STRATEGY RESEARCH PROJECT

TODAY'S REQUIREMENTS GENERATON PROCESS ; AND TOMORROW'S WARFIGHTING REQUIREMENTS

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Today's Requirements Generation Process; And Tomorrow's Warfighting Requirements

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ABSTRACT

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This paper examines the current requirements generation process and the ability of the Army to identify and field materiel solutions. The Army was ordered to deploy an Apache attack helicopter battalion into Albania to support operations in the Balkans. The attack helicopters would pressure Serbian ground forces to move out of protected hide positions, allowing coalition NATO aircraft the opportunity to attack. The preserved slow deployment of helicopters, soldiers, and air defense systems proved to be the catalyst for a broader change in the Army. The extended deployment times initiated a public debate over the speed of deployment and the relevancy of today's Army. The current United States Army is a product of a 40-year cold war, prepared to fight on the high intensity battlefields of Europe. Today the Army faces different challenges. Over the last decade the operational tempo has increased and the threat to national interests have broadened. The Army has been required to execute a diverse set of missions: arms control, combating terrorism, counter drug, enforcing exclusion zones, military assistance to civil authorities, peace operations and humanitarian assistance are only a few of the operations the Army has added to its skill set. The problem is that today's requirements generation process cannot keep pace with the changing requirements in today's world.

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PREFACE

My thanks to those action officers on the Department of Army staff who stay longer than 24 months. You have a greater impact on the Army and it's soldiers than most.

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TODAY'S REQUIREMENTS GENERATION PROCESS AND TOMORROW'S WARFIGHTING REQUIREMENTS

The challenge in transforming is "To recognize and react to environmental change before the pain of a crisis."[1]

Can the current requirements generation process keep up with the rapid changes in technology and prepare our Army for the full spectrum threats of the future? The Army finds itself at a turning point as it fights for relevance in today's environment. The cold war is a decade past, yet the Army is carrying the burden of its success in the form of a heavy force. The big five systems of the 70s and 80s (Bradley personnel carriers, Abram main battle tanks, Apache attack helicopters, Paladin self propelled artillery pieces, Black Hawk utility helicopters) were built to win the cold war; but based on their weight, the amount of fuel they consume, the ammunition they expend and their aging technology they have not proven responsive to today's broader needs and have brought into question the relevance of these systems. Today the Army needs a rapid deployment force that can support the full spectrum of operational requirements from high intensity conflict, peace keeping / peace enforcement operations to nation building.

Since the collapse of the Berlin Wall in 1989 the United States Army has deployed in over 30 different types of operations[2]. These missions range across a full spectrum from the high intensity conflict of Desert Storm in 1991 to the current peace keeping operations in KOSOVO.

Recently the Army has had to face a changing environment where current war fighting capabilities did not satisfy requirements. In 1999 the Army was given the order to deploy an Apache attack helicopter battalion into Albania in support of NATO operations. The plan called for the United States attack helicopters to deploy from Germany and once in theater pressure Serbian ground forces out of protected hide positions, allowing coalition aircraft the opportunity to attack and destroy Serbian ground forces. Under NATO authority the United States Army deployed helicopters, soldiers and tons of equipment at a cost of $480 million dollars[3]. The deployment took over 30 days only to find that the pilots were not qualified in the mountainous Balkans terrain or in the use of night vision goggles for night operations. During in country training two pilots lost their lives in night training, and the system that took over 20 years and $15 billion to develop never saw combat operations against the Serbian military. Almost immediately in the press the debate erupted over the speed, cost and effectiveness of the deployment. The debate soon spread to questions of the Army's current and future relevancy.

The new Chief of Staff of the Army would attempt to answer the question of relevancy. In July 1999 General Shinseki was appointed the Chief of Staff of the Army. Immediately he established his vision of a more deployable force. General Shinseki directed the Army to develop the capability to deploy a warfighting division anywhere in the world within 120 hours and 5 warfighting divisions within 30 days[4]. A rapidly deployable modern Army would help to silence critics and help to answer the question of relevancy.

