

Statement of

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On

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* The views expressed are those of the author and do not reflect the official policy or position of the National Defense University, the Department of Defense, or the U.S. Government.

Mr. Chairman and members of the Committee, thank you for the opportunity to appear here today and share some observations about acquisition reform based on my past experiences and research. My understanding is that the Committee is taking a slow, deliberate approach designed to produce a deep understanding of the major forces affecting our ability to deliver effective weapons and services to our armed forces efficiently. I strongly support that approach and am honored to have the opportunity to make a contribution to your deliberations. I hope to contribute despite the fact that I have not worked in the Pentagon's acquisition system directly. During my career in the Department of State and Department of Defense I have had some memorable experiences with acquisition programs. Also, as a policy official in the Department of Defense and later as a researcher at National Defense University I had the opportunity to study how acquisition programs are managed in the broader context of strategy, planning and operational concept processes. I hope insights from these experiences and research will be of interest to the Committee.

In summary, I argue that:

- Efficient and effective acquisition is not possible without reform of other associated Department of Defense planning processes.
- The trend to move away from disciplined defense analyses in favor of intuitive and impressionistic decision making need to be reversed.
- The flexibility to manage acquisition programs differently depending on circumstances is important.

In making these points and lesser ones I will try to limn the important distinction between helpful oversight and unhelpful micromanagement by drawing lessons from successful programs and identifying problems that impede acquisition excellence. I will concentrate on research I conducted on the mine-resistant, ambush-protected (MRAP) vehicle program in 2009, but will first share some earlier related experiences that I believe reinforce lessons from the MRAP acquisition program.

A Different Model: The Train and Equip Program¹

In 1995 I had the opportunity to participate in our effort to arm and train Bosnian forces as part of the Dayton peace agreement. Widely referred to as the “Train and Equip Program,” this security assistance project was highly controversial at the time but quite successful. The program achieved all of its operational goals. In less than 2 years the task force rectified the military imbalance between the Bosnian Serb and Bosnian Federation forces. It helped demobilize more than 200,000 Federation soldiers while providing tanks, howitzers, small arms, ammunition and other materiel to the remaining 45,000 active duty troops. The program also trained and organized these former Warsaw Pact soldiers to NATO standards. It did this using only about half of the total resources originally estimated to be necessary by the Institute for Defense Analyses. The program facilitated arms control objectives, strengthened Bosnian Federation institutions and rid Bosnia of foreign extremists.

The Train and Equip Program was not a normal United States security assistance program. It was a small interagency task force of seven people housed in the Department of State and led by a former defense official who was given ambassador rank. It benefited from stellar leadership, an unusual level of authority, and employed some creative mechanisms to accomplish its objectives. It partnered with other countries and many executive branch departments and agencies. It benefited from \$100 million in drawdown authority from Congress but it also held foreign funds in trust for other countries that were used to purchase weapons and training services on the open market. No funds or equipment in the program were ever diverted or used for illicit purposes and the program never violated any other provisions of the Dayton Accords, U.S. law or policy.

Two specific elements of the program are especially noteworthy for students of acquisition reform: the program’s training contract and its funding mechanism. The program

¹ For a detailed account of this program see Christopher Lamb with Sarah Arkin and Sally Scudder, “The Bosnian Train and Equip Program: A Lesson in Interagency Integration of Hard and Soft Power,” Strategic Perspectives, Institute for National Strategic Studies, National Defense University, March 2014.

borrowed Department of Defense contract specialists who drafted a contract for individual soldier training, infantry unit training and integration, development of a noncommissioned officer corps, light and heavy weapons training, and education of Ministry of Defense and Joint High Command staff. The initial draft of the contract was well over 200 pages and included vast amounts of language required by acquisition rules. Some clauses addressed equal opportunity or other social goals but the bulk of the material was difficult-to-understand provisions that seemed to encourage attention to various problems that might arise without definitively requiring prophylactic measures.

The contract specialists explained the language was complex and even ambiguous because the clauses were intended to safeguard against potential problems without dictating solutions that were situation-dependent and required judgment. Past errors in judgment that led to poor outcomes had been addressed by new regulations that, like barnacles on a ship, grew over time until their sheer volume and obscure intent was an impediment to productivity. With the help of the contract specialists we jettisoned language not required for a private sector contract and reduced the draft contract to about 70 pages. The Bosnians and their legal advisers then edited the document down to 30 pages that made the training tasks and terms of remuneration for their completion clear to all parties. In the following years we were often thankful for the clear and simple language in the contract, and wondered what a world of headaches and associated costs we would have borne if we were overseeing a typical Department of Defense contract for services.

