

RECORD VERSION

STATEMENT BY

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BEFORE THE

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DEFENSE ACQUISITION REFORM PANEL

OF THE

**COMMITTEE ON ARMED SERVICES ON “CHALLENGES TO
EFFECTIVE ACQUISITION AND MANAGEMENT OF INFORMATION
TECHNOLOGY SYSTEMS”**

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Introduction

Good morning and thank you for this opportunity to testify before the Defense Acquisition Reform Panel of the Committee on Armed Services on “Challenges to Effective Acquisition and Management of Information Technology Systems”.

I am the Deputy Assistant Secretary of Defense for Command, Control, Communications, Intelligence, Surveillance, Reconnaissance and Information Technology Acquisition (C3ISR & IT Acquisition) within the Office of the Assistant Secretary of Defense for Networks and Information Integration. In my position within the Department of Defense (DoD), I am responsible for overseeing assigned major defense acquisition programs and major automated information systems by serving as an advisor to the milestone decision authority (MDA) for these programs. As an advisor to the MDA, I support decision-making on whether an acquisition program should be initiated and whether that program should proceed into the various phases of the acquisition life cycle. At each major decision point, the MDA must determine whether the program or a key increment of the program should be terminated, modified or approved to proceed. One key component of this responsibility is determining whether the program is complying with the Department’s acquisition policies documented in the DoD 5000 series and the requirements of the subtitle III of U.S.C. title 40 (formerly called the Clinger-Cohen Act). The other key component of my responsibility is to leverage my experience in determining the likelihood that the ongoing acquisition program will offer value to the warfighter within its approved acquisition program baseline.

Additionally, I participate in forums and support activities to improve the acquisition process; examples of this range from sanctioning lean six sigma studies within my office to partnering with trade associations in studies pertaining to industry trends with our industry counterparts or offering testimony to various groups such as the recent Congressionally-directed Defense Science Board (DSB) on the Policies and Procedures for Acquisition of Information Technology or the ongoing National Academies Committee on Improving Processes and Policies for the Acquisition and Test of Information Technology in the DoD. I realize that improvement is essential and have great respect for those efforts that continue to strive to bring unity to our efforts as we work to improve the DoD acquisition process. In this regard, I agree with and support many of the recommendations from the recent DSB on the Policies and Procedures for Acquisition of Information Technology.

I would like to share my thoughts on a few key topics; specifically, challenges within the information technology acquisition environment, addressing requirements and funding instability, creating an effective governance construct and strengthening the industrial base.

Challenges Within Information Technology Acquisitions

As noted by the recent DSB, acquisition reform studies have been on-going almost continuously since the original Goldwater-Nichols legislation was passed in 1986.

Very often, acquisition-related problems are attributed to inadequate requirements definition and program funding instability. The question then arises as to whether these challenges are common to all acquisitions including those associated with modernizing and supporting the Department's ability to field information technology in a timely and cost-effective manner.

Based upon my experience, requirements creep and funding instability are challenges that will always be present and ought to be recognized as "fact of life" within the lifecycle of an information technology acquisition program. The time from first funding to initial operational capability has averaged 81 months for information technology systems. This is a relatively lengthy period of time during which there are significant pressures for both requirements and funding changes.

With regard to requirements creep, Moore's Law, the hypothesis that the power of information technology will double every eighteen months, has proven to be valid with regard to the information technologies we acquire. This adds a dynamic factor to information technology system acquisition that puts pressure on system builders to change system level requirements during the design process. Also, combat operations are being conducted in rapidly changing circumstances, shifting from humanitarian operations to intense combat operations with little or no warning, that involve our multinational and interagency partners. This drives capability type requirements changes for systems to be used on the edge.