General Shinseki established his vision of a lethal and highly mobile force. He established an aggressive time line that would produce the first iteration of a lighter brigade task force by September 2000 with the follow on brigade to come a year later. He directed that all divisions be manned at 100% of authorization. As a result, the Army has started to redistribute personnel. The guidance is clear and the Army has focused resources in the form of money and people to shape the Army in accordance with the new vision. The question becomes, as the Army starts to change and to search for relevance, can the current systems to manage change keep up with not only the vision, but with an ever changing environment?

CHANGE

Countries, national leaders or military leaders that have been able to quickly identify and adapt to change in their environment eventually developed strategic, operational or a tactical advantage over their adversaries. These environmental changes can take on many different forms: rise of a peer threat, shortage of natural resources, denial of access to natural resources, economic disruptions and changes in technologies are only a few. The former Chief of Staff of the Army, General Dennis J. Reimer, recognized the need to aggressively manage the impact of these changes on the Army and stated:

> "The world has changed in countless ways, and we must accept and embrace these and future changes. Today we are a Force Projection Army largely based in the continental United States, employing split-based methodologies and operating as elements of Joint Task Forces. The types of operations we are involved in and the advent of the Information Age make it increasingly difficult to distinguish between tactical, operational, and strategic levels of war and forces. Likewise, the distinction between institutional and operational forces is blurring. Multinationalism and routine interagency partnerships are realities. These factors, in addition to resource constraints, require us to plan for the future based on a holistic vision of future warfighting. I have directed the TRADOC Commander to chart the course for the Army to follow into the 21st century. Accordingly, the TRADOC Commander will approve all Army warfighting requirements prior to their submission to the Department of the Army (DA). The Department will review and evaluate requirements based on issues raised by other Services, the Joint Staff, and the Office of the Secretary of Defense and recommend changes to the TRADOC Commander. My Executive Agent for the Departmental-level activity is the Deputy Chief of Staff for Operations and Plans (DA DCSOPS)."[5]

Change is inevitable, and the management of change in the United States Army has been given to Training and Doctrine Command (TRADOC). TRADOC is responsible for doctrine, leader development, organizational structure, manning and identifying the requirements for the materiel development community, but its greatest challenge comes from the rate of change in technology and how it will affect the Army.

CHANGING TECHNOLOGY

Much has been written of the advent of technology on the battlefield. The addition of gun powder, barbed wire, machine guns, internal combustion engines, aircraft, communications, precision guided munitions and stealth technology are only a few technologies that have had and will have tremendous implications on the face of future conflict. But it is not only technology that will cause the military major difficulties in the future; it is also the rate at which technology is changing. The challenge will be how to manage an ever-increasing rate of change across all facets of the Army. A change in technology will generate a change in the equipment used. A change in technology will generate a change in how many soldiers are recruited. A change in technology will change how the Army trains soldiers. Finally, a change in technology will have an impact on how the military will fight the next war.

THE INCREASING RATE OF CHANGE

The rate of change in recorded history has continuously increased and is changing faster now than ever before. An example of the increasing rate of change is the progression of human transportation. The earliest forms of transportation appeared around 6000 BC, with the use of animals that seldom exceeded walking speed. Technology developed slowly, and the rate of movement did not dramatically increase until the invention of the chariot, circ 1600 BC. With the chariot, speeds increased significantly and approached twenty miles per hour. Between 1600 BC and 1825 with the introduction of the first steam locomotive, the fastest means of transportation remained the speed of a good horse that could travel approximately twenty miles per hour. By 1880, incremental improvements to the locomotive made it possible to obtain speeds four times greater than the swiftest rider, and locomotives exceeded 100 mph for the very first time. With the advent of the internal combustion engine and the aircraft, man was able to reach speeds of four hundred miles per hour by 1938, only to be exceeded in 1960 as jet aircraft approached speeds of 4000 miles per hour. With current space technology, men have been sent to the moon and now commonly orbit the earth exceeding speeds of 18,000 miles per hour.[6] The speed of transportation was slow to develop through most of recorded time until technology produced an exponential increase in speed over the last 100 years. Many other forms of technology and applications of technology demonstrated the same pattern of slow initial development followed by an explosion of change.

