

WEAPON SYSTEMS ACQUISITION REFORM OF 2009 – ANALYSIS AND RECOMMENDATIONS

BY

LIEUTENANT COLONEL JAMES S. ROMERO
United States Army

DISTRIBUTION STATEMENT A:

Approved for Public Release.
Distribution is Unlimited.

USAWC CLASS OF 2011

This SRP is submitted in partial fulfillment of the requirements of the Master of Strategic Studies Degree. The views expressed in this student academic research paper are those of the author and do not reflect the official policy or position of the Department of the Army, Department of Defense, or the U.S. Government.



U.S. Army War College, Carlisle Barracks, PA 17013-5050

The U.S. Army War College is accredited by the Commission on Higher Education of the Middle State Association of Colleges and Schools, 3624 Market Street, Philadelphia, PA 19104, (215) 662-5606. The Commission on Higher Education is an institutional accrediting agency recognized by the U.S. Secretary of Education and the Council for Higher Education Accreditation.

REPORT DOCUMENTATION PAGE				Form Approved OMB No. 0704-0188	
Public reporting burden for this collection of information is estimated to average 1 hour per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing this collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden to Department of Defense, Washington Headquarters Services, Directorate for Information Operations and Reports (0704-0188), 1215 Jefferson Davis Highway, Suite 1204, Arlington, VA 22202-4302. Respondents should be aware that notwithstanding any other provision of law, no person shall be subject to any penalty for failing to comply with a collection of information if it does not display a currently valid OMB control number. PLEASE DO NOT RETURN YOUR FORM TO THE ABOVE ADDRESS.					
1. REPORT DATE (DD-MM-YYYY) 07-04-2011		2. REPORT TYPE Strategy Research Project		3. DATES COVERED (From - To)	
4. TITLE AND SUBTITLE Weapon Systems Acquisition Reform of 2009 – Analysis and Recommendations				5a. CONTRACT NUMBER	
				5b. GRANT NUMBER	
				5c. PROGRAM ELEMENT NUMBER	
6. AUTHOR(S) Lieutenant Colonel James S. Romero				5d. PROJECT NUMBER	
				5e. TASK NUMBER	
				5f. WORK UNIT NUMBER	
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) Professor Harold W. Lord Department of Command, Leadership, and Management				8. PERFORMING ORGANIZATION REPORT NUMBER	
9. SPONSORING / MONITORING AGENCY NAME(S) AND ADDRESS(ES) U.S. Army War College 122 Forbes Avenue Carlisle, PA 17013				10. SPONSOR/MONITOR'S ACRONYM(S)	
				11. SPONSOR/MONITOR'S REPORT NUMBER(S)	
12. DISTRIBUTION / AVAILABILITY STATEMENT Distribution A: Unlimited					
13. SUPPLEMENTARY NOTES					
14. ABSTRACT Acquisition reform efforts to improve how we procure weapon systems have been ongoing since the establishment of large standing defense forces in the United States. These efforts are usually focused on reducing cost, increasing efficiency, and preventing the failure of major programs. For a number of reasons these efforts have generally been met with mixed levels of success. In 2009, Congress once again decided to take action to modify how we develop and procure weapon systems in the Department of Defense (DOD) by passing the Weapon Systems Acquisition Reform Act (WSARA) of 2009. This paper includes an analysis of each section of WSARA and its expected impact on major defense acquisition programs (MDAPs). It also includes an explanation of how future reform efforts should be initiated by each of the services, focusing on the requirements generation process, which is consistently the source of problems in major development programs.					
15. SUBJECT TERMS WSARA, Requirements, Development, Procurement, Program Management					
16. SECURITY CLASSIFICATION OF:			17. LIMITATION OF ABSTRACT UNLIMITED	18. NUMBER OF PAGES 34	19a. NAME OF RESPONSIBLE PERSON
a. REPORT UNCLASSIFIED	b. ABSTRACT UNCLASSIFIED	c. THIS PAGE UNCLASSIFIED			19b. TELEPHONE NUMBER (include area code)

USAWC STRATEGY RESEARCH PROJECT

**WEAPON SYSTEMS ACQUISITION REFORM OF 2009 – ANALYSIS AND
RECOMMENDATIONS**

by

Lieutenant Colonel James S. Romero
United States Army

Professor Harold W. Lord
Project Adviser

This SRP is submitted in partial fulfillment of the requirements of the Master of Strategic Studies Degree. The U.S. Army War College is accredited by the Commission on Higher Education of the Middle States Association of Colleges and Schools, 3624 Market Street, Philadelphia, PA 19104, (215) 662-5606. The Commission on Higher Education is an institutional accrediting agency recognized by the U.S. Secretary of Education and the Council for Higher Education Accreditation.

The views expressed in this student academic research paper are those of the author and do not reflect the official policy or position of the Department of the Army, Department of Defense, or the U.S. Government.

U.S. Army War College
CARLISLE BARRACKS, PENNSYLVANIA 17013

ABSTRACT

AUTHOR: Lieutenant Colonel James S. Romero

TITLE: Weapon Systems Acquisition Reform of 2009 – Analysis and Recommendations

FORMAT: Strategy Research Project

DATE: 7 April 2011 WORD COUNT: 7,513 PAGES: 34

KEY TERMS: WSARA, Requirements, Development, Procurement, Program Management

CLASSIFICATION: Unclassified

Acquisition reform efforts to improve how we procure weapon systems have been ongoing since the establishment of large standing defense forces in the United States. These efforts are usually focused on reducing cost, increasing efficiency, and preventing the failure of major programs. For a number of reasons these efforts have generally been met with mixed levels of success. In 2009, Congress once again decided to take action to modify how we develop and procure weapon systems in the Department of Defense (DOD) by passing the Weapon Systems Acquisition Reform Act (WSARA) of 2009. This paper includes an analysis of each section of WSARA and its expected impact on major defense acquisition programs (MDAPs). It also includes an explanation of how future reform efforts should be initiated by each of the services, focusing on the requirements generation process, which is consistently the source of problems in major development programs.