Another noteworthy element of the Train and Equip program was its ingenious funding mechanism. Other nations donated funds and equipment to the program. The Executive branch is not permitted to spend money without congressional approval, so how to oversee the use of the donated funds became a major legal issue. A joint State, Treasury, and Justice Department effort finally arrived at a workable concept that allowed funds donated by other nations to be used consistent with U.S. law and our policy objectives. Because the funds had been given to the United States for a specific purpose, the Department of State could create a common law trust for them that allowed the program to administer the money but did not give it ownership rights or direct control over how the funds were to be used. The funds were held in the U.S. Treasury

with an affirmative duty to protect them on behalf of the donors, which meant ensuring they were used consistent with donor intent.

The Bosnian Defense Fund was established for this purpose along with supporting arrangements for administering the funds. When the Federation needed to pay a contract for either weapons or training services, its Defense officials would submit a written request to the donors that was prepared for them by the Train and Equip team and signed by appropriate Federation defense officials. This request was forwarded through the Train and Equip task force to the donors in the form of a diplomatic note that had to be reported to Congress, and which allowed the whole process to stay transparent and on the record. The donor country then decided whether it would allow its donation, sitting in the trust fund, to be used for the requested purpose. The Train and Equip team fulfilled U.S. Government fiduciary responsibilities as trustee by soliciting multiple bids from vendors and demonstrating the purchase was a good deal for donors. Upon donor approval, the State Department withdrew funds from the Treasury account and paid the contractor or supplier directly in keeping with contract terms.

In this manner donor funds never passed through the hands of local officials but always went directly for training and equipment delivered to the Bosnians that the donors, U.S. Government and Bosnian defense leadership agreed was necessary. The disadvantage of the somewhat cumbersome paperwork was far outweighed by the advantages of transparency and accountability. Donor countries knew where their funds went and that Washington was ensuring every cent was spent on legitimate purposes. Moreover, it left the Train and Equip team in the middle of all transactions with an “appropriate level of leverage over the disbursement of funds.” The program developed additional accountability measures that ensured no leakage of funds, but this creative mechanism was the centerpiece for managing funds. Without it the program would not have been so successful.

These examples from the Train and Equip program illustrate the disadvantages of requiring all national security acquisition programs to observe the same acquisition regulations, and the advantages of less restrictive but still supervised and accountable programs that are tailored to their own particular circumstances. It also is noteworthy that this creative program

was not emulated. Although the program had bipartisan congressional support and its leader was widely respected among senior officials in the Executive Branch, the program itself was an irritant to the larger national security bureaucracy. The success of the program stimulated other “train and equip” programs but they were administered through normal security assistance channels. The productive model pioneered by the program was not repeated; indeed it was quickly forgotten. I consider this evidence that the current system will not embrace alternative high performance models for acquisition even after they are stumbled upon and well-documented.

A Policy Perspective on Acquisition

After returning to the Pentagon from the Train and Equip program I had the good fortune to work for the Deputy Assistant Secretary of Defense, Resources and Plans as part of the Office of the Under Secretary of Defense (Policy). Our job was to generate and oversee defense plans. We produced what was then called the defense planning guidance and the contingency planning guidance, but also were involved in force generation and sustainment planning; force posture planning, force management planning; and force design planning. We were the link between strategy and programs in the long set of sequential processes that deliver weapons and services to our armed forces. Among other things this meant our office was responsible for sitting in on acquisition milestone meetings to contribute a Policy perspective. I observed numerous, diverse acquisition meetings convened to determine whether a program would pass its milestone review and enter into its next development phase. From this vantage point I witnessed all the problems typically associated with defense acquisition: cost growth, technical performance shortfalls, and schedule slippages.²

I understood the need to “sell” a program initially with optimistic assessments of capability and costs, but I wondered why program managers did not make tradeoffs between key performance parameters to keep the programs on track and within projected costs once they were underway. If one performance parameter was proving particularly challenging, perhaps it could be relaxed and compensated for elsewhere. If higher performance in another one of the

² J. R. Fox, *Defense Acquisition Reform, 1960-2009: An Elusive Goal*. S.I.: Books Express Publishing, 2011.

program's key performance parameters did not offer acceptable compensatory advantages then perhaps relying more on other military capabilities to accomplish the mission or revising the operational concept would provide the needed flexibility. What was explained to me was that those kinds of tradeoffs are not possible once an acquisition program has moved beyond analysis of alternatives and the program has an approved material solution. Program managers just have to press forward with limited options regardless of what they discover as the program develops. Because revising key performance parameters is tantamount to an admission of failure, program managers, their superiors and ultimately the Pentagon's senior acquisition official accept cost growth and schedule slippage rather than lower technical performance parameters.

