

In Pursuit of Agile Acquisition Are We There Yet?

by

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Abstract

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In Pursuit of Agile Acquisition Are We There Yet?

We must hold our minds alert and receptive to the application of unglimped methods and weapons. The next war will be won in the future, not in the past. We must go on or we will go under.

—General of the Army Douglas MacArthur¹
1931

Overview

The observations contained in this study focus primarily on the Army and are intended to recognize and address some critical friction points within the standard approach to procurement of capabilities and the evolutionary development of the processes, policy, and oversight that have burdened acquisition agility. This critical analysis is not intended to disparage or discredit any of the important institutions or stakeholders involved in the acquisition of defense capabilities. It is intended to educate and encourage senior leaders and policy makers to further understand the Decision Support Systems (DSS) process so they can help drive strategic change, reduce the layered bureaucracy in the methodology, and avoid promoting activities that would further expand regulatory guidance and oversight to improve agility. Once an understanding of the DSS is gained, only then can a determination be made as to what changes must be implemented to improve the overall process. It must be clear however, that there is no singular solution to rectify the difficulties of a protracted requirements process, an austere and un-resilient budgeting system, and unhurried and expensive defense acquisition system. The genesis of most of the different processes and oversight efforts, discussed herein, were initiated and implemented with the intent of reducing risk and enhancing stewardship in acquisition. Ironically, the increased layers of oversight and staffing have actually had the opposite outcome resulting in the

unintended consequence of making management much more difficult and retarding true agility in acquisition.²

Furthermore, this narrative is not going to analyze constraints in contract types and policy. The contract effort absorbs a great deal of time within the process, but would require an independent examination to thoroughly address with an adequate level of fidelity. This study will also not trace the thread for every concern identified herein back to its origin³ to unearth each friction point and discuss all the possible alternatives to offer a definitive answer on how to enhance agility. Rather, the scope of this analysis is narrower. Change within the process must be executed incrementally and driven by senior stakeholders and leaders to be lasting and effective. Encouraging institutional change to improve policy reduces unnecessary dictatorial oversight, and streamlines staffing that would help improve expediency⁴ within the Acquisition Corps (AC).⁵ This treatise will endeavor to cover the topic of agile acquisition to more thoroughly understand the DSS processes, and to objectively examine both the impediments to achieving greater expediency in that system and to recognize the AC's successes and failures in helping to create the most powerful land force in the world today.

The Importance of Acquisition

What is agile acquisition? We first must understand the answer to this question before proceeding further in this analysis. This understanding is important because agile acquisition as an expression often has different connotations to various people. The term agile acquisition when used throughout this discourse refers to an accelerated and efficient method of developing and deploying needed capability to the force. Formal references define Acquisition as the act of requiring.⁶ A synonym for acquiring is to develop.⁷ Agile has also been separately defined as, "an ability to...*do something*....,

with quick easy grace,” or, “having a quick resourceful and adaptable character.”⁸ Tying these two terms together is important for a more universal understanding of the context. Agile acquisition thus means acquiring or developing some needed capability in a quick, simplified, and resourceful manner. No formal definition exists doctrinally for the Army, but most acquisition professionals and senior leaders agree that agile acquisition means faster and easier.

Faster and easier is important because it can mean the difference between life and death in combat environments. A comment was once made that the Ordnance Corps had failed the nation during the prosecution of the Civil War, and evidence supports this assertion.⁹ The Ordnance Corps did not provide Spencer repeating rifles to sufficiently arm the Union Army earlier in the war, although they were available. The rifles were expensive to buy, and because there was an abundance of cap and ball muskets available in the US arsenals they were not procured in greater numbers.¹⁰ This was a policy driven by cost. Instead of investing in advanced weapon capability earlier in the war, the Union Army fought with antiquated rifles that allowed Confederate forces greater parity. The Union failed to rapidly acquire more repeating rifles that would have created increased tactical overmatch for the North and ended the war sooner.¹¹

Recognizing “that reflection is the process of stepping back from an experience to ponder carefully...for the development of inferences and learning...that serves as a guide for future behavior,”¹² we can apply the lessons of the Spencer rifle today. As a result of this analysis, our nation can more readily understand the importance of rapidly providing the best capability to the force. This shortfall during the Civil War reminds us of the magnitude of smart acquisition decisions and their impact on soldier’s lives. It

also helps us to grasp the concept that equipping and training our Army for war is one of the most essential things we do as a nation during peace and war. America has learned valuable lessons from the past, and currently invests a great deal of her treasure to ensure that our forces are prepared with the best capabilities to deter aggression and to win our nation's wars. The Department of Defense's (DoD) science and technology's Research and Development (R&D) budget for Fiscal Year 2013 rightfully supports this premise indicating an appropriation of \$71.2 billion to further innovation and continue to provide the best capability to our soldiers.¹³

General of the Army Omar Bradley is attributed with the quote, "Amateurs talk tactics while professionals talk logistics."¹⁴ In actuality true professionals must talk and understand the Army Enterprise concept.¹⁵ This concept approach is "to adapt the Army culture, organizations and processes...to run the Army more effectively. That means more collaboration, increased speed...eliminating duplicate efforts and fostering a culture that provides incentives for good stewardship."¹⁶ General Bradley would have understood and supported this concept and the value of what the full spectrum of Doctrine, Organization, Training, Materiel, Leadership and Education, Personnel, Facilities, and Policy (DOTMLPF) did to enable the Army.¹⁷ He would have recognized these concepts of the Joint Capabilities Integration and Development System (JCIDS), which will be discussed later in this narrative, before it was formalized. It is clear that Bradley understood how the Army worked in terms of force generation and how vital that was for modernization, equipping, and training the force in order to effectively fight and win during World War II.

Some of today's senior leaders including the Training and Doctrine Command (TRADOC) Commander, General Robert W. Cone, now share this same understanding and call this approach adaptability.¹⁸ General Cone recognizes the significance of developing and sustaining capability quickly to deter and confront uncertain future adversaries. In a recent published defense report he appreciates the value and contributions of the AC as well as the need for change stating, "The Army has developed a critical and unique advantage in the past decade by designing a rapid technology integration and acquisition process. It will take further steps to institutionalize rapid development, which must be retained as an integral component of the formal acquisition process."¹⁹

However, not all senior leaders agree with this TRADOC view. Recently, there has been an increasing negative perception and growing impatience among some senior leaders in the Army about the inability of the AC to rapidly develop and deploy relevant capability.²⁰ As an example of this, the former Vice Chief of Staff of the Army General Peter W. Chiarelli told Defense Magazine, "The Army's antiquated ways of buying new equipment are depriving soldiers of the latest technology and making it more difficult for them to do their jobs."²¹ This type of inference is not new, but a trend that is being vocalized repeatedly in large forums and perpetuated at the highest levels throughout the profession.²² This tendency, reflecting discouragement with prolonged acquisition timelines, is often singularly fixed on the AC, and fails to promote real process change which is required. There are many demonstrated success stories over the last decade of rapid acquisition and they should be recognized. These expedited efforts by the AC have resulted in numerous ground-breaking and life-saving

capabilities that have been developed and deployed to both our soldiers and tactical formations during combat operations in two different theaters.²³

Deployed advancements and technologies have brought a wide array of capabilities to all echelons of the Army – from tactical to strategic levels. They have improved the ability for commanders to understand and manage vast amounts of information on the battlefield in order to formulate the right decisions, at the right time and the right place.²⁴ There are numerous examples of the AC's ability to recognize emerging requirements and deliver relevant and reliable capabilities to improve the effectiveness of leaders.

Command Post of the Future (CPOF) is good example of rapid R&D and deployment of capability to the force. CPOF allows commanders to envision the battlefield as events occur at sub-meter imagery while simultaneously communicating over its Voice Over Internet Protocol functionality with leaders at all echelons, regardless of their geographic locations. CPOF's near real time collaborative capability was initially developed by the Defense Advanced Research Projects Agency (DARPA) and a small company called MAYA Viz, and rapidly matured through iterative feedback and then deployed to the 1st Cavalry Division in 2004 while they were engaged in combat operations in Iraq.²⁵ After the initial deployment, the program was transitioned to an Army Acquisition Program in 2006.²⁶ Today more than 17,000 systems have been deployed to Army units worldwide,²⁷ and by 2010 three major software upgrades had occurred.²⁸ CPOF has radically changed the way commanders envision the battlefield and has helped them to conduct combat and disaster relief operations much more effectively. Developing and delivering CPOF capabilities demonstrated acquisition

agility - rapidly integrating, deploying, and sustaining the most recent technology to the force.