WEAPON SYSTEMS ACQUISITION REFORM OF 2009 – ANALYSIS AND RECOMMENDATIONS

Since the establishment of large standing defense forces in the United States it has often been the case that politicians or policymakers have sought to improve how we procure weapon systems.¹ These efforts are usually focused on reducing cost, increasing efficiency, and preventing the failure of major programs. For a number of reasons these efforts have generally been met with mixed levels of success.² In many cases, the changes to policy simply result in more oversight, more reporting, and less efficiency. In other cases, the changes to policy could work, but do not because the services resist the changes and do not implement the spirit of the new policies. In either case, the efficacy of Congressional or Office of the Secretary of Defense (OSD) directed reforms is inconsistent. Despite this inconsistent record of success, many previous reform efforts remain in place, while new ones are constantly being introduced.

In 2009, Congress once again decided to take action to modify how we develop and procure weapon systems in the Department of Defense (DOD) by passing the Weapon Systems Acquisition Reform Act (WSARA) of 2009. The intent of this legislation was to address cost growth and technical risk of major development efforts.³ The approach for this legislation was to make changes to the DOD acquisition organization and to acquisition policy. While there are many changes contained within this legislation, it will do little to ensure that cost growth and technical risk are contained. Its impact will be to increase cost, especially early in a program's development, and to make it easier to terminate programs. The analysis of each section of WSARA that follows will show why this is true. In addition to this analysis, an explanation of how true

acquisition reform could be initiated by each of the services is provided. This explanation will include a discussion of how internally generated reform should focus on the requirements generation process, which is consistently the source of problems in major development programs.

The provisions of WSARA are broken into two main categories. First, Title I addresses changes to the acquisition organization within OSD. Second, Title II addresses changes to acquisition policy. There is also a Title III, which is relatively short, and addresses awards for DOD acquisition personnel for excellence in acquisition of products and services. Since Title III does not address substantive changes to the acquisition organizations, policy, or processes, it will not be covered in the scope of this analysis.⁴

The organizational changes in Title 1 of WSARA of 2009 are divided into five sections, 101 through 105. Section 101 establishes a Director of Cost Assessment and Program Evaluation (CAPE). Under the CAPE director there are two deputy directors, one for cost assessment and one for program evaluation. The cost assessment deputy is given the responsibility to “ensure that the cost estimation and cost analysis processes of the DOD provide accurate information and realistic estimates of cost for the acquisition programs of the DOD.”⁵ This includes associated tasks such as establishing cost estimating procedures, reviewing program cost estimates, creating independent cost estimates, and reporting annually on cost assessment activities.

The organizational changes to the cost estimating portion of OSD in this section of WSARA are fairly significant. First, creating the new CAPE organization combines the two offices previously known as the Cost Analysis Improvement Group (CAIG) and

Program Analysis and Evaluation (PA&E). Also, this new CAPE Director is a congressionally mandated position, to be appointed by the President and confirmed by the Senate. As with the previous PA&E and CAIG, this new director also has direct reporting authority to the Secretary of Defense (SecDef).⁶ This change clearly indicates that Congress wants more influence over those who are in key positions that affect program analysis and cost estimating efforts for major defense acquisition programs (MDAPs). Also, mandating the CAPE position as politically appointed has the effect of elevating its importance and visibility as well. The assumption here is that by creating a position that is more powerful and more accountable to Congress, the organizations supervised by that position will do a better job than in the past. However, if that was Congress's intent, it seems that they did not go far enough to achieve the desired effect. First of all, the CAPE Director is still part of OSD, even though it is also required to report directly to Congress. This will clearly place the CAPE director in potential conflict of interest as he or she is "both a trusted advisor to the defense secretary and also an informant to an often adversarial Congress."⁷ While this is generally true with regard to all political appointees, this brings a new level of complexity to the cost estimation portion of OSD. The end result will be that Congress will have more influence over cost estimates and program evaluation efforts and may get a clearer picture on the health of programs. However, having more influence does not translate into better work by the organizations and better success for programs. It seems more likely that products from the CAIG and PA&E may get worse. This is because the most experienced people in these organizations will likely be diverted to prepare new mandatory annual reports to Congress. This will leave the remaining portions of the CAIG and PA&E short staffed

and short on experience. Therefore, the depth of their analysis will likely suffer. Even if their work was to improve, however, that does not mean that programs will be more successful.

Congress's focus on obtaining better cost estimates for programs early in the development process is an indication that it believes that inaccurate cost estimates are responsible for cost overruns during development. It shows that they also believe it is possible to obtain better cost estimates. While this seems like a reasonable inference to make from the observed cost overruns of many programs, does it really provide the entire picture?⁸ As an example, if you look at the case studies of many of the programs that experience cost overruns, you will observe that there are many other variables that led to increases in cost.⁹ With regard to the accuracy of cost estimates for programs, it is a defining characteristic of new development programs that all the work required to achieve the needed capability is not fully defined. While everyone involved in the acquisition process would like more accurate cost estimates, it remains a fact that cost estimating is as much an art as it is a science at the beginning of a major program's development. Demanding greater confidence levels for cost estimates so early in a program's maturity will likely have little impact on the probability of a cost overrun later. This is because cost estimates are not the primary cause of cost overruns.¹⁰ Also, in the cases where cost estimates were a major factor, it is likely that either the best experts were not able to accurately project the true costs of the program or there was enough uncertainty to minimize the baseline estimate, despite confidence levels required.