Everyone agrees in principle that military capability is not simply a function of effective acquisition programs. To field a military capability we integrate doctrine, organization, training, personnel, leadership and education, and support functions that permit effective use of the weapons and other material as military capabilities. Then we integrated diverse military capabilities in support of operational concepts that permit us to successfully execute military operations in the field. Military theorists debate the relative import of the diverse factors that affect combat outcomes. Some assert that "material factors are only weakly related to historical patterns of victory and defeat."³ Others believe that since the American Civil War technology has emerged as an "independent and significant dimension" of warfare.⁴ In any case, theorists agree there are multiple important factors that must be integrated to generate effective combat capability and the Department of Defense acknowledges this point in doctrine and in its broader planning and requirements processes. So in the abstract there are many ways to compensate when any given program falls short on any given key performance parameter. Yet once we complete our mission analysis, needs analysis, and solution analysis for a major acquisition program, we lock in the key performance parameters. Even though we know it will take a decade or more to bring the program to fruition we don't look back to reassess performance parameters regardless of what we learn elsewhere in the meantime.

³ Stephen D. Biddle, *Military Power: Explaining Victory and Defeat in Modern Battle*. Princeton, N.J: Princeton University Press, 2004, p. ix.

⁴ Philip Towle, *Estimating Foreign Military Power*. New York: Holmes & Meier, 1982, p. 264.

I believe this simple explanation for cost overruns and schedule slippage provides a better explanation for poor acquisition performance than inadequate program manager training, short tenures and other factors often cited. The people I discussed these issues with in the Pentagon agreed the process does not make sense in the abstract but do not see a realistic alternative. They believe we cannot manage major acquisition programs with greater flexibility that would allow capability tradeoffs as a program moves forward because we do not have adequate means to measure relative effectiveness and, more generally, senior leaders do not trust the analytic process.

Although in theory trade-offs between the various factors that determine combat capability can be made, such assessments are complex and disputable. We don't have a good range of tools and processes for evaluating such trades, which inescapably require a great deal of judgment. One expert argues that:

Most analyses are either rigorous but narrow, or broad but unrigorous. Mathematical models of combat, for example, are rigorous but typically focus on material alone: how many troops or weapons do the two sides have, and how good is their equipment. By contrast, holistic assessments consider issues such as strategy, tactics, morale, combat motivation or leadership as well as just material but treat these variables less systematically. Real progress demands rigor and breadth: a systematic treatment of both material and nonmaterial variables backed up with a combination of empirical evidence and careful deductive reasoning.⁵

Currently the Services own the resources required to combine empirical evidence and careful deductive reasoning, rigor and breadth of analysis with seasoned judgment. They own the data, the models, and the trained personnel for evaluating tradeoffs. Once the Services have conducted their own assessments and successfully launched an acquisition program, they do not want to reopen the evaluation process to reconsider performance parameters that would challenge their programs in a joint venue. To improve analysis of alternatives in the Department of Defense we must pay more attention to and invest in joint contingency scenarios, joint

⁵ Biddle, *Military Power*, p. 2.

operating concepts, joint data, joint methods of analysis, joint operational metrics, and means to ensure institutional knowledge across the defense enterprise.⁶ Otherwise we get competing analyses of important programs that lead to conflicting conclusions without illuminating the reasons why. The result is that many senior officials fear “paralysis by analysis.” They see that competing analyses are not comparable because their underlying assumptions, data and modeling are not consistent or transparent. The large amounts of resources used for analysis in the Pentagon often obscure rather than illuminate choices.

As a result, many senior officials—particularly policy officials in my experience—distrust the process by which military capability options are assessed and formulated. Understanding that joint analytic capabilities are weak compared to those of the Services, that data can be manipulated to generate different outcomes that justify existing programs, and that any number of large requirements analyses conducted by the Department and outside sources have failed to have a major impact on existing programs, many senior officials are content to ignore analysis of alternatives and the entire process for assessing alternative military capabilities. Instead they rely on their own judgment and look for broad, overarching insights they can use as general guidance to nudge the Service in one direction or another. That such guidance is impressionistic and in any case ignored for the most part is lamentable but unavoidable in their minds. Occasionally a program may be canceled or curtailed to save money, but for the most part acquisition programs proceed on their initial course undisturbed.

Yet as one expert argues, it is a mistake to remain aloof from “structured, analytic, often quantitative,” defense analyses.⁷ Mentally modeling of these types of tradeoffs and assumptions are performance is unavoidable.

Whether we ‘model’ mathematically and systematically, or anecdotally and impressionistically, everyone who forms an opinion...is in effect predicting its outcome or at least its plausible range of outcomes. The issue is not really whether we try to find a

⁶ See Christopher Lamb and Irving Lachow, “Reforming Pentagon Strategic Decision Making,” *Strategic Forum* No. 221, Institute for National Strategic Studies, National Defense University, July 2006.