Other capabilities rapidly developed and deployed by the AC have improved the lethality, survivability, and tactical overmatch of our combat formations. Ten years ago there were no Stryker Combat Brigades. There were no armed unmanned aerial systems conducting Intelligence Reconnaissance and Surveillance missions – both fixing and engaging high value targets. Few had heard of Mine-Resistant Ambush Protected (MRAP) vehicles that now safely transport our troops through routes that contain the deadly threat of Improvised explosive devices. Prior to hostilities in Afghanistan in 2002 there were no improved 5.56mm rounds with increased energy and superior lethality.²⁹ Nor were there enhanced ballistic body armor and helmets increasing the survivability of our individual soldiers. The AC played a crucial role in the acquisition of all these capabilities.

Furthermore, prior to 2001, our operational command posts at brigade level and above consisted largely of giant paper map-boards and plastic overlays that required the staff to post tedious manual updates to the current operational picture.³⁰ The AC has played a major role in transforming the Army and training units to use digital capabilities that now provide commander's with the location of current ground and air platforms through an integrated digital system called Blue Force Tracker. Instead of the lack of situational awareness, units now use streaming video to help secure their combat outposts through deployable Rapid Aerostat Initial Deployments that provide persistent surveillance.³¹ These capabilities are now the norm in the force and the AC played a major role in the development, deployment and training of these technologies.

Furthermore, commanders can also pin point targets for precision fires and identify potential hostile forces, and see the status of reconstruction team development and progress. Remarkably, all of this information can be shared across the tactical network to a different continent helping to better prepare units for deployment. Another important example of a rapid deployment of critical technologies is the Biometric Automated Toolset (BAT), Hand- Held Interagency Identity Detection Equipment (HIIDE) System.³² The BAT/HIIDE System allows the portable collection of biometric data that can be stored and later used to trace forensics collected at other crime scenes or events and trace the data back to specific individuals thus identifying dangerous insurgents hiding in plain sight.³³ These advanced capabilities are combat multipliers developed and deployed by the AC during combat improving the mission effectiveness of our Army. In light of this reality, why is there is still a claim that the AC is not agile?

The answer is that in spite of all the successes the AC has achieved, there conversely have been some high-visibility program miscues that have garnered the spotlight.³⁴ For example the Army's Future Combat System (FCS) program experienced both significant changes, delays, and cost over runs that resulted in an unsustainable strategy that failed to deliver needed capability.³⁵ FCS was terminated after billions of dollars were expended with little return on investment. The Congressional Budget Office report in 2009 discussed FCS modernization, stating, "The costs to carry out the initiative have grown beyond the initial estimate of \$21 billion and may total more than \$140 billion through 2013."³⁶

However, in spite of these high visibility faux pas, it remains important to recognize that the AC has also created the conditions for success and advancement of

capabilities in spite of the inherent constraints embedded in the overall process.

Recognizing these programmatic errors promotes the need to reexamine the acquisition process within the Army, and to understand and determine where there are opportunities for improvement in the DSS.

The DoD Decision Support Systems

The Acquisition Process is often referred to as “The Big A Process.” It is comprised of three separate yet interdependent systems called DSS.³⁷ The Defense Acquisition Executive is the lead in only one of the systems in the Big A process, called the Defense Acquisition System (DAS). The conglomeration of these individual systems is characterized as a system of systems (SOS) process. A SOS connects the individual systems together to comprise a whole that is designed to produce a unified output or solution. Increased agility requires expediency and efficiencies in the whole of the SOS not just in the DAS. The SOS depicted in figure 1, shows all of the components that make up the “The Big A” concept.³⁸ The DSS is a continuous process designed with some recurring overlap but is also linear in nature. This means that one process must occur and achieve success before advancing and starting another. The sequence of these processes is JCIDS first, then the Planning Programming Budgeting and Execution process, and finally the DAS. If any one of these is deficient or delayed then this will impact time, resourcing, and execution and hinder the overall agility of the DAS. This SOS model’s inherent process friction and constraints are important to understand. Each one of these processes within the SOS is complicated and examining the intricacy of each component will provide insights for some successful system injects to accelerate the time it takes to navigate these interdependent processes.

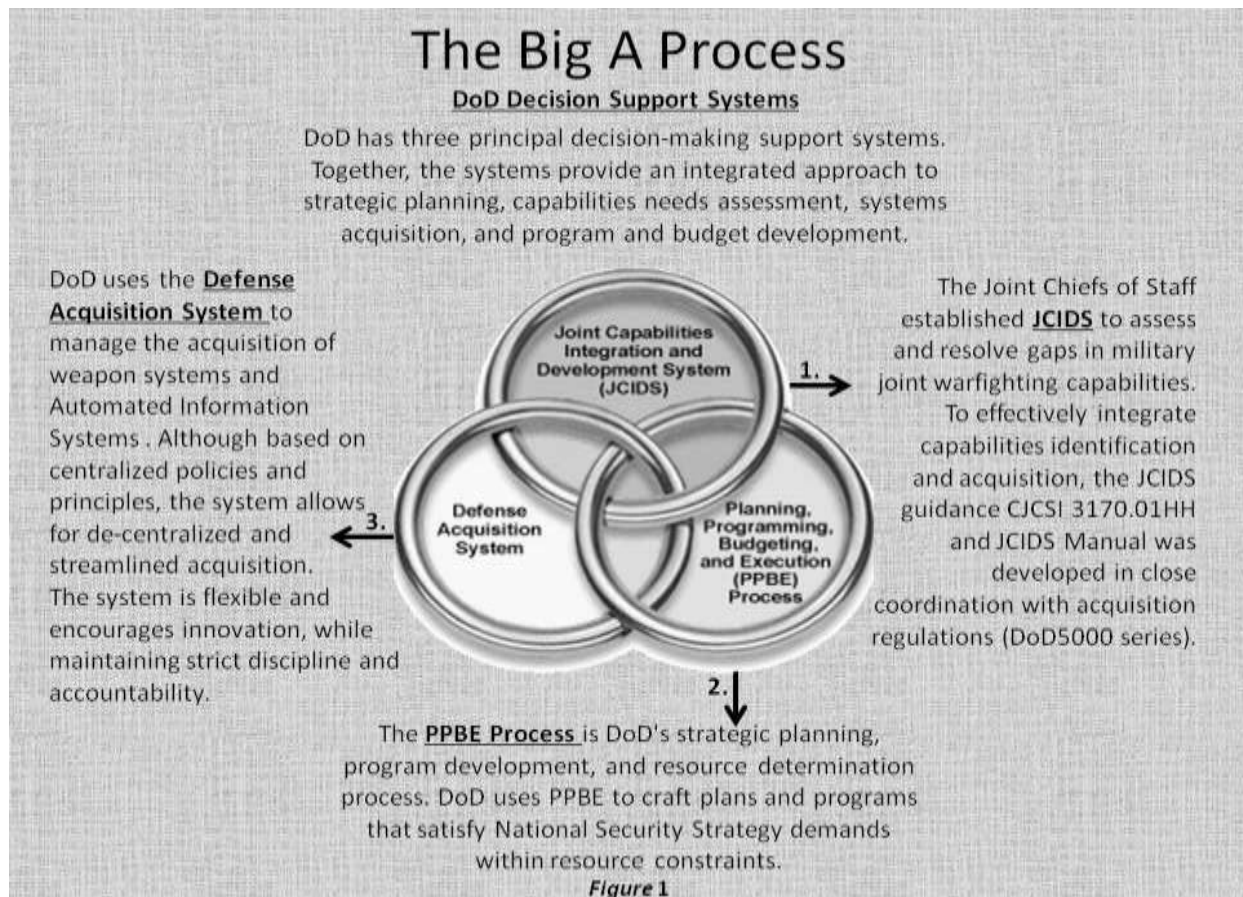


Figure 1. DoD Decision Support System

Joint Capabilities Integration and Development System

JCIDS is the process that exists to support the Joint Requirements Oversight Counsel (JROC) and the Chairman of the Joint Chiefs of Staff's (CJCS) "responsibilities in identifying, assessing, validating, and prioritizing joint military capability requirements."³⁹ JCIDS is the initial process that kick starts the DSS SOS. What follows is an abbreviated discussion of the process. There are many stakeholders that can influence the JCIDS. Some of these key stakeholders include Training and Doctrine Command (TRADOC) who represent the user, the CJCS, and the JROC.⁴⁰ The first step is to identify a perceived capability gap derived from an emerging or existing threat, or the need for a new enhancement or improvement to a current capability. These