Technology can take many forms, but in the minds of most individuals, the word technology develops images of new and or improved equipment or machines: Chariots, locomotives, cars, air craft and spaceships. But the catalyst that will cause an exponential rate of change in all technologies is the rate at which information and ideas can be transmitted with the use of computers, Internet, satellites,

telephones, and other forms of information technology. Information technology will change how all organizations function and survive in the future.

With the development of the transistor in 1947 and the first commercial computer in 1950, the rate of change in technology accelerated. Transistors replaced vacuum tubes. Transistors were replaced in 1971 with silicon chips. Since then the speed and capability of silicon microchips and microprocessors have exploded. In 1972, a single microchip operated at 1 megahertz performed the functions of 5000 transistors. By 1982, computer technology reached the general public in the form of the home computer, and microchips operated near 4-megahertz and performed the functions of 1 million transistors. In 2000, the public will be able to purchase computers with microprocessors that operate at 1 gig hertz and will perform the functions of 80 million to 1 trillion transistors. The exponential growth in microchip technology has been described in a thesis presented by Mr. Gordon Moore one of the founders of INTEL Cooperation. The thesis (Moore's Law) postulates that computer speed doubles every 18 months[7]. To date Moore's Law has accurately predicated the increase in computer capability, and recent projections indicate that future computer speeds will double every year for the foreseeable future. But computers will be only part of the technology advancements that will accelerate future change.

The Internet is another major technology advancement. Initially the Internet was a military project that developed communication between a series of computers. The basic idea was to network multiple computers together so that in the advent of a nuclear attack not all the redundant communication pathways could be destroyed; continuous communication would still be possible. The network started to grow, and an increasing number of universities added computers to the network. Research scientists then used the network to share research information via text messages. In 1978 the network was opened to the public and since then Internet popularity has exploded. In 1992 there were less then 130 web pages on the Internet today, there are over 650 thousand,[8] and the number of web sites is anticipated to double every six months in the foreseeable future.

With the use of computers connected to the Internet, the rate of change in all technologies will continue to accelerate. The cycle time from concept to distribution will be shortened. Every new idea or breakthrough technology goes through a normal progression as the end user slowly accepts or rejects the technology. The first step is that the technology has to be developed to the point where it can be reproduced consistently. Then the technology must be able to transition from idea to application. The application must be able to be produced at an economical rate. The final step is that once in production the technology that has been integrated into a product must now be disseminated and accepted by the end user. The computer and the Internet have facilitated the acceleration of this process. Ideas are transitioning from conception to production to acceptance at a faster rate then ever before.

WHAT DOES THIS MEAN TO THE MILITARY?

The difficulty that the United States military faces is how to execute the National Security Strategy (NSS) in a rapidly changing world with rapidly changing technologies. The NSS directs the United States' military to respond at home and abroad to a full spectrum of threats and crises that may arise.[9] This task becomes increasingly more difficult when accelerating technological advancements broaden the threat spectrum in which the military forces of the United States must be prepared to react. Threats to national interests can now take on many different forms from the conventional heavy engagements of tanks fighting tanks to cyber attacks that disrupt voice and digital communications. Potential adversaries interested in attacking vital United States' interests no longer have to build large conventional armies. With the use of chemical, biological, nuclear, Internet and unforeseen advancements in future technology, small groups of individuals have the potential to stress the military's ability to protect United States' interests.

The military faces a situation where current capability must be maintained while preparing for the increasing threat potential brought on by technological advancements. The difficulty is that technology throughout the spectrum of response is rapidly changing. Potential adversaries have the greatest advantage and have the freedom to choose the place, time, and method to attack United States' interests. Potential adversaries can also skip technological stages in an effort to develop a future technological advantage. The United States' military must be prepared to respond regardless of when the threat strikes, where the threat strikes, how the threat strikes, or what technology the threat uses.