⁷ Michael E. O'Hanlon, *The Science of War: Defense Budgeting, Military Technology, Logistics, and Combat Outcomes*. Princeton, N.J: Princeton University Press, 2009, pp. 1-2, 66.

simplified construct for predicting battle outcomes—all of us do; in fact, all of us must. The issue is whether we choose to employ impressionistic and purely subjective ‘modeling’ or a more rigorous and formal approach. The advantage of formal modeling is that it requires one to make assumptions explicit, and justify them as well as possible using historical, technical and operational data.⁸

The Department of Defense necessarily makes decisions based on modeling of some sort. Most of the analysis is hidden in the far reaches of disparate organizations that compete for dollars and have no incentive to show much of their homework to authorities that might use it to make decisions that improve overall force capabilities at the expense of their own. Therefore the Department’s modeling is done without the transparency and accountability that senior defense officials need. Rectifying this shortcoming would require tackling another impediment to managing major acquisition programs well: organizational limitations.

An Organizational Perspective on Acquisition⁹

In 2006 I was called back from National Defense University to lead a Quadrennial Defense Review working group investigating how to improve Pentagon so it could make decisions better in an increasingly complex and dynamic security environment. Senior leaders wanted to know why key Department of Defense initiatives like Global Force Management, better Strategic Communication, Adaptive Planning, and Capabilities-Based Future Force Development were not working. The group concluded that the structure of the Department of Defense is rigidly vertical, or “stovepiped,” by areas of functional expertise: policy, finances, operations, etc. Different offices in the Office of the Secretary of Defense lead each part of the decision making process, and the Chairman, Joint Chiefs of Staff and the military Services manage parallel processes. In theory, these many organizational components should work in close harmony to make trades between competing alternatives at each level of the logic train from strategy to programs. In practice they do not.

⁸ O’Hanlon, *The Science of War*, p. 66.

⁹ Quadrennial Defense Review, Integrated Process Team #3, “Roles, Missions, and Organizations,” Working Group #5, Defense Reorganization, Final Report. October 14, 2005.

Thus even if the Department of Defense agreed in theory on a set of measures and instruments for assessing alternatives all along the chain of reasoning from national strategy to the employment of fielded forces it would take a different organization than the one the Pentagon currently has to make good use of them. Making trades between competing alternatives requires collaborating across organization boundaries and the Department of Defense is not currently organized to do that well. This is one major reason the Department is unable to rationally allocate resources to produce the most valuable capabilities for the most important missions. It cannot generate strategy based on explicit choices between competing alternatives,¹⁰ and it cannot agree on joint operational concepts that provide context for evaluating the contributions of individual weapons systems.¹¹ Because the Department cannot make trades at these broader levels in the analytic chain of reasoning—strategy, planning and operational concepts—the rest of the downstream processes—requirements, programs and budgets—is managed without the benefit of broader context. Each link in the chain of reasoning tends to operate semi-autonomously. Trying to collaborate with other organizations and processes simply complicates the ability of leaders to meet their own objectives with the information at their disposal.

The inability of subordinate organizations to collaborate well is a major limitation on the ability of the Secretary of Defense and his deputy to manage the Department well. In the increasingly competitive international security environment these leaders need to make key planning and resource allocation decisions quickly and with the benefit of well-integrated risk assessments. They need their subordinates to do the same at each step in the Pentagon’s “strategy-plans-requirements-resource” guidance process and forward only the most consequential issues to them for resolution. There is no time to integrate solutions by handing problems from one functional body of expertise to another until finally, fully coordinated but with important differences of opinion obscured, they appear on the Secretary’s desk.

¹⁰ For a detailed explanation of the inability to make trades at one level of the process—strategy—see Christopher J. Lamb, “Pentagon Strategies,” in David Ochmanek and Michael Sulmeyer, eds., *Challenges in U.S. National Security Policy: A Festschrift Volume Honoring Edward L. (Ted) Warner*, (Arlington, VA: RAND, 2014).

¹¹ For a discussion on Pentagon challenges in developing and agreeing upon joint operating concepts, see Christopher Lamb, M. Elaine Bunn, Charles Lutes, and Christopher Cavoli, “Transforming Defense,” Occasional Paper, National Defense University Press, September 2005.

Better and faster integrated assessments of risk require cross-functional (or horizontal) integration because all of these resource activities involve multiple sources of functional expertise. To effectively collaborate across organizational boundaries and make the process work as well in practice as it should in theory the Department would have to employ cross-functional teams that are capable of putting mission success before protection of parent organizational equities. Currently, the Department is highly resistant to these kinds of organizational reforms. The Department briefly embraced the concept of cross-cutting horizontal organizations in the 2006 Quadrennial Defense Review but the initiative lacked leadership support and follow-through.¹²

Consequently the leaders of the Department's functional organizations continue to delay and dilute any recommendations that run counter to their organization's perceived interests. They have little incentive to look at problems and corresponding solutions beyond the scope of their own responsibilities. No single leader is inclined or able to solve the overarching problems of greatest importance to the Secretary. The Secretary almost never sees well-integrated assessments of problems and corresponding integrated alternative solutions. Instead he often receives watered-down recommendations that paper over critical assumptions, distinctions, and differences of opinion that need to be resolved. On occasion the Secretary is inclined to investigate such "least common denominator" products and root out critical issues and differences, but he typically does not have the time to do so. In a crisis the Secretary can focus on hammering out integrated solutions to complex problems, but as a routine matter he simply cannot pursue every issue he would like to investigate. Moreover, senior leaders are constrained by the political liabilities of routinely overriding powerful personalities and institutional interests. For these reasons decisions are made slowly or not at all, and if made in response to a crisis, are made without the benefit of requisite information and supporting analysis.