requirements are initially manifested in the form of a Capability Based Assessment (CBA). “Doctrine, Organization, Training, Materiel, Leadership and Education, Personnel, Facilities, and Policy (DOTMLPF) analysis is part of all CBAs, but may be used independent of a CBA when the scope of an issue being studied is not likely to result in new materiel solution development.”⁴¹ Other documents like the Joint Urgent Operational Needs or Joint Emergent Operational Needs can be used to generate requirement and are handled faster in the JCIDS process.⁴² Another step in the JCIDS process is the development of an Initial Capabilities Document (ICD).⁴³ The ICD describes the need in terms of a mission capability. It covers the full range of a potential solution addressing all the components of DOTMLPF also.⁴⁴ Subsequently the ICD is reviewed by the JROC’s subcommittees. Requirements are validated and approved before the process advances. Additionally, an analysis of alternatives will determine if another capability can satisfy the need, or if there is overlap with another existing program.⁴⁵ The JCIDS process also reviews potential risks before making a recommendation to approve or dismiss the requirement. The Director of Cost Assessment and Program Evaluation will also review the ICD for an in-depth analysis and cost assessment.⁴⁶ If these gates are successfully completed, then the program need is validated and the program effort can move forward.⁴⁷

This abbreviated overview of JCIDS can mislead the reader to believe that the process is fast and conducive to abbreviation or agility wherein reality it is a protracted process.⁴⁸ There are many stakeholders and initial requirements can sometimes be made irrelevant by the passage of time and emergence of other technologies while seeking JROC approval. Changes in the key decision makers involved in the process

can also result in delays. New leaders often exercise a different understanding or interpretation of the importance of a requirement. JCIDS is a procedure that progresses slowly through the halls of the pentagon and other agencies for staffing and approval. The process can take years before an official Capabilities Production Document is approved by the JROC.

The proposition of an accelerated requirement process is even more difficult to accomplish in an era of constrained resources, greater risk aversion, and increased oversight. To illustrate this difficulty, the Budget Control Act of 2011, also referred to as sequestration, is a law mandating sharp funding cuts in DoD⁴⁹ that will result in increased trepidation among decision makers who are less willing to take on added risks. Increased oversight abounds in the JCIDS arena. There are a multitude of instructions, directives, manuals and policies associated with this process alone. The manual for the JCIDS process has expanded to 220 pages,⁵⁰ and the CBA Users Guide is 91 pages long.⁵¹ Additionally, AR 70-1, the regulatory guidance that provides direction on Army Acquisition, cites six required publications and over 131 related regulations as well as 43 additional rescinded or incorporated policies that guide leaders through the process.⁵² These documents show the magnitude of oversight that makes rapid progress through the SOS difficult.

Program Planning Budgeting and Execution (PPBE) Process

The second system within the DSS is the PPBE process, and like its predecessor JCIDs, it is also complicated. PPBE is a formal system's engineering approach designed to manage funding requirements and the allocation of resources in DoD. PPBE was developed in the 1960s by then Secretary of Defense Robert McNamara.⁵³ The system has undergone several revisions since its inception, but remains

fundamentally the same process and serves as the basis for developing defense spending, and feeds the development of the budget for Congress and the President. The process starts with the creation of the Program Objective Memorandum (POM), which projects budget expenditures for programs. This process feeds the Future Years Defense Program that looks out five years and does not include the current year of execution.⁵⁴ The POM has traditionally been submitted in the month of October of every odd year.⁵⁵ However, Secretary of Defense Robert M. Gates implemented annual POM development and budgets.⁵⁶ This was intended to provide more robust management of escalating costs and justification of funding.

PPBE is not resilient to changes and modifications to funding occur frequently. Examples of this change include the technology or the stakeholders involved in PPBE process similar to JCIDS. The five year outlook for predicting the programmatic costs is too long for a planning horizon and the likelihood of program or budget change occurring in the system during that span is high. Change, when it does occur as a decrement to a planned budget, results in negative second and third order effects like unachievable program's scope. Risk and program disruption increase when budgets are even moderately lowered. Budget decrements frequently occur and this prohibits agility. Misalignment of requirements and resources drives Program Managers (PM) to reduce capability development or extend timelines to achieve developmental milestones – both resulting in added risks and usually higher costs. Lowered budgets render on-time program execution a near impossible feat to accomplish without reducing program scope and extending completion schedules. This inhibits the PM's ability to satisfy the customer needs. Other subsequent effects of resource reductions are the need to

modify contract execution timelines or reduce production capacities that results in increased per-unit costs for development. This phenomenon also causes over extended program goals and frustrates stakeholder expectations. Historically, almost all programs are underfunded from the beginning, as Congress and DoD spread fewer resources across the same amount of programs or in many cases increased requirements.⁵⁷

Stakeholders up and down the chain of the PPBE process have different desires and views of risks and priorities. Many of these senior leaders and politicians change positions regularly. This frequent change of stakeholders injects additional turbulence into the DSS based upon their unique and differing opinions. Political representatives advocate for their constituents usually based upon economics alone and this advocacy does not fully consider program performance or risk. The overall effect of these stakeholder interactions with PPBE is that efficiencies and expedencies are further constrained or nullified.

PPBE is a system that was developed over a half century ago and should further evolve to allow for near-term budget flexibility. The current construct does not provide very many opportunities for PMs or users to respond to emerging shifts in the marketplace to exploit innovative and promising technologies effectively. There is little a PM can do in the current year of execution to fund and implement any alternative effort unless funds are reallocated from another program and a contract vehicle exists that provides the flexibility to respond to the increased scope of the user's need.

The Defense Acquisition System (DAS)

The final element of the Big A process is the DAS. This is the only process controlled by the AC. This means two-thirds of the entire SOS process that feeds the DAS falls outside the management or decision authority of the acquisition community. It

is worthy to note that the AC plays an active and enabling role in both of the other processes in order to help influence positive decisions and efficiency, but cannot expedite the timeliness associated with those processes. Acquisition professionals manage change regularly and look for unique and creative ways to get the needed requirement for the user in spite of shifting budgets and requirements creep.

Most major defense programs encounter repeated setbacks before achieving an acceptable technical performance objective. Consequently, most of the military and civilian personnel who remain in Defense Department acquisition are, by temperament, unfailingly optimistic.⁵⁸

Why then do leaders often affix all culpability for the process time lag on the AC in this shared SOS construct? The answer to this question logically leads to one or two explanations. The first is that many senior leaders do not fully understand the Army enterprise process and how the DSS SOS concept works. Additionally, primary positions on the Army and joint staff are often filled for only short periods of time and the learning curve or ability for senior leaders to understand and initiate sufficient changes in the DSS becomes nullified by their abbreviated stays. The second supposition is that leaders are more invested in the performance of the AC since they are the face of the program, and involved across its entire lifecycle. The AC has the most visible and intimate relationship with the capability more than any of the other DSS process owners. Regardless of the reason, the reality is that Army senior leaders look to the AC managers to implement improved methodologies to achieve greater agility.