Preparedness is complicated by the rate at which technology is evolving. Currently there is not a threat focal point to direct resources, as was the case in the cold war. Potential adversaries can enter anywhere on the technology continuum where they see a potential United States' weakness. The United States has the difficult task of being prepared at all times to respond across the full threat spectrum. The question is how does the military, specifically the Army, respond to changing requirements brought about by changing technologies?

The United States Army Training and Doctrine Command (TRADOC), serves as the Army's agent for institutional change. TRADOC's primary missions are to: access the force, train the Army for war, set Army standards and requirements, and command assigned activities and installations.[10] The TRADOC Commander has the responsibility for determining warfighting requirements across the six domains of Doctrine, Training, Leader Development, Organizations, Materiel and Soldier Support (DTLOMS). As TRADOC identifies new requirements for the Army, consideration is given to the interdependence of each of the functional domains in the DTLOMS model. A change in any one of the functional areas requires that the other functional areas be adjusted.

The CSA vision will have implications across the DTLOMS domains. To support a more mobile force the Army is in search of a replacement vehicle for the M1 tank. The M1 tank is the premier weapons system on the high intensity battlefield, but because of its size of almost 70 tons it is difficult to

quickly transport. The Army is in search of a new vehicle, one that can easily be transported and have the equivalent lethality and force protection of current systems. The change in materiel will have a cascading effect of the rest of the DTLOMS domains. A change in materiel may affect a change in the number of soldiers required and the type of training soldiers will need. The organization may change and a change in doctrine may be required to standardize the way the new organizations will fight. Each of these responsibilities belongs to TRADOC, but the first step is to identify requirements.

Requirement determination is the first phase of the Army force development process. TRADOC attempts to solve operational shortcomings and warfighting requirements in the force by developing potential solutions across the DTLOMS. Responsibilities for the solution to a potential requirement are depicted in table 1.[11]

DTLOMS RESPONSIBILITIES

	TRADOC	TRADOC	DA (OPS/PER)	PEO/PM
D	Requirements	Solution		
T	Requirements		Solution	
L	Requirements	Solution		
O	Requirements		Solution	
M	Requirements			Solution
S	Requirements		Solution	

TABLE 1

Regardless of the responsibility for the solution the requirements determination responsibility across the DTLOMS currently belongs to the TRADOC commander. In most cases, TRADOC will attempt to identify a solution to the requirement that can be executed in the least amount of time and at the lowest possible cost.

MATERIEL CHANGES

Materiel changes are the least favorable solution to any requirement. Historically, materiel changes can require 15 years[12] to develop and field. The Wolverine Heavy Assault Bridge (HAB) is an example of the time it takes to constitute change for a single Army system. The Army has thousands of systems, much like the Wolverine, that will be impacted by rapidly changing technology. Each system within the Army will be affected to some extent. Communication, medical and intelligence systems are examples of programs that will be under continuous technological advancement, and the Army will find it

difficult to sustain the most current technology. Regardless of the system, TRADOC is responsible to manage change induced by technology to support warfighting requirements

The HAB is a good example to demonstrate current production time lines for a major Army system. TRADOC initially identified an Army requirement for a tactical bridge that could support the M1 Abrams tanks. The new system would replace the current Armored Vehicle Launched Bridge (AVLB) that was brought into service in the 1970s. The new system would have the equivalent mobility of the M1, and it would have to cross-gaps in excess of 20 meters and support the 70-ton weight of the M1. The mission need for a new tactical bridge was initially defined in broad operational terms in a Mission Need Statement (MNS). MNSs are prepared for operational war fighting requirements that could result in new defense acquisition programs. TRADOC validated the MNS and confirmed the fact that a non-materiel solution (change in doctrine, people, training or leader development) could not satisfy the identified need, and that a new materiel solution was required. Subsequently, the needs expressed in the generic MNS are developed into very specific operational requirements in the form of an Operational Requirements Documents (ORDs), which was approved September 1980. By that time the requirement for a new vehicle had been identified and validated. A new acquisition program started to develop, build, acquire and distribute the Wolverine (HAB).