¹² The 2006 Quadrennial Defense Review promoted "the principles of transparency, constructive competition to encourage innovation, agility and adaptability, collaboration and partnership" to "guide the formulation of new strategic processes and organizational structures." It asserted "improved horizontal integration will be critical to the Department's success" and that "the Department is continuing to shift from stovepiped vertical structures to more transparent and horizontally-integrated structures." *Quadrennial Defense Review Report*. Washington, D.C.: Dept. of Defense, 2006.

MRAPs as an Acquisition Case Study¹³

The Department of Defense effort to field mine-resistant, ambush-protected (MRAP) vehicles in Iraq after the security situation there deteriorated in late 2003 provides a useful case study for considering limitations that impede the Pentagon's management of acquisition programs. The basic history of how requests for MRAPs from commanders in the field were handled by the Department of Defense is now well known. It is clear that most of the limitations on effective acquisition outlined above were all on full display as the Department struggled to make a timely decision on whether to field the MRAPs.

Improvised explosive devices (IEDs) soon emerged as the enemy's weapon of choice in Iraq and became the "No. 1 threat" to U.S. forces. From the summer of 2005 until the spring of 2008, IEDs caused 50 to 80 percent of U.S. fatalities. The IED threat evolved over time, but all major forms of IEDs were apparent early on—by 2004 or 2005 at the latest. By early 2005 insurgents were using IEDs to conduct both side and under-vehicle attacks against the entire range of U.S. armored vehicles. They also were using a particularly lethal form of IED known as the explosively formed penetrator, which was able to better penetrate armor and spray elements of the weapon and the vehicle's armor into its interior. These sophisticated IEDs never amounted to more than 5 to 10 percent of the IEDs employed by insurgents but they caused 40 percent of IED casualties.

Countering IEDs was a complex problem requiring a multifaceted response. Better armored vehicles could be part of the solution but there were few options readily available. The Army decided to procure up-armored Humvees to replace the thin-skinned versions it had in abundance. The Army worked with manufacturers to increase production from 51 vehicles per month in August 2003 to 400 vehicles per month in September 2004, and later to 550 vehicles per month. The Army also approved the emergency expedient of adding armor kits to the existing Humvees because they could be fielded more quickly than up-armored Humvees. The

¹³ For a detailed account of this program see Christopher Jon Lamb, Matthew Schmidt and Berit Fitzsimmons, "MRAPs, Irregular Warfare, and Pentagon Reform," Occasional Paper, Institute for National Strategic Studies, National Defense University, June 2009.

House Armed Services Committee (HASC) monitored these efforts and investigated Pentagon claims that production of the add-on kits could not be accelerated. With the HASC pushing hard Army depots increased production from 35 kits per month in December 2003 to 600 kits per month by July 2004. 7,000 kits were delivered 6 months ahead of the Pentagon's original timetable but only 5,330 of the 8,105 up-armored Humvees required by September 2004 were actually in place.

Secretary of Defense Donald Rumsfeld made delivery of up-armored Humvees and add-on armor kits a priority. The Army was compliant but not enthusiastic. Its Director of Force Development noted the expense of the program (over \$4 billion) but also acknowledged the Secretary's guidance: "This is an enormously expensive program, but very frankly, the communication from the secretary of defense has been real clear."¹⁴ When it became evident that even up-armored Humvees offered insufficient protection against IEDs, Senators from across the political spectrum weighed in on what one decried as an unacceptable "set of bureaucratic delays" in fielding MRAPs. Media and whistleblower exposés, war college studies, congressional investigations, and inspector general reports castigated Pentagon performance. Legislators complained about the inability to "legislate a sense of urgency" and withheld funding until improvements in armor were made.

Pentagon leaders knew it was critically important to counter IEDs, not only to reassure Congress but to counter enemy strategy. The enemy intended to use IEDs and distribute the images of their effects to undermine U.S. public support for the war. In response, the Pentagon created new organizations to find solutions to the IED problem. The Army set up a small unit dedicated to defeating IEDs which adopted the motto: "Stop the bleeding." The task force concentrated on solutions "left of the boom;" that is, on improving ways to avoid IEDs and attacking the ability of insurgents to make, emplace, and control the IEDs before they went off. The Army's Rapid Equipping Force also put its emphasis on solutions "left of the boom." In July 2004, the Army-centric task force was upgraded to an Army-led Joint Integrated Process Team to harness the expertise of all the Services. The Secretary of Defense and Deputy

¹⁴ Matthew Cox and Megan Scully, "\$4 Billion Pledged to Make Trucks, Humvees Safer," Defense News, January 3, 2005, 11.