Section 102 establishes a Director of Developmental Test and Evaluation (DT&E) and a Director of Systems Engineering (SE). The Director, DT&E is to be the principal advisor to the SecDef and the USD (AT&L) on developmental test and evaluation issues. This includes establishment of policies and guidance for the conduct of developmental test and evaluation in DOD, reviewing planned developmental test activities as part of test and evaluation master plans (TEMPs), and monitoring developmental test activities of major defense acquisition programs. The Director of SE is the principal advisor to the SecDef and USD (AT&L) on systems engineering and development planning. This includes developing policies and guidance for the systems engineering principles and practices, use of systems engineering to enhance reliability, availability, and maintainability, the development of systems engineering master plans, and the inclusion of systems engineering provisions in requests for proposals for MDAPs. Additionally, both the Director DT&E and Director SE are directed to ensure that the test and evaluation and systems engineering efforts are fully integrated across both domains.¹¹

The changes to the director DT&E and SE are not likely to have a significant impact on the success or failure of development programs. This is because the responsibilities of these positions did not come with any specific mandates that would result in a change to how programs are run. It is clear that they are responsible for policies and procedures with regard to DT&E and SE, but there are already offices in OSD with those oversight responsibilities and they already have established policies and procedures. In fact, early indications are that many programs have not changed their practices. One example is that they are not “holding early systems engineering

reviews, to ensure there is a match between requirements and resources.”¹² Since the program practices are not changing, yet the oversight from DT&E and SE offices is likely to increase, the WSARA changes in this area will most likely increase the program costs. These increased costs will come from the addition of testing and systems engineering analysis and the collection of data to support the annual reports that both these offices must make to Congress.¹³ There will be new government and contractor activities required for these added efforts which will result in two sources of greater cost.

Section 103 directs the Secretary of Defense to designate a senior official to be “responsible for conducting and overseeing performance assessment and root cause analysis for major defense acquisition programs.”¹⁴ This official is responsible to conduct performance assessment of MDAPs, conduct root cause analysis for shortcomings in cost, schedule, or performance, and to issue guidance with regard to the policies and procedures governing the conduct of performance assessments and root cause analysis efforts.¹⁵

The changes directed in Section 103 will not have a significant impact on the likelihood that a program will exceed its cost, schedule, or performance. This is because this provision is targeted primarily at programs that are already in trouble. By the time a program is in trouble, it is often too late to make the necessary changes to restructure the program for success. Furthermore, when an MDAP breaches its mandatory reporting thresholds, there is already an incredible amount of oversight that takes place before the program can proceed, to include root cause analysis. This provision simply formalized that oversight and creates a permanent position with that responsibility. While it is not entirely clear what Congress’s motivation was for this

provision of WSARA, it will not have the effect of improving program success or reducing risk. Programs have long been in a situation where exceeding certain thresholds would trigger increased oversight and “Red Team” investigations to analyze root causes. This threat did not stem the tide of programs overrunning their baseline targets and it does not seem likely that mandatory root cause analysis and oversight by a designated office will have any better effect. As mentioned earlier, the best analysis done too late in the process will not change behavior or prevent program failure. It would be better to have reform efforts “aimed at fixing the underlying problems, for which Nunn-McCurdy breaches are just the symptoms.”¹⁶

Section 104 directs the Director, Defense Research and Engineering (DDRE) to “periodically review and assess the technological maturity and integration risk of critical technologies of major defense acquisition programs.”¹⁷ The director DDRE is also required to submit an annual report summarizing those findings. This section is not likely to have a significant impact on the success or failure of major programs. This is because critical technology elements and integration risk are already part of the milestone approval framework for major programs.¹⁸ Conducting additional reviews and reporting of technological maturity and integration risk on an annual basis, not associated with any program decisions, does not add value to the development process. It will, however, increase the cost of major programs by some marginal amount. This is based on the additional technical maturity analysis and integration risk analysis needed to support the reports that DDRE will be making to Congress.¹⁹ Also, in many cases, this analysis will have to be supported by additional test articles and subsystem level testing.

Section 105 directs that the Joint Requirements Oversight Council (JROC) seek input from the combatant commands for joint requirements. Also, the Comptroller General, who is also the head of the U.S. Government Accountability Office, is required to submit a report to Congress on “the extent to which the Council has effectively sought, and the commanders of the combatant command have provided, meaningful input on proposed joint military requirements.”²⁰ This section will not have a significant impact on the success or failure of major programs. This provision will increase the incentive for programs to get input from the combatant commands; however, this will not lead to any drastic change in requirements. The combatant commands do not have the staffs to conduct the analysis or synthesis of needs for anything beyond the current operations. This is why requests from the combatant commands have generally focused on items that already exist, not on the generation of a requirements document for a major developmental effort. Therefore, for major developmental items to be fielded in the future, the extent of input from the combatant commands will likely amount to the review of requirements generated by the services. This is not a significant change from how requirements were staffed before approval prior to WSARA.²¹