Likewise, our customers, the warfighters of today, are information technology savvy, often termed “digital natives,” with expectations to leverage the unprecedented innovation in the commercial market to enhance our information systems capability in terms of agility, flexibility, responsiveness and effectiveness, also driving system design requirements change. The combination of these three very real forces leads to significant “requirements change” pressure on the acquisition process. This observation was reflected in the 2006 Defense Science Board Summer Study on Information Management for Net Centric Operations where it was cited that information management in Iraq and Afghanistan was a principal concern among war fighters. In the 2006 DSB study, it was also noted that significant ad hoc activity was taking place, especially at the tactical level, to gain desired capability. Especially important was that much of the military capability used to support the conflicts was paid with supplemental funding—programs that were not part of the Department’s planned capability. Therefore, it should be no surprise that given Moore’s law and the persistent demand from our digital native customers, “requirements stability” within this environment is a difficult challenge and we must begin to embrace the concept that changing requirements might actually be desirable for information technology acquisitions. Akin to the lack of requirements stability, funding stability in this dynamic environment is a significant challenge that must be addressed within the existing acquisition governance framework.

A large portion of the Department's discretionary funding is allocated to acquisition. Within the acquisition accounts, information technology programs are relatively more flexible because, unlike weapons system programs, information technology programs typically do not have a significant out year production quantity to amplify near term changes in the execution or budget year funding. In terms of program funding, the inherent flexibility of information technology systems is like a double-edged sword. When a source of funding is needed, information technology programs are more likely to be used as that source. Also, when a rapid capability improvement is necessary, information technology is more likely to be a recipient of funding as noted previously.

In summary, both requirements and funding for information technology have been and will continue to be under pressure for change over time due to factors independent of the acquisition process.

Addressing Requirements and Funding Instability

As noted earlier, the DoD has the opportunity to leverage the unprecedented innovation driven by commercial market to enhance our weapon system's capability. Nevertheless, achieving such results involve significant change to processes, practices and commonly held beliefs institutionalized across the community. One such change is to move away from the large, "toll gate" decision acquisition program model to a model that encourages smaller acquisitions, both

in content and complexity. This observation was embodied in the March 2009 DSB report, “Policies and Procedures for Acquisition of Information Technology,” by the proposed acquisition model that contained a single milestone with multiple “knowledge points” interspersed throughout the acquisition lifecycle. The proposed DSB model recognizes the unique aspects of information technology and provides more value-added activities including enhanced stakeholder engagement and analytical rigor throughout the acquisition life cycle. Developing tomorrow’s net-centric systems will likewise require an approach to acquisition where the large waterfall model (with its long requirements, analysis, development and test phases) ought to be replaced with an iterative model that embraces requirements prioritization as well as multiple development/operational tests to support the delivery of mission capability throughout the system lifecycle. Even the different phases of the acquisition process as defined for weapons systems are ill-suited for information technology systems. Phase A is intended to mature technology, yet the underlying information technologies are now matured in the commercial sector, independent of DoD. Phase B is intended to ready a program for production, yet information technologies typically aren’t produced in quantity, they are deployed as a unit of one. Phase C is the production phase, which again is largely not relevant to information technology. In fact, even the term “lifecycle” has become ambiguous because if designed well, it may be in our interest to move to a never-ending program concept for information technology acquisition. Similar to the B-52 experience where we built an airframe and then

updated the pieces over time rather than build a like replacement in its entirety, the inherent modularity of IT, the dynamics of IT technology, and the pace of commercial information technology development allows us to “build or adopt an airframe” based on an open design with commercial standards and continue to modify it rather than replace it in its entirety after a pre-determined period of time.

The fundamental concept of large information technology programs with distinct “beginnings” and “ends” is in question as we learn more about the inherent modularity of information technology and become more dependent upon commercial hardware that is evolving due to factors out of the control of the program manager. As we take advantage of the commercial market and move to more open designs that lend themselves to reuse and modification, we will find more value in modification of parts of the system rather than starting over with a clean sheet of paper for a total system replacement.

This approach is often referred to as a service oriented architecture (SOA) and presents a different set of challenges than the classical systems acquisition process. Recently, my office partnered with the Association For Enterprise Integration (AFEI) to develop a white paper designed to help government Program Managers better acquire service oriented architecture (SOA)-based information technology solutions. This study group, which was composed of experts across the DoD

industry base, concluded that speed by which DoD moves toward service-orientation is dependent upon such acquisition models like that recommended in the 2009 DSB study and the willingness of the leadership to allow such change.