The Armored Vehicle Launched Bridge (AVLB) is a tactical vehicle based on the 1960 and 1970 variants of the M48 or M60 tank chassis.[13] The vehicle was first fielded in the 1960s to provide mobility support to maneuver forces. AVLBs consist of a tank hull operated by a two-man crew and a hydraulically actuated aluminum bridge that sits above the chassis. Once on site the bridge could be deployed in less than 10 minutes, which allowed vehicles with a military load classification of less then 60 tons to cross gaps of 18 meters or less.[14]

In the 1980s, the Army introduced the M1 main battle tank. The M1 Abrams tank provided additional mobility, lethality and survivability and became the premier armored gun system in the world. TRADOC's initiation of the HAB's concept studies and ORD was in response to the warfighting requirements that developed from the fielding of the M1 Abrams tank. The Abrams is a much heavier vehicle than the M60, and the AVLB that currently is still in the inventory cannot support the Army's newest tank over the typical gap anticipated on the battlefield. The ORD specified new requirements for the Heavy Assault Bridge: it was to be built on the M1 Abrams chassis, have the ability to cross Military Load Class (MLC) 70 vehicles over 24 meter gaps, launch its bridge within 10 minutes, and have the same mobility and survivability of supported forces.

The Materiel Acquisition Oversight and Review Processes are well defined. They take TRADOC validated requirements and develop materiel solutions. A detailed discussion of this process is outlined in DODD 5000.1 and AR 70 -1. In general terms, the materiel acquisition process attempts to develop materiel solutions in three phases. In the first phase an attempt is made to design a workable solution. In the next phase, the solution is further developed and tested. In the final phase, the materiel solution is

produced, fielded to units, and supported by the Army Materiel Command. This process is not yet complete for the Wolverine and may never be complete.

The acquisition process for the HAB would take 10 years from the time the HAB requirement was validated by TRADOC to the time when the first tactical unit was scheduled to receive the first vehicle.

During the Life Cycle System Management Process that developed the Wolverine from requirement to fielding, the Wolverine was one of hundreds of programs competing for funding in the Pentagon. Requirements for the Wolverine called for a one-for-one replacement for the AVLBs. From this, an Army Acquisition Objective (AAO) of 928 was established, but based on resource constraints an Army Procurement Objective (APO) was set at 465.[15] A fielding plan was established on the production rate and on the total number that would be funded and built. At the planned rate of funding, the first unit at Fort Hood was programmed to receive the first Wolverine in fiscal year 2000; and fielding was extend until 2014 when the last of 465 HABs would be delivered. The planned fourteen year fielding schedule took the program from validated requirement, to production, to fielding in 34 years. Even if this plan were executed, the requirement to replace existing AVLBs would not be satisfied. Over half of the heavy assault bridges in the Army will still be AVLBs, which will soon approach 40 to 50 years of age.

With the rate of change in the world and in technology, a 34-year plan is doomed to failure. HAB as a program is now at risk. Since its conception, the world environment that it was designed for has changed. The Soviet Union that once presented a large heavy armor threat is now gone. The National Military Strategy that once called for a forward presence has been transformed to a force projection strategy. But the Army has been slow to change over the last ten years. With the confirmation of the new Chief of Staff of the Army and his stated vision of a lethal highly mobile force, the Wolverine may be used as a bill payer for the new interim brigade. The Wolverine is a prime example of a stagnate strategy for a program that did not adapt to a change in threat, a change in National Military Strategy, or the change in emerging technology for lighter combat systems in a constrained funding environment. The Army's reluctance to change after the end of the cold war does not bode well for future challenges. The threat now is much more diverse and harder to identify. In this kind of environment, the Army must become a faster learning and faster reacting organization. The requirements generation process must become predictive, adaptable, agile, and react to rapidly increasing change. The requirements generation process must also constantly review validated requirements to insure relevance.