The acquisition policy changes in Title II of the WSARA of 2009 are divided into seven sections, 201 through 207. Section 201 directs the consideration of trade-offs among cost, schedule, and performance objectives in DOD acquisition programs. Specifically, the “Secretary of Defense shall ensure that mechanisms are developed and implemented to require consideration of trade-offs among cost, schedule, and performance objectives as part of the process for developing requirements for DOD acquisitions programs.”²² Section 201 also directs specific responsibilities to key

leaders in the acquisition process. First, it directs the SecDef to ensure that the JROC consider input from the combatant commands, to ensure trade-offs are considered, and joint portfolio management is considered during the development of joint requirements. Second, it directs the CAPE director to be the lead for the Analysis of Alternatives (AoA) study guidance. That guidance must consider trade-offs and ensure that the joint requirement can be met within the cost and schedule constraints given by the JROC. Lastly, Section 201 directs that the AoA be a mandatory document for Milestone A (MS A).²³

The provisions of Section 201 are not likely to have a significant impact on major development programs. This is because most of the direction given in this section was already in existing policy in some form.²⁴ Additionally, when the policies described are implemented, the manner of implementation will still be largely subjective in nature. Therefore, compliance with this policy change will not be particularly difficult, and will not be a catalyst for any significant change in the acquisition process. As an example, the SecDef and DOD are directed to consider trade-offs among cost, schedule, and performance during the requirements process. If DOD and the services are allowed to make their own interpretation of each of these three metrics, then they can end up not making the necessary trade-offs. Only when one of these metrics (cost, schedule, or performance) is bounded, or fixed, can substantive trade-offs be made, resulting in less technical risk or lower cost. As with trade-offs, the provision for considering input from the combatant commands is also open to interpretation. As an example, a service can simply send a requirements document to the combatant commands for staffing and claim credit for obtaining their input. With regard to the direction given to the CAPE

director, this office will have to provide additional oversight and direction for the planning and conduct of the AoA efforts. Depending on the extent of agreement between CAPE and the services, this provision could provide a point of friction and potentially hinder a program's progress toward MS A.

Section 202 directs the SecDef to ensure that the acquisition strategies for MDAPs include measures that ensure competition or the option of competition at the prime and sub-contractor levels. It also gives examples of those measures to be used, if cost-effective. Those examples are competitive prototyping, dual-sourcing, unbundled contracts, funding next-gen prototypes, build to print development, buying technical data packages, and competing system upgrades. It also directs measures to ensure competition at the sub-contractor level by ensuring fair and objective make or buy decisions by prime contractors. Specifically, the government will require contractors to consider qualified sources outside of their own company. To this end, the government will be required to provide oversight for the contractors' decision processes. This oversight will include making a judgment to the openness and fairness of the decision to use a particular source for subsystems. Lastly, Section 202 directs that to the maximum extent practicable, the sustainment and maintenance contract for a system should be awarded on a competitive basis.²⁵

Like many of the other sections of WSARA, Section 202 will not have a significant impact on the success or failure of a program and will likely result in significant additional cost. With regard to competition at the prime contractor level, existing policy for major weapon development already includes provisions encouraging competition.²⁶ Additionally, the language utilized in WSARA is open to broad

interpretation. The WSARA states that for new programs, the SecDef must include “measures to ensure competition, or the option of competition,” but then later states that these measures are to be used “if cost effective.”²⁷ The list of specific measures that can be used to ensure competition is very interesting, not only because many of these measures would almost never be cost effective, but also because they seem to contradict earlier policies. For example, the acquisition of a complete technical data package (TDP) was rarely proven to be cost effective for major systems. In cases where the TDP was purchased, it was rarely used or when it was used it was not very effective in certifying a second production source. The development of the Family of Medium Tactical Vehicles was an example that highlighted the pitfalls of using a TDP at the system level. Overall, the requirement for prime contractor competition only formalizes current policy. However, if the requirement for competition is strongly enforced, it will cause a significant increase in cost due to having to pay two or more contractors during the competitive period.²⁸ Therefore, this provision of WSARA will likely have little impact on current practices, but if strictly enforced, will cause increased cost.

Section 202’s second provision addresses competition at the sub-contractor level. The implementation of this will be difficult and problematic and may have some unintended consequences. Consider some of the situations which may arise from trying to impose government surveillance of the prime contractor’s decision to select a sub-contractor. First, in most cases, a prime contractor will select its major subcontractors prior to contract award. This is how the contractor is able to create a substantive proposal in response to the government request for proposals (RFP). In this case, it

would not be helpful for the government to review that decision after awarding the prime contract, or to try to make the contractor consider an alternate subcontractor than the one that was part of their proposal team. In another situation, when selecting a subcontractor during execution, the government will be observing the contractor to ensure that the prime gives “full and fair consideration to qualified sources.”²⁹ The question then is what are the measures of a qualified source (cost, schedule, performance, or risk) and how much analysis must be done to be considered fair? Additionally, what is the government to do if they don’t think the prime contractor has given necessary consideration to a certain potential sub-contractor? There are no good choices in this situation. The government could force the prime to reconsider their decision with more analysis and rigor or they could force the prime to choose a different sub-contractor. Forcing the contractor to pick a certain sub-contractor would be wrought with problems since the government now takes on the responsibility for that decision. For this situation, any deviations by the sub-contractor with regard to cost, schedule, or performance could be cause for a protest by the prime if they are not awarded later stages of the contract. This situation could also prevent the government from holding the contractor accountable for system level performance failures later on. Because of these significant disadvantages of taking an active role in the prime contractors’ choice of sub-contractors, the government will consistently choose not to do so. The end result will be that the sub-contractor competition provisions of Section 202 will only result in more reporting and more cost to the programs. This increased cost will be due to the additional efforts by the contractor to provide insight into their decision process. There

will also be additional cost due to efforts by the government program office to conduct surveillance of this decision process and to conduct their assessments.