The DAS is wrought with its own risk and perils and is a process laden with regulatory and statutory guidance. Every program functions on the basis of a contract and there are many contract types that can be used to satisfy different types of program efforts. The core of contract guidance resides in two thick manuals; the 2000 plus page

book called the Federal Acquisition Regulation (FAR)⁵⁹ and the Defense Federal Acquisition Regulation (DFARS).⁶⁰ Additionally, each service has added more service-specific guidance with their own procurement regulations called the Army FAR, (AFAR)⁶¹; the Air force FAR (AFFAR),⁶² and the Navy Marine Corps Acquisition Regulation Supplement (NMCARS).⁶³ Furthermore, there is additional DoD directive guidance such as the DoDD 5000.01.⁶⁴ This directive is the Defense Acquisition System instruction manual that “provides management principles and mandatory policies and procedures for managing all acquisition programs.”⁶⁵ Then there is the DoD Instruction 5000.02, Operation of the Defense Acquisition System, whose purpose it is to, “Establish a simplified and flexible management framework for translating capability needs and technology opportunities...into stable, affordable, and well-managed acquisition programs.”⁶⁶ Ironically this previous quote follows a purpose statement on the same page of the DoD Instruction that mandates the implementation of an additional 79 “various laws, policy, and regulations listed in Enclosure 1 of the directive.”⁶⁷ This further highlights the burdensome oversight the PM has to successfully navigate. Layer these regulations with an ever increasing propensity for risk aversion in Congress and DoD, and the goal of agility in acquisition becomes extremely challenging.

This regulatory burden on the process has increased astronomically since WWII and so have the expectations for streamlined and expedited procurement and delivery. Acquisition guidance in 1947 encompassed only 129 pages.⁶⁸ Today there are thousands of pages of oversight and reporting requirements. In addition to this, technologies have evolved and become much more complex adding further managerial burdens on the acquisition community and the PMs. The DSS process could be viewed

satirically to that of a manager given a three pound bag for sugar, with a customer who wants to put five pounds of sugar in the same bag and a financier who has only funded the purchase of two pounds.

In spite of the challenges, the AC has historically provided our nation with the best weapon systems and enablers to make the US the most powerful country in the world, and that did not happen by chance.⁶⁹ The acquisition process correctly has more support for expediency during national emergencies and combat contingencies. The operational needs of a wartime commander arise rapidly and a capability can mean the difference in survivability and the means to shape the environment and defeat an adversary. The imperative of this scenario demands expediency and the acquisition system more readily accommodates this in war. In contrast to this view, a deliberate process that is not inordinately protracted during peacetime is highly desired. This is not an argument to reinforce a drawn-out unresponsive system that takes years to validate requirements, obtain funding and then to produce a useable capability. It is recognizing that some increased oversight and management can be accepted at lower risk when lives aren't immediately at stake.

There have been successful programs that have effectively modernized our Army during peacetime with a more deliberate process. The development of the Army's big five in the late 1970s and early 1980s are good examples of this. The big five refers to major Army development programs that have delivered the AH64 Apache attack helicopter (1983); the M2 Bradley fighting vehicle (1982); the M1 Abrams main battle tank (1979); the UH-60 Blackhawk helicopter (1979); and the Patriot air defense missile system (1981).⁷⁰ These combat systems took longer to develop during the Cold War

and were often criticized, but were produced, delivered, and integrated successfully within the force, and they still provide the fundamental basis for Army combat power today.

Our nation now faces a myriad of global threats and rapid change in the strategic operating environment. The US must be able to respond rapidly to these diverse challenges and emerging capability gaps quicker. As a result of this reality, the big five are not as adequately designed and tailored for the threats we face today or in the future as they were during the Cold War. The explosion of new technologies in the commercial marketplace is extraordinary, and the barrier for entry to procure new capabilities has been lowered significantly for our adversaries. States and non-state actors, who lack the intellectual capital, industrial base, or research capabilities, can now seek greater parity on the battlefield by buying and using commercially accessible capabilities against the US. For example, the availability of satellite imagery, global positioning systems, night vision technology and digital mapping capabilities like Google, ⁷¹Microsoft,⁷² and Wikimapia,⁷³ are readily obtainable in the commercial marketplace. This knowledge further promotes the need for agility in the DSS to continue to develop cutting-edge capabilities that provide the US a tactical and strategic advantage. Another component that provides a cutting edge advantage in the DAS is the management of risk in the process.

Risk's Role in the DAS Process

Risk plays a major role in sustaining the ability to remain agile in any program. Risk is a primary driver in all components of the DSS, but its impact is felt most in the DAS if not managed correctly. Risk drives the affordability, development, and scheduled delivery of capabilities in the DAS process. Risks must be identified, categorized, and

mitigated effectively.⁷⁴ There have been programs that failed to categorize their risks in understandable and manageable terms. Failing to recognize program risks and assign values to those risks and then implement a robust and realistic mitigation strategy have caused some high profile program failures within AC.⁷⁵

The magnitude of the impact of risk and the PM's ability to effectively mitigate its probability can spell the difference between program success and failure. Failing to address risk effectively can have wide ranging consequences. The failure to identify and control risks has further exacerbated the negative perception of the AC managing a lumbering process that fails to deliver timely capability.⁷⁶ There is room for improvement in managing and communicating risks that could promote agility.⁷⁷ Risk informs the manager about threats to the program's trinity - cost, schedule, and performance. Managers develop mitigation strategies to eliminate or minimize the impact of risks on the trinity. Unmanaged risks will strip any program of its ability to remain agile.

Risks must be assigned importance. Three separate components are used to classify risks. PMs must understand the most likely and most dangerous risks to program success. The first component of risk is identifying the future root cause. The second is the likelihood of occurrence. The third component of risk management is ascertaining the consequences of failure if the risk occurs. A visual depiction of an assessment of risk using a reporting matrix is represented in figure 2 below.⁷⁸ Once this has been completed, then the development of effective mitigation strategies ensues.

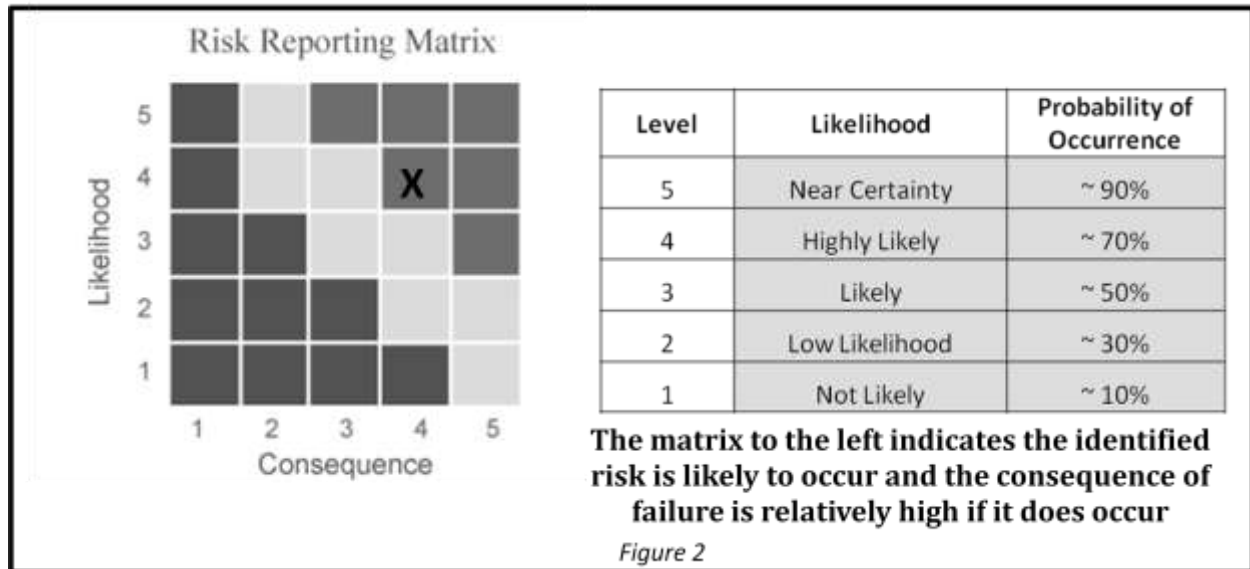


Figure 2. Risk Reporting Matrix

AC professionals understand this concept and are taught the importance of risk mitigation throughout their certification process.⁷⁹ AC certification is mandatory and involves a combination of both time spent in specific job positions as well as educational gates to qualify for increased positions of responsibility throughout an acquisition professional's career. As a result of this it is difficult to understand why the AC still has program risks that are marginalized and not correctly communicated to the key stakeholders. The failure to understand technical risk is not a unique phenomenon with new or immature technologies or capabilities. In this case, the technical risks should be assessed as high based upon their developmental uncertainty. Risk management is a continuous process of identifying, mitigating and re-assessing likelihood and consequences throughout the life of a program. This iterative process must be utilized effectively to maintain a level of program agility.