IMPROVEMENTS BY TRADOC

TRADOC continues to improve the requirements generation process in an effort to be proactive in identifying future warfighting requirements. Significant improvements have been implemented since 1995 when the Vice Chief of Staff of the Army tasked the TRADOC Commander to organize the materiel requirements determination process. Three major changes arose from VCSA's tasker: the designation of

a single authority to approve warfighting requirements for the Army (the TRADOC Commander), the establishment of Integrated Concept Teams (ICTs), and an increased emphasis on experimentation.

The TRADOC Commander is now responsible to develop all warfighting requirements. The centralized process allowed TRADOC to synchronize the efforts of the branch proponents within the Army. The Integrated Concept Teams (ICTs) were developed to orchestrate the efforts of all appropriate activities at one time to ensure horizontal and vertical integration of a specified war-fighting requirement. The ICT teams include program managers, doctrine writers, action officers from branch proponent schools, as well as representatives for the Office of the Secretary of Defense, Headquarters Department of the Army, industry, national laboratories, the potential users and many others. The purpose of the ICT is to focus resources early in order to develop better requirements quickly and to capitalize on experimentation. Experimentation is a separately funded program, providing the ability to evaluate and capitalize on emerging technology, materiel initiatives, and operational concepts. Experiments facilitate a quick evaluation that assists in determining the military utility or potential of an idea to satisfy warfighting requirements. The Army's process to manage change has improved.

BACKLOG

TRADOC is a complex organization made up of branch proponents. The proponent schools and centers include: Armor, Aviation, Engineer, Adjutant General, Combined Arms, Ordnance, Chemical, Field Artillery, Intelligence, Signal, Quartermaster, Infantry, Finance, Military Police, Chaplain, and more. Each center or school is responsible for developing requirements in their area of functional expertise. Once the requirements have been developed, the schools and centers are responsible for the associated changes within the DTLOMS domains brought about by the approved warfighting requirement. TRADOC manages Combat Developments progress using the on time rate for current programs and projects in their proponent schools and centers. As early as the first two quarters of 1997 and as recently as the last two quarters of 1999, TRADOC's on time rate for projects has been tracking in the low 70 percent range.[16]

Development directorates are also backlogged. Experimentation generally has the greatest number of projects on schedule reaching rates of 89 to 90 %. Concept Developments have the least number of projects on schedule. The number of projects that were considered on time only reached in the mid 50% range. This could be interpreted to mean that finding technology that can be translated into military requirements is easier than translating technology through the DTLOMS domains into executable programs for the Army. To develop an understanding for the reason for the current backlog in Combat Developments, a review of manning and funding trends must be investigated.

MANNING AND FUNDING

Recent manpower and funding trends contribute to the current backlogs. As depicted in figure 1,[17] military manpower has decreased in combat development directorates by 44 % between the fiscal years 91-00. TRADOC in conjunction with senior army leadership has attempted to reverse the trend in fiscal year 00 with the addition of 115 officers. Civilian manning in the TRADOC Combat Development