Section 203 directs the SecDef to ensure that all MDAPs provide competitive prototypes prior to Milestone B (MS B). That is, at least one prototype each, from two or more competing contractors. This provision does give the SecDef the authority to waive the competitive prototype requirement based on cost and critical national security objectives. With regard to cost, the criterion is that the cost of the competitive prototypes is judged to be more expensive than the expected life-cycle benefits of competitive prototyping. These benefits are future cost (life-cycle), performance, technology, and design maturity. If the SecDef does decide to waive the requirement for competitive prototypes, the MDAP is still required to produce a prototype from the sole contractor. Additionally, the SecDef is required to notify defense related congressional committees of the waiver and the rationale for the waiver within thirty days of the decision. Lastly, the comptroller general is required to conduct a review of these waivers within sixty days of notification and submit the results of their assessments to the congressional committees.³⁰

Among the changes directed by WSARA, the provisions of Section 203 are the most significant and the most likely to cause change. This is because relative to the other provisions, this one asks for something tangible and measurable: prototypes before MS B. This requirement will have positive and negative effects on major development programs. First, producing prototypes earlier in the development will decrease technical risk and performance risk later on in the program. More work will have to be done between MS A and MS B, in the Technology Development (TD) phase,

which will mean earlier design maturity. This design maturity will not be just on paper, but will be proven to some extent by the prototypes. Even if the program builds subsystem prototypes instead of full-up prototypes, this will be the case, hence the decrease in technical risk. Additionally, conducting this early design work and building prototypes will have the additional benefit of giving the government a better understanding of the ability of the overall system to deliver the expected performance. Since all of this is taking place prior to MS B, the requirements documents can be adjusted if the draft requirements are too unrealistic or will drive too much cost or schedule than desired. This will result in decreased performance risk when the program is at MS C and the system is being tested against the requirements document. Thirdly, there will be at least two contractors competing during this phase and both will be conducting this early development work and producing prototypes. This will have the added benefit of ensuring that we get the best efforts from the competing contractors since they are greatly incentivized to win the competition whenever the downselect takes place. However, all of these benefits of early work and the competitive environment will come at a price. The cost of the development effort for the program will be front loaded and the overall cost of the program will be much higher. This is because of the additional cost of paying the competing contractors and the additional effort to produce prototypes and any testing conducted on those prototypes.³¹ For a major program, both these costs would likely be significant. Also, because of this additional work done earlier, and the building and testing of prototypes, the schedule for the program will likely be longer as well. Some of that time will be recovered in a shorter Engineering & Manufacturing Development (EMD) phase, but not all of it,

because of the TD phase prototype effort that wouldn't have been conducted otherwise. So in essence, this section of WSARA will reduce technical and performance risk and drive up cost and schedule.

Section 204 makes modifications to existing law with regard to notification to Congress for programs experiencing cost growth of 25% or more. This provision adds reporting requirements for programs experiencing developmental schedule growth of 25% or more. Additionally, once a program exceeds these cost or schedule thresholds, the Milestone Decision Authority (MDA) will be required to submit a report to Congress. This report will identify the "root cause" of the growth, the adjusted performance measures for the remainder of the program, and a written certification to justify continuance of the program. This certification will testify that the program is essential to national security, that there are not alternatives to meet the military need, that the new estimates for remaining development are reasonably achievable, and that the management structure of the program is sufficient to manage cost and schedule for the remaining development effort. As an alternative to submitting this certification with all its requisite elements, the MDA may submit a plan for termination of the program in the interest of national defense.³²

The provisions of Section 204 will have a direct impact on programs that breach their established baselines for cost and schedule. Like many programs before that have had a Nunn-McCurdy breach, the severity of the impact will depend on importance of the program and the support for it by key stakeholders. That importance and support for the program is usually based on the capability gap that the system fills, the priority that the sponsoring service places on it, and support that DOD officials and Congress

provide it. In the case where the capability is vital and the sponsoring service, DOD, and Congress support the program, it will likely not be killed for breaching its thresholds.³³ To be sure, the amount of analysis needed to justify keeping the program and the work needed to get the program back on track has increased. The service and DOD have to make the case that the program is vital to national security, that it has no alternatives, that the new estimates are correct, and that the management is adequate. Putting together the arguments and data for this type of justification and preparing leadership to make the case to Congress will be no small feat and will take time and effort. However, if the sponsoring service and DOD are willing to fight to keep the program and Congress has been generally supportive of the program, it will not be killed. In the case where any of these elements of support are not present, the provisions of Section 204 make it much easier for the program to be killed. This is because terminating the program is a mandatory provision. Therefore, the net effect of this provision will be that it will be harder for programs without broad support to survive a breach of their baseline cost and schedule.

Section 205 addresses the situation where waivers have been granted from the certification requirement of 10 USC 2366, otherwise called 2366 certification. This is a memorandum where the MDA certifies that the program has met certain requirements.³⁴ By law, this certification must be signed by the MDA prior to authorizing the program to proceed past any milestone. This certification includes detailed elements of a program with regard to business case analysis, AoA, requirements process, technology readiness, projection of program success, and compliance with DOD policy and directives. The provisions of Section 205 require that Congress be notified about

programs that have been granted a waiver, requires annual review of programs not certified, and requires special identification of programs not certified in all budgetary requests and mandatory reports. This requirement is also to be broadly applied to programs that received a milestone decision prior to the enactment of WSARA. This provision clearly creates a disincentive for granting 2366 waivers to programs and an incentive to get previously waived and existing programs certified.³⁵ The net effect of the provisions in this section will be that all programs that can feasibly meet certification requirement will do so. This is because the program managers and the services will not want their programs to come under additional scrutiny for having the non-certified mark on all their reports. Also, the DOD and service leadership mandatory review of all non-certified programs will prove to be a strong incentive to get certified, unless DOD and service leaders agree that it is undesirable or cost prohibitive to do so. The effect of this provision of WSARA will be that the MDAs will have less flexibility on being able to tailor the requirements for programs at each milestone. This will cause a greater burden on new and existing programs to conduct work that may not be directly related to their success or failure. In the end, programs will cost more and take longer in order to ensure compliance with full certification.