In light of this understanding, many program failures are the output of the unmanaged or un-communicated risk. This occurred with the FCS Program. FCS

pursued a multitude of medium risk developmental capabilities that required synchronization and integration. Cumulatively these risks were high because of the integration required and their maturity levels, but they were labeled as medium and that was never communicated to the stakeholders.⁸⁰ Un-communicated integration and technological risks drove FCS programmatic failure as costs increased and schedules continued to slip. High risks must to be reported and program expectations should be realistically shaped and communicated effectively. Managing risks and maintaining transparency promotes sound ethics and good stewardship and enables agility. Risk management does not happen by chance, it requires sound leadership, but is this important factor enough to overcome the perception challenges the AC faces?

The Role of Leadership

Extolling the virtues of leadership and the need for creating a positive work environment to improve responsiveness is important, but does not take primacy as a solution to the agile acquisition conundrum. Leadership as a conditional enabler is expected of all Army acquisition officers. Strategic leaders recognize that their role within any organization is to shape it in order to be holistically postured for anticipated challenges and continue future success.⁸¹ Strong fundamental leadership is important in any establishment, but the problem is much more complicated than some of my colleagues indicate.⁸² Yes, command climate and solid leadership are a prerequisite to promote efficiency, but it must be recognized that the Army remains a profession in tension against its own dual nature as a bureaucracy.⁸³ The AC professional becomes overly inundated with increased bureaucracy through oversight and reporting and this is counter-productive to agility. The AC struggles with this bureaucracy more so than the other branches. Acquisition leaders are more constrained by statute, regulatory

processes, and programmatic timelines than other branch in the Army. It must be recognized then that leadership alone cannot trump the burden of statutory requirements or solve fundamental process issues such as requirements creep, or a ponderous JCIDS process. Likewise leadership and command culture cannot accelerate the PPBE process that is needed for successful acquisition execution. However, it takes creative, insightful and knowledgeable leaders to implement and champion process change which is the fundamental component required for increased agility. It will take more than just creative and astute leadership to make that change effective in the AC. It will also include a transformation in how the AC promotes stewardship and improvements in the organizational culture of the profession.

The Role of Stewardship and Culture

Change must be broadly implemented to be successful. This further highlights that ethics, stewardship, and culture must play a greater role in obtaining increased agility in acquisition. These aesthetic attributes, are balanced between the tenants of regulatory and statutory guidance, and the need for speed in the delivery of modern technologies to our Army. Good stewardship, not increased oversight, drives the PM to execute within time, schedule and cost.⁸⁴ Likewise stewardship should also drive the PM to recommend termination of a program that is ineffective or has an inherent high risk of achieving success. However there is no incentive provided to the PM to recommend termination of a program that he or she manages. Fundamentally this is a flaw within our culture. Officers in these centrally selected command positions can become too personally linked to the success of the programs that they manage. They can lose sight of their primary responsibility as a steward and neglect to surface critical risks within the programs they manage, culturally believing they have failed as a PM if

they don't keep their program afloat. The Army could incentivize acquisition commanders to be more effective stewards by promoting the concept of terminating or drawing down the scope of ineffective programs that have unmanageable risks, or ones that continually fail to meet schedule with escalating costs.⁸⁵ An effort like this could result in improved hierarchical efficiency and shift cultural thinking among PMs and acquisition professionals. This also could improve stewardship of tax payer dollars and allow managers to become more personally de-coupled from the programs they lead. Such cultural shifts in thinking would require senior leader advocacy to implement, but could result in more successful programs, or rapid termination for others. Funds from these poor performers could be moved into a centrally managed "skunk works"⁸⁶ type of account that could be established by Congress. "Skunkworks have been credited with creating the U-2 spy plane, the B-2 Stealth bomber and the Macintosh computer."⁸⁷ Establishing such a fund would improve stewardship and stimulate innovation. The funds in this account could be reallocated to more successful or de-scoped programs, or used for increased agility for rapid technology insertions. This shift would incentivize better stewardship and reward successful programs. PMs that terminate programs could be realigned to lead some of the tech insertions or given the opportunity to lead prestigious special projects for DARPA. Cultural shifts like this that promote agility would gain further momentum if policy was aligned to help drive the change also.

The Role of Policy

Promoting agility in addition to cultural change through policy makes sense. Clearly articulated and broadly communicated policy that unifies the efforts of the AC could be very positive in achieving gains in agility. Furthering this concept would also require a fundamental shift in the willingness of major stakeholders to embrace and

promote change in the DSS SOS. Policy that directs improvements of the archaic staffing process for approval of requirements and reducing the self-imposed regulatory requirements could result in positive changes.⁸⁸ This shift in top-down communications could start with a more formal approach for developing and disseminating acquisition policy at a strategic level similar to national policy. Our national policy, which provides centralized and overarching guidance, seeks to accomplish objectives based upon the current environment and is effectively communicated throughout the strategic chain of responsibility and command.⁸⁹ Acquisition policy lacks this unified command emphasis that provides directive, yet adaptive flexibility to better align the profession with a common purpose. Our acquisition policy is aligned with national policy but holistic messages are rarely communicated to the acquisition professionals in order to achieve deliberate organizational direction and cultural change. For example, the Defense Acquisition Portal reveals a mountain of policy with no unifying guidance. There are 229 documents for acquisition logistics, 84 for software acquisition management, 112 for test and evaluation, 569 for procurement and contracting and 585 for program management and many more.⁹⁰ The acquisition community needs unifying policy guidance that drives agility and is more clearly derived from the National Security Strategy and better aligned with the National Military Strategy (NMS) and communicated through a consolidated document to the AC in the form of a National Acquisition Strategy across all the services. This acquisition policy should provide narrower guidance supporting the broad unclassified guidance of the NMS focusing on the geographic combatant commander's gap assessments derived from the more widely known Integrated Priority Lists.⁹¹ Additionally this policy should specify the

importance of temporal expedience. Unified AC policy guidance would result in improved cultural norms and understanding, focused efforts, and improved agility. Aside from policy, other challenges still remain when it comes to seeking agility. One of those issues is managing user desires and expectations, like the user's desire for the highest standard.

What is Good Enough?

It has been stated that perfection is the enemy of good enough. Ill-defined and expanding user requirements block the pursuit of agile acquisition. Everyone wants the best and this is a natural inclination of human nature. User's are enamored by new technologies and often desire the 'shiny penny' capability. This term refers to a solution that offers some added niche capabilities that are accompanied by an increase in cost and risk to both the development milestones and schedule.⁹² This occurrence has motivated a change in philosophy among leaders. Secretary of the Defense Gates, in testimony the Senate Armed Services Committee, recently spoke about this phenomenon stating, "I will pursue greater quantities of systems that represent the "75 percent" solution instead of smaller quantities of "99 percent," exquisite systems."⁹³ Secretary Gates recognized that the good enough philosophy served the Army institution and user community more effectively. The Army's operational user is the responsible stakeholder for managing requirements through the JCIDS process, and these requirements are often changed by the user after a program starts. As a result of this, the AC then must adapt and manage these changes with the increased risks and cost and schedule impacts when they occur.