Secretary of Defense also issued memoranda authorizing expedited procurement of equipment designed to save lives, and created the Joint Rapid Acquisition Cell for this purpose. The following year, the Pentagon upgraded its efforts to combat IEDs by creating the Joint IED Task Force. By the time the task force became the Joint IED Defeat Organization (JIEDDO) it controlled hundreds of personnel and annual budgets of more than \$3 billion.

The Pentagon organizations dedicated to countering IEDs could claim some success. IED effectiveness (measured by the ability to produce coalition casualties) dropped from a high of over 50 percent early in the war to less than 10 percent effectiveness in the fall of 2007. Their efforts, plus other counter-IED efforts such as up-armored Humvees, reduced the average effectiveness of an insurgent IED attack. Insurgents had to stage more attacks to obtain equivalent effects. Unfortunately, they were able to do so and actually managed to increase their ability to inflict U.S. fatalities. In this context, considering better armored vehicles was an obvious option, but JIEDDO did not push this solution for two reasons. It was focused on prevention rather than protection, which was considered a more elegant solution if it could be achieved. More to the point, JIEDDO did not have responsibility for acquisition of better armored vehicles. The JIEDDO mandate allowed it to fund development of better armor for vehicles but it did not have authority to procure and sustain armored vehicles, which was the prerogative of the military Services based on their assessment of requirements.

Field commanders wanted MRAPs. First, a Military Police commander in Iraq issued an urgent request in June 2003 for armored security vehicles to help protect U.S. military convoys and patrols. These vehicles were lighter than MRAPs but similarly designed for better protection against mines and other ambushes. Late in the summer of 2003, the Army's 101st Airborne Division also issued a request for more vehicle armor and training to counter IEDs. In September, other commanders began to request MRAPs. By November, a draft "urgent universal need statement" for MRAPs from a Marine field commander was circulating in the Pentagon. The final version, sent on February 17, 2005, made the case that the Marines should not continue to absorb casualties from IEDs when commercial off-the-shelf MRAPs were available. Despite these requests it took more than 2 years, political pressure from Congress, and

a determined intervention by the Secretary of Defense before the Pentagon validated a large purchase of MRAPs as a military requirement.

The slow approval of MRAP requirements did not reflect lack of appreciation for their effectiveness. Early and throughout the war, U.S. experts on military requirements recommended armored cars and MRAPs for Iraqi forces also under attack from IEDs. Those in charge of Pentagon requirements just did not think these options were a good fit for the U.S. military. An internal Marine Corps' report¹⁵ found that the Marine requirements process largely discounted the need for MRAPs. When Marine Corps senior leaders convened on March 29–30, 2005 to consider MRAPs, the flag officers heard a strong case for the immediate purchase of the vehicles from a Marine who had long studied their value in irregular warfare. However, the decision was made to hold out for a future vehicle that would meet all the requirements for mobility and protection better than either the up-armored Humvee or MRAPs. The Army requirements process was even less favorably inclined toward the MRAP. It moved more slowly to approve MRAP requirements and in smaller numbers.

Field commanders persisted, however, and in 2006 finally succeeded in getting the Pentagon requirements process to approve MRAPs. On May 21, 2006, the commanding general, Multi-National Force–West, submitted a request for 185 MRAPs to the Joint Requirements Oversight Council and in July he submitted a second request for 1,000 more. The eventual approval of the requirement for 1,185 MRAPs cleared the way for a joint MRAP acquisition program, which began in November 2006. However, an approved MRAP requirement did not guarantee the program a high priority for Pentagon funding. In testimony to the HASC on March 13, 2007 General Robert Magnus, USMC, acknowledged MRAPs are “up to 400 percent more effective than the up-armored Humvees in reducing injuries and deaths” and can “cut casualties by perhaps as much as two-thirds.”¹⁶ However, he also explained to the dismayed HASC that MRAPs were an “unfunded requirement.”

¹⁵ Sharon Weinberger, “Report: IED Crisis ‘Avoidable’ with Armored Trucks,” Wired.com, February 19, 2008, available at <<http://blog.wired.com/defense/2008/02/report-ied-cris.html>>. The report is available at <http://blog.wired.com/defense/files/franz_gayl__complete_mrap_study_archive.pdf>.