Section 206 is targeted specifically at programs that exceed their unit cost critical cost growth thresholds. Unlike the development costs described in Section 204, this section focuses on the cost of each system procured during production. The critical cost growth thresholds depend on what was approved at the program's last milestone. Most programs will have this threshold at 25% or 50% above their baseline unit cost estimate. The provisions of this section address what is to be done when this threshold

is exceeded. First, the SecDef, in consultation with Director CAPE, is directed to determine the root cause of the cost increase and assess the projected costs of completing the program with or without changes to performance requirements. Additionally, they are also to evaluate the rough order of magnitude costs of any alternative system and identify the need to reduce funding for other programs to pay for the cost growth in the program being evaluated. Secondly, after this analysis is done, the SecDef is directed to terminate the program unless he submits a special certification to Congress within sixty days. This certification is to attest to the items below:

- That the program is vital to national security
- That there are no alternatives to the program
- That the new estimates for unit cost are reasonable
- That the program is higher priority than programs that will have funding reduced to pay for the cost increase
- That the management structure is adequate to control the program

In addition to the certification above, the SecDef is required to restructure the program to address the root cause and to rescind the program's last milestone decision and 2366 certification. The program is then required to conduct a new milestone review and certification prior to any new contracting action.³⁶ The net effect of this section will be to make it easier to cancel programs with ballooning unit cost and make it more expensive for those that need to continue despite the higher costs. It will be easier to terminate programs with escalating unit costs since it is a mandatory requirement unless sufficient justification is given. For programs that provide sufficient justification, there will be increased cost since they will have to pay for all the effort, government and contractor,

to conduct another milestone decision and obtain a new certification. This effort may also cause a schedule delay for production deliveries and increased start-up costs if production is stopped during the milestone approval and certification period.

Section 207 directs the SecDef to take action to address organizational conflicts of interest for major defense programs. Specifically, he is directed to issue a revision to Defense Supplement to the Federal Acquisition Regulation (FAR). However, this is to be done after consideration of the types of conflict of interest identified below.

- Lead system integrator contracts
- Ownership of business units that perform technical assistance or management support services who also compete for major defense programs
- Prime contractors who own business units that compete for sub-contracts
- Situations where a contractor is assisting in the technical evaluation on major defense programs

These organization conflicts of interest are to be considered by the Panel on Contracting Integrity, which will then make recommendations to the SecDef on revisions to the Defense Supplement to the FAR. The stated objective of these changes is to “eliminate or mitigate organizational conflicts of interest in major defense acquisition programs.”³⁷ Any changes implemented here could have an impact on new and ongoing programs, however, since the changes to be made to the Defense Supplement to the FAR have not been identified, the extent of its’ impact is unknown.

Having reviewed the provisions of WSAR of 2009, it is clear that the changes made are many and that they attempt to revise many aspects of the acquisition system. However well intended, it should seem obvious that this new attempt at acquisition

reform will not assist new programs in being successful. As I have shown, it is more likely to increase the costs of major programs due to added analysis and reporting requirements. Some of this reporting is not even tied to a decision that would influence the success or failure of the program. The WSARA of 2009 is also likely to cause the growth of the SecDef's staff due to the number of added oversight responsibilities and comprehensive whole-portfolio reports to Congress. Some even claim that the "reports and reviews mandated by WSARA equate to about four years' worth of work."³⁸ With the exception of Sections 203, 204, and 206, the provisions of WSAR are open to a certain level of interpretation, which will prevent them from achieving the effect Congress desired. In total, a major program now has more hurdles to jump to gain approval at the beginning, is forced to front-load its developmental effort, which will be more expensive, will have more opportunities to be terminated, and will have a whole new set of oversight and reporting requirements.³⁹

The approach taken by WSARA of 2009 will clearly create more obstacles for programs, especially if they run into trouble. However, one must question if this kind of reform is what is good for major system development, when you consider all the bad incentives, competing interests, and external forces already in place that lead to system failures. Also, consider that some of our most successful programs, such as the Abrams Tank and Bradley Fighting Vehicle, had their own problems during development. Would these venerable fighting platforms have been terminated if they had to undergo the additional layers of oversight in place today?

Because of the consistent failure of the top-down approach to acquisition reform, it becomes clear that a more effective approach to reform would need to be generated

from within the services. There are a myriad of things a program must do that are not under the control of the program manager or the services, such as law, policy, and other external forces. However, one aspect that the services do control is the requirements generation process. Since faulty or ill-defined requirements is a common attribute of most failed programs, this would be a good starting point for reforms that would improve the chances of success for future major development programs. The remaining paragraphs will discuss the environment that influences a new program, the conclusions that lead to reform initiatives, and why the requirements defined at the beginning of the program are the key to reducing a programs risk of failure.

There are competing forces in play for every developmental program. The users desire to gain as much capability as possible. This is reinforced even more by the services' need to justify funding and by the AoA process, which both provide strong incentive for big leaps in capability instead of incremental gains. Then there is OSDs desire to have programs that ask for little money and have unreasonably short schedules during planning, but that also don't have cost or schedule overruns during execution. This is much like the desire by the service to minimize cost and take delivery of a new system as soon as possible, which may position the program for an inevitable Nunn-McCurdy breach.