Key performance parameters are also defined by the user. For the Army, an acceptable program baseline contains user-defined performance threshold values

validated by the JCIDS process.⁹⁴ Often these performance expectations can be set too high, increasing risks and limiting agility. These high expectations limit expediency for the AC and delay delivery of integrated capabilities to the Army. For example, Army General Williams S. Wallace (Ret.) directed the Program Executive Officer for Command, Control, Communications – Tactical (C3T), to deliver a ‘good enough’ digital command capability after leading the 2003 invasion into Iraq. In his role as the V Corps Commander, he witnessed first-hand the lack of standardization in infrastructure and digital interoperability, which made communications across the different formations extremely difficult on the march to, and occupation of Baghdad. The hodge-podge of equipment that had been procured by individual commanders to provide a basis of capability was not standardized. This further hampered the maintainers and supply chain’s ability to support the multitude of digital systems effectively. As a result of this, he coined the term “good enough.”⁹⁵ The term referred to a useable capability that is effective and provides value added, but is not the pursuit of the gold standard. This command guidance helped galvanize stakeholders and the AC to rapidly deliver an integrated capability. Wallace recognized ‘good enough’ technologies increased agility, and spurred the expedited delivery of what was then called Army Battle Command Systems (ABCS) to the entire Army. As a result of this effort the full complement of DOTMLPF functions were synchronized effectively throughout the force in support of the deployed suite of ABCS.⁹⁶ This ‘good enough’ concept is only a single component in a comprehensive solution for agility. Process change is also important and the JCIDs model of urgently needed capabilities might provide some options to speed the DSS.

In light of this, some could argue persuasively that MRAP should be the model for agility in the AC, because of how fast it was developed and delivered. However, even those professionals close to the program recognized that this urgent needs process is not the right fit for standard modernization.⁹⁷ Extending this authority to all requirements development in some hybrid manner might also improve agility. However that possibility is unlikely, because the legislative authority used for MRAP is governed by the Bob Stump National Defense Authorization Act (NDAA) for Fiscal Year 2003 and H.R. 4200 (108th): Ronald W. Reagan NDAA for Fiscal Year 2005 and they were designed specifically for urgent wartime needs to increase soldier survivability or react to an immediate enemy threat.⁹⁸ These NDAA's could serve as a baseline for new statutes that could re-engineer portions of the DSS to help improve the expedience of requirements approval. However, this solution is not a plausible option. Legislative action is out of the hands of the AC and requires mass consensus of the 535 stakeholders in the house and senate to enact change.

The results of urgent process are not always favorable either. The MRAP procurement outcomes were not efficient at the enterprise level, and this further supports the value of maintaining separate processes for standard acquisition and urgent needs. To illustrate this, the life-cycle cost and sustainment of the multitude of variants of MRAPs are not viable for the long-term. Yes, in war this urgent procurement made sense to reduce fatalities. However, the strategy for the multitude of separate MRAP variants translates to various supply chains and increased the costs and added burdens across the all the DOTMLPF domains. As a result, many MRAPs will be

shelved or sold because of this consequence.⁹⁹ So how as an Army do we modernize faster?

Modernization for Strategic Strength

Future modernization decisions will be difficult in the AC in a fiscally constrained era of dwindling resources as the US initiates a “rebalance toward the Asia-Pacific region.”¹⁰⁰ Strategic guidance also directs that, “Whenever possible, we will develop innovative, low-cost, and small-footprint approaches to achieve our security objectives.”¹⁰¹

The Army must also continue to modernize, emphasizing a “Smart Defense” approach to pool, share, and specialize capabilities as needed to meet 21st century challenges... we continue to buy more efficiently and use resources wisely targeting specific capabilities.¹⁰²

The emerging threats and changes in the operational environment will drive requirements for improved network and cyber capabilities and agile acquisition must be implemented effectively to support the strategic guidance and the operational gaps identified by the combatant commanders to meet these challenges.

Army leaders continue to demand a responsive acquisition process to effectively implement the military arm of national power. Leaders seek more operational flexibility through the development of capabilities that can destroy or incapacitate adversaries without extensive collateral damage. Senior leaders highlight the strategic importance of tempering the lethal means we use to achieve our ends and to avoid non-combatant casualties. Innovative and non-lethal technologies can now offer leaders scalable alternatives to achieve these strategic ends.¹⁰³

The Commandant of the Marine Corps General James F. Amos supports the versatility that nonlethal munitions offer stating they promote a commander's freedom of action and should offer precise and incapacitating effects.

Non-lethal effects are part of the Department of Defense portfolio of capabilities that enhance the Joint Force Commander's ability to act in a timely manner to detect, deter, prevent, defeat, or, if necessary, mitigate effects of an attack.¹⁰⁴

As a result of this reality the R&D of non-lethal technologies in the AC continues. Acoustic and heat weapons designed to incapacitate or deter access are among those being matured for use on the battlefield. These weapons and others will offer senior leaders alternative means to achieve their ends while increasing soldier survivability. They are strategic enablers. It is important to note that the AC is advancing these systems to sustain our military superiority and a multitude of these capabilities have already been fielded to the Army including non-lethal grenades¹⁰⁵ and shotgun munitions.¹⁰⁶ There have been the recent developments of laser guns that mimic the discharge of lightning bolts to fry vehicle electronics and to detonate unexploded ordinance.¹⁰⁷ These are just some of the advanced capabilities being developed or used by the force and managed by the AC who are striving to use agile acquisition to rapidly develop capabilities that enable our Army and strategic leaders to achieve our national aims now and in the future.

In addition, the Army is also pursuing more deliberate enterprise approaches to improve agility and modernize faster. The Network Integration Evaluation (NIE) for example, is one initiative to help accelerate the testing, integration and fielding of new capabilities.¹⁰⁸ NIE provides a collective environment for expedited validation and integration of promising technologies. However, the NIE also has some drawbacks.

Many businesses pay their own way to participate in these events are losing the incentive to return, because virtually no capability has been bought and fielded thus far by the Army. Additionally some PMs view the event as just another program requirement and additional resource drain against an already overburden DAS process. In spite of these criticisms the Army believes that the NIEs will provide a more agile environment to leverage government and commercial technologies and conceptually this makes sense. However the Army must adopt some of these advanced technologies that will incentivize continued participation and its enduring success.

Conclusion

The responsibility of the AC in manning and equipping the Army is an extremely important function. This AC task is directly linked to the Army's ability to generate combat power and provide the weapons and enabling capabilities the force needs to prevent, shape and defeat our adversaries in any environment. The AC does more than just deliver weapons and capabilities to the force. They develop a cradle to grave approach and build all elements within the DOTMLPF construct to train, sustain and institutionalize these capabilities. The AC still must be able to respond more quickly to the needs of the force. It has done this effectively in the past with the development of the big five during the Cold War and with the rapid innovation and deployment of critical capabilities over the last decade plus of war in Iraq and Afghanistan, but it still must improve. The AC must articulate this message of success more effectively to help change the perception of our senior leaders. The acquisition community must also implement change to increase acquisition agility further today.

The AC is the face of the DSS SOS to the strategic leaders of today. Those leaders must be further educated by engagement to understand that the AC owns and

manages only one component in that SOS construct, but plays a role in all facets of the DSS. There are elaborate processes, oversight, staffing and management involved the DSS that slow the SOS process and inhibit speed and efficiency. It therefore should not be surprising that the calls for acquisition agility continue. The SOS is complex and requires a systems approach and understanding before attempting change. Through a system's view there is the knowledge that any inject into the system will have second and third order effects – some positive and some negative. With most system's views the result of these injects often will not be clearly known or understood immediately but small changes can produce significant shifts in complex systems.¹⁰⁹ If we understand the environment we can then recognize the impediments to achieve the desired outcomes.¹¹⁰ Not until leaders understand the entire DSS SOS process are they then equipped to tailor the elements within it by applying select changes within that complex logic to enable agility.¹¹¹

Leaders must understand the risks and limitations of the overall DSS and look to see where realistic change can be made. The AC first can make some changes and improve the way it does business by more effectively balancing risks with efficient communication, management and mitigation. Also, reducing oversight would serve to reduce program risk not heighten it. TRADOC also must seek to build living requirements documents in the JCIDS process that have more flexible and open language that is tailored to address the user's emerging needs, and this methodology should be readily embraced and endorsed at the JROC validation process.