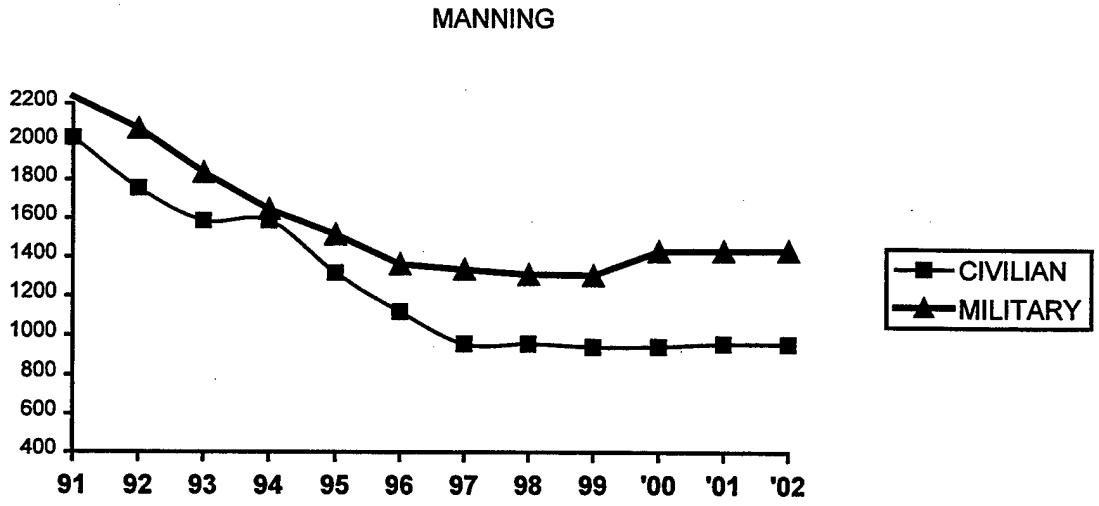

FIGURE 1

community has undergone similar decreases in personal strength. Civilian manpower strength has been stable since 1997 and has not shown an increase.

The CSA has recently directed that warfighting divisions in the Army be manned at 100% fill by grade and military occupational specialty. This tasker is currently under study by the Deputy Chief of Staff for Personnel (DCSPER). If CSA initial guidance is executed as directed, TRADOC should expect further personnel draw down. With divisions manned at 100%, Congressionally mandated positions in

Joint billets, active duty soldiers assigned to reserve component positions, and the Army's requirement to fill recruiting command, the availability of soldiers is limited. TRADOC will most likely lose soldiers to fill competing requirements, and a downtrend in personnel will continue.

Figure 2[18] is the funding trend for combat developments, which is down 46% when Advanced Warfighting Experiment (AWE) funding is excluded from budget.

TRADOC has been proactive in its attempt to accelerate the requirements generation process to satisfy warfighting needs. In addition to improvements in military personnel additional efforts in funding in Science and Technology Research and execution of Advanced Warfighting Experiments (AWEs) have been productive but have not yet decreased project backlog. It is clear that TRADOC's goal is a better,

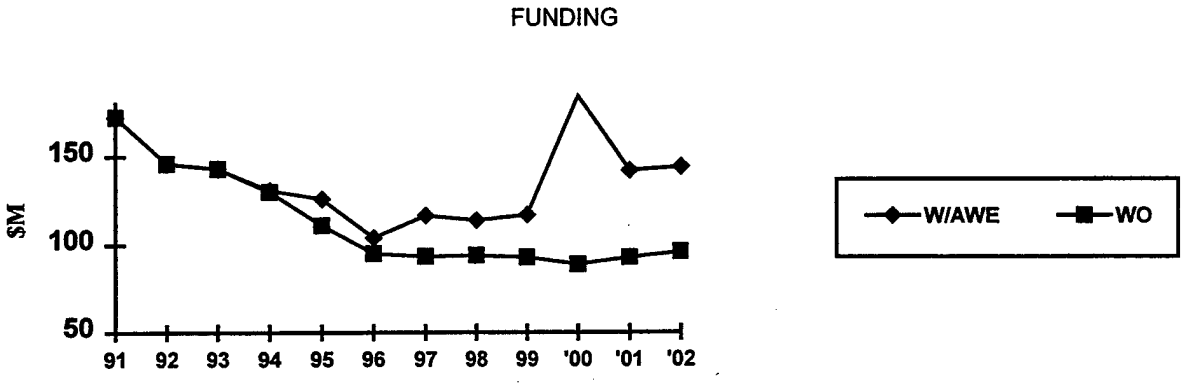

FIGURE 2

faster requirements determination process. But the current process at current resourced levels is not keeping up with current needs.