It is all these forces that have been responsible for the long line of failed programs. Programs that failed to meet their performance requirements, failed to stay within baseline cost estimates, failed to stay on schedule, or failed a combination of these very important metrics. In response to these failures, many choose to focus on these external forces and then conclude that there is a certain approach to ensure

program success. For example, one conclusion could be that programs built in many Congressional districts are more likely to survive. Another conclusion may be that making a program more joint will make it harder to kill. Yet another approach is to try to rush a program into production quickly, in hopes that it will get past the tipping point before the next declining budget cycle causes its termination. While each of these approaches can help a program survive tough times, or problems during development, they may divert our attention away from the capability we are trying to get to the warfighter. Also, in some way, each of these approaches may not be feasible or may actually make the program more vulnerable to termination. This is the danger of taking an external oriented approach that attempts to game the system. It is the equivalent of optimizing the program to survive only one of the external forces, while increasing its vulnerability in many other aspects.

As an alternative approach, I think it is worthwhile to first take a look at the internal trends we can control with regard to programs that have failed. First, the easily observable trend is that they exceed their cost and schedule baselines. These are always the two parameters that we end up reading about since they are easily measurable and they are what trigger a Nunn-McCurdy breach. While it is not always the case, often a program that has exceeded its cost and schedule baselines also has problems meeting performance specifications. This is usually due to technical or integration challenges. It is no coincidence that many acquisition reform initiatives have tried to address these kinds of problems in major programs. However, before trying to fix these problems in a program, it is important to ask why the program had these problems to start with. While it is true that there are competing interests when a

program is in the process of being started, maybe there are some common trends or contributing factors that can be addressed. First, we must look at the balance of the interests that were established at the beginning of the programs. That is, the balance of performance, cost, and schedule as they compete against each other. Then we need to ask where the baselines for the programs were set, and if they were realistic. With the benefit of hindsight, we can analyze what could have been done differently to make the program successful. The short answer, in most cases, would of course be to make cost, schedule, and performance realistic at the beginning. That is, make it a low risk program by using more realistic, larger, cost estimates and by utilizing a longer development timeline. However, understanding the complexity of forces involved, history has shown that this is not exactly feasible for a developmental program. In fact, the forces described in the previous paragraphs prevent this low-risk situation from occurring. As mentioned earlier, there is an observable trend among failed programs that we should focus on, and that is problems with the requirements.⁴⁰ These problems with requirements are usually because they are unrealistic, vague, not well defined, or they change during the development process. Requirements based problems are the leading cause of developmental cost growth, especially if you take into account the impact it has on initial cost estimates and schedule slips. If you look at the drivers behind the Army's recently failed programs, you observe that all of them had problems with their requirements. This is definitely the case for the Future Combat System, Comanche, and the Crusader programs. In all these cases, and others, the requirements demanded too much when compared to the current state of technical or integration maturity. Not only were the requirements too aggressive, they were also

unstable. They were not fully understood at the beginning and also changed during the development process.⁴¹

Incidentally, requirements are also the major driver behind cost and schedule. Naturally, more aggressive requirements will cause a program to cost more and take longer to develop. In a sense, the requirements are the center of gravity for a program. This is why those who study system development, but are not directly involved in a program, will often comment that a program is doomed from its inception, because they observe that the requirements are unrealistic.

Because requirements generation is one aspect of the acquisition process that a service can influence, it is a good starting point for reform. However, this reform cannot be the kind of reform mandated by Congress. This kind of reform needs to come from within; initiated by the services because they know that changes are needed to ensure the success of their programs. Also, only the services understand the details of how their requirements are generated well enough to make real change in this area and ensure that there are enduring incentives to facilitate permanent change. A good starting point for this change would be to conduct a wholesale review of the requirements generation process. This should include an analysis of all the stakeholders involved, their level of expertise, and any gaps that might exist. Then senior leaders will have a better understanding and appreciation for the complexity of the process. Second, detailed recommendations should be made to ensure that the right organizational structure is in place, that the right personnel and resources are allocated, and that the right improvements are made to the process.

For the Army, the implementation of this requirements generation reform should start by conducting an analysis of the proponency-based requirements system, where requirements are created by stove-piped Army branch representatives. The advantages and disadvantages of this system should be identified. For example, multiple branch representatives will sometimes submit separate requests for very similar items, which could lead to redundant systems. This is extremely inefficient. At the same time, there are other areas, such as power generation, where no branch takes ownership of the needed capability gap. The result is that the capability gap remains because there is no sponsor for the requirement. Because of these examples and many others not mentioned, it is clear that the Army would benefit from considering a different approach. Other requirements generation structures should be analyzed and considered for implementation. One concept worth considering would be a functional system base on the Army capstone concept required capabilities below.⁴²

Mission Command

Intelligence

Movement and Maneuver

Fires

Protection

Sustainment

Training and Leader Development

Institutional Army

Human Dimension

Based on these capstone functional areas, the Army could establish proponent councils to sponsor requirements for future capabilities. Some of these areas obviously align with certain Army branches; however, the councils should be structured in a way that all relevant branches would be represented. A single branch would not be authorized to unilaterally submit a requirements document to Department of the Army without concurrence from others on the council. The advantages of this approach are that it would be easier to implement than restructuring the branches and that it would alleviate the current “stove-piped” approach to requirements generation. As part of a more deliberate analysis other approaches should be considered as well.