¹⁶ Hearing on National Defense Authorization Act for Fiscal Year 2008 and Oversight of Previously Authorized Programs before the Committee on Armed Services, House of Representatives, 110th Congress, 1st Sess., Readiness

Almost 3 years after units in the field submitted their requests for MRAPs, the Pentagon requirements system had moved to the point where senior Service leaders could invite Congress to pay for a large number of the vehicles if it was willing to do so over and above the Pentagon's normal budget and its additional warfighting supplemental funding. Two months later, a frustrated Secretary Gates announced MRAPs were the Pentagon's number-one acquisition priority. Shortly thereafter, the Joint Requirements Oversight Council validated huge MRAP requirements, first for 7,774 and then for 15,374 vehicles.

When MRAPs were finally approved for U.S. forces in mid-2007, General Petraeus' new strategy was just being implemented. He supported the dispersion of an increasing number of U.S. forces (the so-called surge of five additional Army brigades) among the Iraq population, principally in Baghdad. The acquisition system was already primed to move quickly on MRAPs before the Iraq War began because Army's engineers had navigated the Army requirements process well enough to obtain a handful of MRAP prototypes for clearing mines from transportation routes. This fact, along with the support of Congress and Secretary Gates, allowed more than 10,000 MRAPs to be fielded in record time—about a year and a half.

The MRAPs made a significant impact once they arrived in theater, but their impact is obscured by the decline in violence that accompanied the American shift in strategy under General Petraeus. In addition to other factors such as cooperation with Sunni tribal leaders, the surge in U.S. forces and General Petraeus' emphasis on population security helped produced a sharp drop in violence—including IED attacks—from the summer of 2007 onward. That drop in violence meant a reduction in U.S. casualties. Yet the number of fatalities and wounded from IED attacks dropped even further after MRAPs arrived. When MRAPs began to flow to Iraq in November 2007, almost 60 percent of U.S. casualties were attributed to IEDs. Just a little over a year later with 10,000 MRAPs in country, only about 5 percent of casualties were attributable to IEDs, even though insurgents were targeting MRAPs with IEDs for symbolic reasons.¹⁷ In

Subcommittee Hearing on Budget Request on Adequacy to Meet Readiness Needs, March 13, 2007 (Washington, DC: U.S. Government Printing Office, 2008).

¹⁷ Andrew Gray, "New U.S. Armored Trucks are Symbolic Targets: General," Reuters, August 24, 2007, available at <www.reuters.com/article/latestCrisis/idUSN24356492>.

short, General Magnus's testimony in March 2007 to the effect that MRAPs could "cut casualties by perhaps as much as two-thirds" seems well founded.

The acquisition system was not responsible for the Pentagon's lack of preparedness for irregular warfare or its inability to respond quickly to the need for better armored vehicles. The glaring deficiency was in the Pentagon's requirements system. The major tradeoffs between MRAPs and lighter tactical vehicles were well understood from the beginning. As Representative Hunter noted at the time, the advantages the MRAP has over a Humvee are clear: "It's a simple formula. A vehicle that's 1 foot off the ground gets 16 times that [blast] impact that you get in a vehicle that's 4 feet off the ground," such as the MRAP.¹⁸ At issue was the optimum number and mix of armored vehicles and their performance parameters, which was not self-evident. The relative value of survivability, mobility, and other armored vehicle attributes is a function of multiple factors, including the threat posed to U.S. forces, which evolved over time and reached unprecedented levels in Iraq's unique circumstances.

Even so, the evolution of the IED threat in Iraq does not adequately explain the resistance to purchasing MRAPs for U.S. forces. The Pentagon's requirements system was slow to validate the need for MRAPs even after insurgents were using all the major types of IEDs. Department of Defense experts were advising the Iraq military early on that they needed MRAPs for counterinsurgency, so their value for irregular warfare was understood. The reality is that decision makers in the Pentagon's requirements system were not enthusiastic about any additional armor, much less heavy, expensive MRAPs. The Services hoped to get by with less expensive up-armored Humvees, but they were being penny-wise and pound-foolish. Adding armor to a Humvee cost only \$14,000; up-armored Humvees cost twice as much as the unarmored version (about \$200,000), and MRAPs cost three to seven times as much as an up-armored Humvee, from \$600,000 to over \$1 million per vehicle. Yet as some Senators noted at the time, protecting people in an all-volunteer military is cheaper than replacing them. The cost of enlisted casualties averages \$500,000 while officers, depending upon their military occupation, range from \$1 million to \$2 million each. Given these evident savings and the other

¹⁸ Peter Eisler, Blake Morrison, and Tom Vanden Brook, "Pentagon Balked at Pleas From Officers in Field for Safer Vehicles: Iraqi Troops Got MRAPs; Americans Waited," *USA Today*, July 16, 2007, 1.

advantages of countering IEDs and reducing casualties, MRAPs were more than a bargain. Nevertheless, decisions to provide additional armor to U.S. forces had to be imposed on the system, first by Secretary Rumsfeld and then by Secretary Gates.