Other best practices to implement within the DSS include time certain development for staffing within JCIDS to reduce the protracted time it takes to gain

validation.¹¹² The staffing process for the development and approval of requirement documents must be shortened. There have been some changes incorporated into the 2012 update for the JCIDS guidance that tries to address this through mandated staffing timelines, but do they go far enough? Time will inform us if requirements documents are more rapidly approved by the JROC and subcommittees as a result of these changes.

The annual POM cycle in the PPBE process will continue. The time horizon for the POM methodology has been modified throughout the years,¹¹³ but it is still too rigid and the budgets too volatile. The US economy and cuts to defense have made this process even more unpredictable as almost all estimates have been modified and changed. The time horizon for the POM should be shortened to three years to be more realistic in terms of cost estimates and allow for flexibility in the out years. Many will cringe at this idea, but leaders must understand that even small decrements to program budgets have a ripple effect and heighten risks across the entire program trinity - cost schedule and performance. Until DoD is able to firmly lock in budgets for programs and adequately fund the capabilities expected from these programs we will continue to inhibit our agility in this area of the DSS and ask our DAS PMs to remain creative and flexible in managing volatile budgets and the high risk programs that result from this volatility.¹¹⁴ PPBE funding should also more closely align with the actual projections for program costs to avoid heightened program risk from the start. This thought aligns with a recent congressional research report and would help to reduce the unhealthy competition for funds that often encourage poor stewardship where customers and PMs pursue overambitious programs and underestimate their costs.¹¹⁵ Former Secretary of Defense Gates also agrees with this stating, “Additional steps to tackle the issue of cost

and schedule growth in weapon system acquisitions are needed.” Specifically, he called for stopping programs that significantly exceed budget, do not meet current military needs, or do not have sufficiently mature technology.¹¹⁶ These efforts are not a bridge too far to implement and incremental changes are possible and need to be made.

Some congressional reform is moving in the right direction including The *Implementing Management for Performance and Related Reforms to Obtain Value in Every Acquisition Act of 2010 (H.R. 5013.)* Section 103 of this act would require DoD to implement a method to improve the time it takes to acquire a weapon, control requirements creep, and track certain types of information, including how long it takes to validate a requirement, the quality of cost information, and the quality of information on sustainment.¹¹⁷ How effectively the act is implemented remains to be seen.

In the DAS process some fundamental shifts must be made to more effectively manage risks, increase stewardship and change our cultural norms. We can start getting there through cultural and organizational change and a unified acquisition policy. Strategic leaders must lead this change and policy objectives promoting agility must be clearly stated so that all the acquisition professionals and stakeholders in the DSS understand the intent and strive to implement expediency effectively across the enterprise and SOS. Policy must help drive these changes effectively. The DAS is too compartmentalized across the services and consolidated unified policy guidance would shape cultural change and provide a more synchronized approach that would help to improve agility. Policy and regulatory burden are overwhelming the DAS and the growth in regulations and statutes must be reduced. Increasing burdens have the exact opposite effect of what they were initially intended for. They are not reducing risks. They

are heightening risks and making the job of the PM much more difficult and slowing the entire process. If a concerted effort is not made to curtail the growth in this area the goal of agility will be lost.

Cultural norms for the ACC must be shifted to incentivize PMs to make difficult decisions and either de-scope or terminate programs, which would result in improved stewardship in acquisition and free-up funding for other successful or innovative efforts. The Nunn McCurdy Act that recommends termination for cost growth greater than 25% should be rigorously enforced and certifying exceptions to this rule rarely granted.¹¹⁸ De-scope or terminate poor performing programs and incentivize the DAS community to do this. Senior leaders and DoD must encourage Congress to establish the creation of a skunkworks account to consolidate dollars from programs that fail to perform and use these funds on more successful programs or innovative advancements. This could increase agility for rapid technology insertions and modernization. This shift would incentivize better stewardship and management and reward successful programs and help to shift cultural norms.

Finally the pursuit of the best capability accompanied with escalating costs and risk, must be balanced with the knowledge that 'good enough' is the best course of action. Good enough doesn't imply mediocrity. It shapes the pursuit of modernization more realistically with regards to costs, risks, and expectations. The output of this concept is still a superior product and capability, and the Army user must recognize this. Modernization demands agility and we must continue to expand our ability to leverage commercial technologies and encourage rapid innovations. The NIE construct must adopt some of the capabilities that have been successfully demonstrated at those

events and continue to provide incentives to our industrial base to respond to the emerging needs of the force as we implement the 2012 strategic guidance.

Our nation must be prepared to leverage the latest technologies and get them to the field faster where they can save lives, reduce collateral damage, and more readily achieve our strategic objectives to deter potential threats, and protect our nation. This will require a simpler SOS process to sustain cutting edge military superiority and innovation as we deal with emerging threats and powers in a global environment.

The AC will remain managers of process and seek to remain relevant and efficient even with increasing resource austerity while navigating a difficult and protracted DSS SOS with escalating oversight. The AC continues to illustrate its resiliency and innovation, seeking unique ways to mitigate risks and rapidly deliver critical capabilities to the force in spite of aforementioned restraints. PMs continue to make proactive decisions within their title 10 authority for unexpected budget decrements and develop flexible contract vehicles to support agility in development and the life cycle management of their programs. Congress and senior leaders must reduce, not increase the regulatory guidance and learn and understand the full DSS SOS process to make informed decisions and drive meaningful change. In the interim, the selection for PMs remains highly competitive and those given the privilege to lead and manage defense programs act with the best motives to develop the capability for their operational users. They do this while balancing risk, simultaneously equipping and training soldiers – often in combat zones - and building the institutional learning centers to sustain the force and concurrently keeping key stakeholders informed of program progress and challenges. The AC will continue to maximize efficiency and work within

the constraints of the DAS to maintain a strategic edge and to help generate combat power and enablers to fight and win our nation's wars while seeking every opportunity to do this in an agile manner.

Endnotes

¹ Peter G Tsouras, *Warrior Words: A Dictionary of Military Quotations* (New York, NY: Sterling Publishing, 1994), 223.

² Rene G Rendon, Keith F. Snider, "Congressional Restraint is Key to Successful Defense Acquisition reform," (Washington, DC, The Heritage Foundation, October, 19, 2005) 4.

³ The framework granting authority for DoD to develop, produce, and field weapon systems emanates from two sources: the law (legal basis), and executive branch policy that includes executive direction (Executive Orders (EOs)) of the President, Office of Management and Budget (OMB) Circulars, and National Security Council (NSC) Directives), and other directives and regulations such as Office of the Secretary of Defense, The Defense Acquisition System, DoD Directive 5000.1, (Washington, DC: Acquisition Technology and Logistics, May 12, 2003), and the Federal Acquisition Regulation (FAR). *Glossary: Defense Acquisition Acronyms and Term*, (Fort Belvoir, VA: Defense Acquisition UP, 2009), B-13.

⁴ J. Ronald Fox. *Defense Acquisition Reform 1960-2009: An Elusive Goal* (Center of Military History, Washington, DC, 2011), 14.

⁵ In 2005, DoD established one Acquisition Corps under the regulatory guidance provided by DoD 5000.52. All DoD Component acquisition corps were subsumed under this construct. Under Secretary for Defense, *Defense Acquisition, Technology, and Logistics Workforce Education, Training and Career Development Program* DoD 5000.52 (Washington, DC: USD Acquisition Logistics and Technology, January 12, 2005).

⁶ "Acquisition," Merriam-Webster. <http://www.merriam-webster.com/dictionary/acquisition>. (accessed December 12, 2012).

⁷ "Acquire," Merriam Webster Dictionary." M-W.com. <http://www.merriam-webster.com/dictionary/acquire> (accessed December 12, 2012).

⁸ "Agile," Merriam Webster Dictionary." M-W.com. <http://www.merriam-webster.com/dictionary/agile> (accessed December 12, 2012).

⁹ John Sickles, "Spencer Rifles and Carbines," *Military Images* 29, no. 2: (September-October 2007): 31, in ProQuest (accessed January 10, 2013).