In the current environment of declining defense and Army budgets, it is critical that we do “everything possible, to make every dollar count.”⁴³ We cannot afford to spend billions of dollars developing weapons or systems that fail to deliver a product to our Soldiers or servicemen. One way that we can ensure that this will not happen is to design our processes to prevent the creation of redundant or unrealistic requirements. We cannot allow the pursuit of the impossible to continue to be the defining characteristic of our requirements. We must ensure that there is consensus on our investment priorities and that our requirements are reasonably achievable in a short amount of time. It is only through this kind of internally created acquisition reform that we can hope to have better success in the future than we have had in the past.

Endnotes

¹ Moshe Schwarz, Defense Acquisitions: How DOD Acquires Weapon Systems and Recent Efforts to Reform the Process,” Congressional Research Service, April 23, 2010, 13.

² Christopher H. Hanks, Elliot I. Axelband, Shuna Lindsay, Mohammed Rehan Malik, and Brett D. Steele, *Reexamining Military Acquisition Reform – Are We There Yet?* (Rand Corporation, 2005), 2.

³ SM&A, “Synopsis and Impact of Weapon Systems Acquisition Reform Act of 2009,” September 2009, http://www.smawins.com/WSARA_brochure_8.5x11_23Sep2009.pdf (accessed December 23, 2010), 3.

⁴ U.S. Congress, Public Law 111-23 – Weapon Systems Acquisition Reform Act of 2009, 111th Congress, May 22, 2009.

⁵ Ibid.

⁶ U.S. Congress, WSARA of 2009.

⁷ Sandra Erwin, “Weapons Acquisition Reform Act: One-Year Anniversary Not Cause for Celebration,” May 27, 2010, <http://www.nationaldefensemagazine.org/blog/Lists/Posts/Post.aspx?ID=134> (accessed December 23, 2010), 2.

⁸ Michael J. Sullivan, GAO-10-706T “Defense Acquisitions - Observations on Weapon Program Performance and Acquisition Reforms,” U.S. Government Accountability Office, May 19, 2010, 14.

⁹ Joseph G. Bolten, Robert S. Leonard, Mark V. Arena, Obaid Younossi, Jerry M. Sollinger, *Sources of Weapon System Cost Growth – Analysis of 35 Major Defense Acquisition Programs*, (Rand Corporation, 2008), 29.

¹⁰ Ibid., xvi, xix.

¹¹ U.S. Congress, WSARA of 2009.

¹² Michael J. Sullivan, GAO-10-706T, 6.

¹³ Sandra Erwin, Not Cause for Celebration, 2.

¹⁴ U.S. Congress, WSARA of 2009.

¹⁵ Ibid.

¹⁶ David J. Berteau, Joachim Hofbauer, Stephanie Sanok, “Implementation of the Weapon Systems Acquisition Reform Act of 2009,” Center for Strategic & International Studies, May 26, 2010, 7.

¹⁷ U.S. Congress, WSARA of 2009.

¹⁸ Department of Defense, Department of Defense Instruction Number 5000.02, Undersecretary of Defense (Acquisition, Technology, & Logistics), December 2, 2008, 15-21.

¹⁹ Sandra Erwin, Not Cause for Celebration, 2.

²⁰ U.S. Congress, WSARA of 2009.

²¹ David J. Berteau et al, Implementation of WSARA of 2009, 6.

- ²² U.S. Congress, WSARA of 2009.
- ²³ Ibid.
- ²⁴ Department of Defense, Department of Defense Instruction Number 5000.02, Undersecretary of Defense (Acquisition, Technology, & Logistics), December 2, 2008, 58.
- ²⁵ U.S. Congress, WSARA of 2009.
- ²⁶ Department of Defense, Department of Defense Instruction Number 5000.01, Undersecretary of Defense (Acquisition, Technology, & Logistics), May 12, 2003, 5.
- ²⁷ U.S. Congress, WSARA of 2009.
- ²⁸ David J. Berteau et al, Implementation of WSARA of 2009, 6.
- ²⁹ U.S. Congress, WSARA of 2009.
- ³⁰ Ibid.
- ³¹ Sandra Erwin, Not Cause for Celebration, 2.
- ³² U.S. Congress, WSARA of 2009.
- ³³ Sandra Erwin, "Acquisition Reform Act: The Backlash Has Begun," National Defense, January 2010.
- ³⁴ Under Secretary of Defense (Acquisition, Technology, and Logistics) Kenneth J. Krieg; "Implementation of Section 2366a of Title 10, United States Code," memorandum for Secretaries of the Military Departments, Washington, DC, May 02, 2006.
- ³⁵ U.S. Congress, WSARA of 2009.
- ³⁶ Ibid.
- ³⁷ Ibid.
- ³⁸ Sandra Erwin, Not Cause for Celebration, 2.
- ³⁹ Michael J. Sullivan, Observations..., 14. Sandra Erwin, The Backlash. David J. Berteau et al, Implementation of WSARA of 2009, 8.
- ⁴⁰ Joseph G. Bolten et al, *Sources of Weapon System Cost Growth*, 27.
- ⁴¹ Government Accountability Office, GAO-10-522 "Defense Acquisitions – Strong Leadership is Key to Planning and Executing Stable Weapon Programs," May 2010, 4.
- ⁴² Department of the Army, The United States Army Operating Concept, TRADOC Pam 525-3-1 (Department of the Army, 2010), 43.

⁴³ Robert M. Gates, "Statement on Department Efficiencies Initiative," reprinted in U.S. Army War College Selected Readings on Defense Enterprise Management, (U.S. Army War College, 2011), 359.