Conclusion

Learning from the MRAP experience, Secretary Gates made a determined effort to “institutionalize procurement of [irregular] warfare capabilities,” so they could be quickly fielded when needed in the future. The source of resistance to his goal was not the Pentagon’s acquisition system. As acquisition professionals emphasize and the MRAP experience illustrates, nothing can be procured without a validated requirement and congressional funding. Once senior leadership validated the requirement and provided resources, the acquisition system fielded large numbers of MRAPs within 18 months—an accomplishment often described as an industrial feat not seen since World War II. The long delay in fielding MRAPs is attributable first to the Pentagon’s force development or requirements system, secondly to Service cultures that generally undervalue irregular warfare capabilities, and finally to the Pentagon’s decision-making structure and processes that typically favor specialization over integration of diverse areas of expertise across organizational boundaries to solve complex problems.

The MRAP case thus underscores the need for reform in the Pentagon, and reinforces the lessons gleaned from other experiences. The Pentagon’s current organizational structure and processes push decisions down to bodies of functional expertise that cannot make decisions in their proper context. The Pentagon cannot integrate diverse areas of functional expertise across organizational boundaries to solve complex problems. Therefore the Secretary of Defense or his deputy must do so as time permits or mistakes like the delayed fielding of MRAPs will continue to be made. In addition, it is clear that Service cultures will remain singularly focused on their major warfighting capabilities, which is not altogether bad. It simply means that if we want better niche capabilities for irregular warfare or joint capabilities for other major mission areas beyond large Service-centric force-on-force combat operations we will have to embrace alternative decision making mechanisms and processes. Finally, we have to acknowledge that real progress in better managing acquisition programs cannot be made without broader

organizational reforms that would improve the ability of the Pentagon to consider alternative courses of action.

In light of these findings, I believe we need to consider several remedial courses of action to improve our ability to deliver material and services to our armed forces:

- We need to consider organizational reforms to Department of Defense processes that would improve our ability to make trades between competing alternatives by collaborating across organization boundaries. This needs to be done at every step along the analytic chain of reasoning from strategy to planning to operational concepts to requirements and programs. Without the ability to consider and make tradeoffs in these areas, it will be impossible to provide decision making context to inform tradeoffs between key performance parameters of major acquisition programs.
- Thus we need to reverse the trend to remain aloof from “structured, analytic, often quantitative,” defense analyses. As Michael O’Hanlon argues, even though the results of defense analysis are “imprecise, we must nonetheless strive to understand, improve, and employ them” because doing so improves the chances of delivering the best possible chances of survival and victory for our armed forces. They are worthwhile “even if our main goal in analysis is generally to illuminate choices, bound problems, and rule out bad options—rather than arrive unambiguously at clear policy choices.”¹⁹
- We also need the flexibility to manage material solutions differently in irregular warfare and peace operations. The intense oversight and rigid processes that govern large, long-term major acquisition programs are not appropriate for quick fielding of creative solutions in irregular and rapidly evolving circumstances. Comparing the latitude afforded the Train and Equip program and its outcomes to the rigidity of the processes that delayed fielding MRAPs makes this point clear.

¹⁹ O’Hanlon, *The Science of War*, pp. 247-8.

I know this reform agenda is daunting. I am sure many will say it is politically unrealistic and exceeds the scope of acquisition reform. Yet I believe it is long overdue. The Pentagon wastes prodigious amounts of its most expensive asset—human capital—in processes that are not generating valued outcomes. Many observers recommend more modest solutions to acquisition reform like educational programs, monetary incentives, and better personnel selection processes. These may help, but the most invigorating incentive for high performance is the conviction that you can make a difference. In the current system it is very difficult for defense officials and program managers below the level of the Secretary to make a difference in acquisition. There are just too many constraints on their ability to deliver desired outcomes, which makes it difficult to hold anyone accountable for performance. The solution is not to further isolate the acquisition system from other processes but to reform those processes so that program managers have more context for making trades among program performance attributes. To manage acquisition programs better there is no real alternative to improving the Pentagon's ability to generate better strategy, plans and operational concepts.

Many observers will worry that such reforms would inject unhelpful micromanagement into Pentagon acquisition programs rather than helpful oversight. This would be the case if we simply tried to mandate more interaction between the Pentagon's planning, requirements and acquisition processes without reforming its organizational structure and ability to collaborate. The difference between helpful oversight and unhelpful micromanagement is contextual insights. Secretary Gates intervention in the MRAP case was helpful oversight because he could see the larger connections in play that were not evident to functional experts further down the decision making chain. To make helpful oversight more common in the Pentagon and below the level of the Secretary of Defense, it is necessary to make good analysis more common. To make good analysis more common, it is necessary to reform the Pentagon's ability to collaborate across organizational boundaries. These changes would be difficult, but like the old adage says, "If it's worth doing, it's worth doing well."