¹⁰ This dialogue occurred in 2000 during the now defunct Material Acquisition Management (MAM) Course that was taught at Ft. Lee. The MAM course was the primary training course for officers being accessioned into AC to provide fundamentals of acquisition for thousands of graduates. This supposition is supported by other sources included the previous citation at, Sickles, "Spencer Rifles and Carbines," 30-33.

¹¹ The Spencer rifle acquisition reference is an easy way to help us understand the importance of timely acquisition decisions. It is an extremely important message regarding the value of agility and how equipping decisions impact the lethality and survivability of our troops. See, Sickles, "Spencer Rifles and Carbines," 30-33.

¹² Marilyn Wood Daudelin. "Learning from Experience through Reflection," *Organizational Dynamics*, Volume 24 (Winter 1996): 11, in ProQuest (accessed December 12, 2012).

¹³ *Innovation for America's Economy, America's Energy, and American Skills: Science, Technology, Innovation, and STEM Education in the 2013 Budget*, White House Office of Science and Technology Policy, Fiscal Year 2013 (Washington, DC, February 13, 2012), 2.

¹⁴ Tom Gjelten. "U.S. Now Relies On Alternate Afghan Supply Routes." National Public Radio. <http://www.npr.org/2011/09/16/140510790/u-s-now-relies-on-alternate-afghan-supply-routes> (accessed January 30, 2013).

¹⁵ Ed Lopez. "Facilities, Personnel Converge on Army Enterprise Concept," June 29, 2009, The Official Homepage of the U.S. Army, http://www.army.mil/article/23598/Facilities_personnel_converge_on_Army_Enterprise_concept/ (accessed December 10, 2012).

¹⁶ Ibid.

¹⁷ Chairman of the Joint Chiefs of Staff Instruction CJCSI 3170.01H, *Joint Capabilities Integration and Development System*, CJCSI 3170.01H (Washington, DC: Chairman of the Joint Chiefs of Staff, January 10, 2012), 2.

¹⁸ Institute of Land Warfare. "The U.S. Army Capstone Concept: Defining the Army of 2020, "Association of the U.S. Army, Defense Reports," <http://www.au.s.a.org/publications/ilw/DigitalPublications/Documents/dr13-1/index.html> (accessed February 6, 2013).

¹⁹ Ibid.

²⁰ The VCSA voiced his frustration with what he perceived as an ineffective slow and cumbersome Acquisition process to those assembled and he attributed this lack of expediency to the AC. General Peter Chiarelli, Vice Chief of Staff of the Army (VCSA), brief at an NDIA conference, Washington, DC 2010).

²¹ Sandra I. Irwin. "Army's Vice Chief: 'We Have to Speed Up How We Buy Things.'" *Defense Magazine*, Oct 2009, <http://www.nationaldefensemagazine.org/archive/2009/October/Pages/Army'sViceChief'WeHavetoSpeedUpHowWeProcureThings'.aspx> (accessed February 6, 2013).

²² The statement was made during a senior leader brief that supports this discussion and the author was present for. There is a non-attribution policy at the U.S. Army War College and permission to attribute any specific quote regarding this dialogue was not requested or obtained, U.S. Army War College, Carlisle Barracks, PA.

²³ One example of this is a methodology was the development of quarterly release developed and leveraged by the Program Executive Officer for Command, Control, and Communications – Tactical (C3T). Regular software updates were developed for Mission

Command Systems and deployed as increased capability during combat operations in Iraq and Afghanistan. See diagram on page 17, MG Harold Greene, et al. *"Command Post Of The Future: Successful Transition Of A Science And Technology Initiative To A Program Of Record,"* A Publication of the Defense Acquisition University (2010), http://www.dau.mil/pubscats/PubsCats/AR_Journal/arj53/Greene53.pdf (accessed February 6, 2013).

²⁴ New digital systems like the Command Post of the Future (CPOF) help decompose and synthesize a large amount of information during chaotic combat situations that demand quick decisions by leaders. The system has fundamentally changed the way that U.S. Army staffs visualize, collaborate and manage information in their operations centers. "U.S. Army's Common Operating Picture Tool Continues to Evolve," *Targeted News Service*, (December 5, 2012): in ProQuest (accessed February 26, 2013).

²⁵ MG Harold Greene, et al. *"Command Post of the Future: Successful Transition of a Science and Technology Initiative to a Program of Record."* A Publication of the Defense Acquisition University (2010), http://www.dau.mil/pubscats/PubsCats/AR_Journal/arj53/Greene53.pdf (accessed February 6, 2013).

²⁶ An Acquisition program as defined by the Defense Acquisition University is a directed, funded effort that provides a new, improved, or continuing materiel, weapon, or information system or service capability in response to an approved need. Acquisition programs are divided into categories that are established to facilitate decentralized decision making, execution, and compliance with statutory requirements. Office of the Secretary of Defense, The Defense Acquisition System, DoD Directive 5000.1, (Washington, DC: Acquisition Technology and Logistics, May 12, 2003). See Acquisition Category (ACAT).

²⁷ "U.S. Army's Common Operating Picture Tool Continues to Evolve," *Targeted News Service*, (December 5, 2012): in ProQuest (accessed February 26, 2013).

²⁸ Product Manager Tactical Battle Command, *"CPOF 10.0.1 Decision Brief to BG N. Lee Price, PEO C3T,"* briefing slides, Aberdeen Proving Ground, MD, PM Battle Command, PEO C3T, August 11, 2010.

²⁹ Picatinny Public Affairs Office, The Official Homepage of the United States Army, *"Army Begins Shipping Improved 5.56mm Cartridge,"* <http://www.army.mil/article/41283/army-begins-shipping-improved-556mm-cartridge/> (accessed January 10, 2013).

³⁰ The common operational picture is an operational picture tailored to the user's requirements, based on common data and information shared by more than one command. The availability of a common operational picture facilitates mission command. The common operational picture lets subordinates see the overall operation and their contributions to it as the operation progresses. Found at Department of the Army, *Operations*, Field Manual 3-0 (Washington, DC: U.S. Department of the Army, February, 2008), C-1.

³¹ *Army Deploys 300th RAID Tower, Supporting Forward Base Protection by Persistent Surveillance and Dissemination System PSDS2*, at http://www.defense-update.com/features/2008/november/231108_psd2 RAID_sensors.html (accessed December 20, 2012).

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biographical, and contextual data on persons of interest and matches it against an internal database, downloaded directly from the BAT via a tether. Information found at, Jody Kieffer and Kevin Trissell, "DOD Biometrics—Lifting the Veil of Insurgent Identity," *Army AL&T*, April-June 2010, 16.

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⁴³ Ibid., B-9.

⁴⁴ Ibid., A-10.

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⁴⁶ U.S. Deputy Secretary of Defense Ashton B. Carter, "Director of Cost Assessment and Program Evaluation (DCAPE)," Department of Defense Directive Number 5105.84, Washington, DC, May 11, 2012.

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⁷⁴ Office of the Secretary of Defense, *Operation of the Defense Acquisition System*, DoD Directive 5000.2, 18.

⁷⁵ Major General Harold J. Greene Deputy for Acquisition and Systems Management (DASM), interview by author, Washington, DC, November 19, 2012.

⁷⁶ General Peter Chiarelli, Vice Chief of Staff of the Army (VCSA), brief at an NDIA conference, Washington, DC 2010).

⁷⁷ The resulting failure to categorize and communicate the impact of risk effectively to Army users, senior leaders, and other stakeholders has often resulted in unnecessary expenditures of critical resources. Major General Harold J. Greene Deputy for Acquisition and Systems Management (DASM), interview by author, Washington, DC, November 19, 2012.

⁷⁸ Defense Acquisition Portal, "Risk reporting Matrix," https://acc.dau.mil/docs/plt/se/risk/matrix/dod_risk_matrix.htm (accessed December 15, 2012).

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community that have specific education standards that must be met through the successful completion of coursework at an accredited academic institution of higher education i.e., college or university. These standards are also referred to as education requirements or “positive” education requirements.

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¹¹⁶ *Ibid.*, 17.

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