RECOMMENDATION

The Army's force management process takes too long to meet warfighting requirements and is currently unable to adapt to a changing environment. The first step of the force management process is determining requirements, currently the responsibility of TRADOC. As the requirements gate keeper, TRADOC must establish a review process for all requirements. Requirements for new systems or systems in production must be revalidated periodically based on the current environment. Environmental changes in the National Security Strategy, National Military Strategy, threat, roles and missions, or change in budgetary constraints warrant a change in requirements followed by a change in the acquisition

program. A TRADOC reassessment of validated requirements should be presented to the Office of the Deputy Chief of Staff for Operations annually. The TRADOC assessment could then be used to prioritize constrained resources within the Army. An alternative to a TRADOC reassessment would be an assessment conducted by the Army staff. The Army could establish the Army Requirements Oversight Council (AROC). The AROC would prioritize all TRADOC approved requirements and then would revalidate current requirements on an annual basis. The prioritized requirements would then be provided to the Office of the Deputy Chief of Staff for Operations and Plans and would be integrated into the Program Objective Memorandum (POM) submission.

Currently the requirements approval authority does not review requirements once they are placed in the acquisition system. The acquisition process reviews the program in a series of milestone reviews to insure the program is executable in terms of progress, technology, and cost, but does not validate the need for the program based on the current environment. The requirement approval authority representing the war fighter's interests should do this validation.

TRADOC should investigate the automation of the requirements staffing process. Virtually Integrated Concept Teams (ICT) could reduce development times. Virtual ICTs could have standing members that participate in developing ideas and concepts without leaving their duty station. The staffing and approval of requirements could be conducted over the Internet. It is expected that processing time would decrease. Proponent action officers could conduct dialog and staffing simultaneously, and the status of the staffing action could be transparent to those involved.

TRADOC is under resourced for current challenges, and it is highly unlikely that the organization can keep abreast with today's and tomorrow's changes. For the Army to remain relevant the first step is to invest in the necessary intellectual capital by adequately manning TRADOC. Consideration must be given to reestablish, at a minimum, 1991 manning levels. TRADOC has been the personnel bill payer for the good part of a decade. When congressionally mandated programs (Joint qualification and active duty soldiers support to Reserve Component) were institutionalized, TRADOC lost personnel. The Army should also reinvest financial capital back into TRADOC.

CONCLUSION

Technology is changing faster today than at time in recorded history, and the threats to national interests are ambiguous. The United States military no longer has the luxury to strictly focus materiel development on the conventional battlefield. Future war will span a wider spectrum then ever before. The military is currently structured to deal with high intensity conflict. This is seen in the current military structure of heavy tanks, air superiority aircraft, and aircraft carriers. The problem the military faces is that our current capabilities may not be suitable to counter future threats. The Pathway to the Future,[19] as proposed by Ian Roxbough and Dana Eyre, may include one or a combination of four possibilities. The

first is a Dirty War which the United States would have to react to chemical, biological, nuclear or large bombs either on the battlefield in a high intensity conflict or within the continental United States against non-state actors. The possibility of Cyber War is described as an attack against United States interests, in which a state or non-state actors gains unauthorized access into computer systems to disrupt or destroy commerce, utilities or communications. The third possibility of Peace War is a conflict in which United States soldiers are wedged between combatants to prevent crimes against humanity and to promote peace. The last pathway is the Systemic War that could be described as the conventional shooting war of the future. This is war of high technology weapons. Missiles will be fired from unmanned platforms, precision guided munitions will be directed from extended command sites, and space-based assets will provide targeting and communications. The future is uncertain, but the military must develop capabilities and technologies that span the full spectrum of possibilities.

In the Army, the organization to manage these changes is currently TRADOC, and that organization is under resourced to lead the Army into the future. The Army cannot accept the requirements generation timelines of the past in which programs would take 15 years or more to come to fruition. The Army cannot accept 4-8 years to change organizational structure, and the Army cannot accept 2-4 years to change doctrine for a new concept or new piece of equipment.

Warfighting requirements are a response to current real world conditions; war-fighting requirements must strike a balance of today's requirements with anticipated future requirements. Requirements must be periodically reviewed to insure they satisfy identified requirements. Through the use of technology, the world has become a smaller place. The days when the United States could wait to react to the global situation may be gone. It is highly unlikely that the next major conflict will give the United States time to decide, time to build and time to win. We must expend the intellectual capital now to anticipate and react to future requirements.

Word count: 5958

ENDNOTES

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