the critical characteristics of versatility and balance.

Tied closely to the concepts expressed in Joint Vision 2010 and the National Security Strategy, the QDR's evolutionary approach to technology promises to balance ongoing security demands with a focused modernization plan. To be sure, the debate is far from over.[70] There are many who strongly believe that the Defense Department should take a more ambitious approach to the integration of technology in future force structure. This school postulates the argument to fully exploit the potential of

the forthcoming revolution in military affairs at the cost of force structure reductions.

This leads to the second conclusion: that if the preceding course was adopted, an over-reliance on technology could result in a one-dimensional force that is limited in its capacity to respond to the full spectrum challenges that the future will most likely present. To be sure, the path to maintain America's military superiority is paved with technological capabilities. However, achieving the correct balance at minimum risk to national security is key.

As we have seen, although there is tantalizing appeal to building a highly technical force that specializes in bloodless, distant warfare, it would likely require a change in strategy and a reappraisal of America's role in the international arena. Conversely, a balanced military force provides the national leadership with options. "National security," commented Lieutenant General Paul Van Riper to the House National Security Committee, "cannot be preserved solely by being able to destroy targets from a great distance."[71] This means as General Gordon Sullivan observed: that, "we cannot pursue technologically sophisticated programs at the expense of other, less glamorous aspects of the defense program."[72]

As the QDR underscored, a more appropriate approach to developing a dominant 21st century military force would blend

technical capability into a force structure that is characterized by versatility and balance. To avoid the one-dimensional technological trap, our future force structure must reflect the understanding that warfare is a clash of wills characterized by uncertainty, chaos, chance and friction. As Clausewitz observed,

> War is more than a true chameleon that slightly adapts its characteristics to the given case. . .its dominant tendencies always make war a paradoxical trinity . . .composed of primordial violence, hatred and enmity-like qualities. . . as a blind natural force of the play of chance and probability.[73]

Our future military as Joint Vision 2010 aptly points out, recognizes that technology is critical to building and maintaining future military dominance. However, technology must yield to the primacy of the human dimension. The goal is to leverage the advantages of the impending revolution in military affairs while developing a balanced and versatile force that is inculcated with the spirit of the bayonet while meeting ongoing security demands and with least risk to the Nation. Only with this type of force will we enable the full accomplishment of the shape, prepare, and fight and win strategy. (5146)

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