I welcome the recent House Armed Services Committee fiscal year 2010 defense language that authorizes the DoD to establish ten pilot programs to rapidly acquire information technology capabilities under an alternative acquisition process. In support of this, I have my staff developing more detailed guidance/instructions that offers the next level of detail to the proposed DSB model contained in the March 2009 DSB Report on the Policies and Procedures for Acquisition of Information Technology.

Creating an Effective Governance Construct

Governance in this context relates to decisions that define expectations, grant power, or verify performance that is embodied by the structure and relationships among key stakeholders. As noted by the recent DSB report, significant change is required not only within the acquisition framework but also extends to requirements and test governance constructs. It was cited that the current governance model is characterized by rigid processes, long phases separated by infrequent decision gates and extensive planning documentation. This compares to the commercial information technology marketplace that embodies speed, agility, domain expertise and user-centered focus. It should be noted that we have

made strides forward. For example, the Joint Staff has introduced a new requirements validation process for information technology programs via the concept of the “IT Requirements Box.” This construct should reduce the requirements validation by pushing-down subsequent requirements validation to lower levels provided the program remains within established program criteria.

Additionally, the concept of community of interest (COI) has been successfully being implemented on the Distributed Common Ground/Surface Systems (DCGS) that offers an alternative approach to the existing governance approach. The DCGS COI concept addresses the two key imperatives needed in an effective governance structure by defining the boundaries of the organizational structure and relationships of the stakeholders. By shifting focus from capabilities and services resident within a single program of record to shared services across the DCGS Family of Systems, the motivations of individuals and organizations are aligned to a specific mission area (e.g., HUMINT, SIGINT, etc). Likewise, these communities are partitioned into a common grouping of core functionality composed of common infrastructure, enterprise services and mission applications focused to address those common issues while creating “enterprise behavior” rather than traditional program-centric or Service-centric behaviors.

We need to leverage such successes and implement a more effective governance system that can be replicated across the Department and is more applicable to rapid pace of information technology modernization efforts.

Strengthening the Industrial Base

Unlike typical hardware acquisition, Information Technology is perhaps the most inherently modular capability that exists within the DoD and therefore remains viable for competition throughout its life cycle. However, this has often been stifled since past information technology programs have followed the hardware-centric paradigm of gathering requirements to create a single large acquisition program and solicitation. This model incentivizes design of unique, proprietary systems that precludes taking full advantage of commercial technology and keeping pace with the dynamics of the IT industry.

Given Moore's law, the technology changes faster than the requirements process, faster than the budget process, and faster than the acquisition milestone decision process. As a result, by the time the acquisition program baseline is established, the technology being acquired is often out of date. In order to meet reasonable demands of our digital native customers and best use precious taxpayer resources, we often need to update programs soon after they have been baselined, and should change them several times between the milestones as defined within the existing

process. Much of the mandatory documentation supporting is overly prescriptive and also quickly becomes obsolete and inapplicable.

Our study results correlate well with the 2009 DSB study supporting enhanced competition through multiple firm-fixed priced contracts for small segments of the program that can be executed rapidly. Also, employment of standards-based reference models and well-defined and published commercial interface standards in lieu of unique DoD standards would improve time to market, competitive posture, and cost.

Creation of a standards-based open system would serve to mitigate the specification of a system for a company's product and also help prevent restrictive Intellectual Property and vendor lock-in. One of the main program office tasks would be to ensure the openness of the system to minimize unfair competitive advantage and "proprietary lock-in." As an example of this construct, my office has again partnered with AFEI and the Under Secretary of Defense for Intelligence to create an industry advisory group in support of the DCGS family of system governance construct. I look forward to the results of this effort that will investigate various business models to improve our ability to strengthen the industrial base.

Conclusion

The 2006 Quadrennial Defense Review Report highlighted the issue, noting, “as we emphasize agility, flexibility, responsiveness, and effectiveness in the operational forces, so too must the Department’s organizations, processes and practices embody these characteristics if they are to support the joint warfighter and the Commander in Chief.” Today, we have an opportunity to leverage excellent work completed by the Defense Science Board to improve the acquisition of the model for the DoD to effectively adapt modern information technology practices that may result in unprecedented relevance and value in support of current wartime operations. It will require significant change to address the underlying cultures that are embodied in existing processes, however a move to more B-52 type programs with smaller, shorter duration modifications rather than large systems acquisitions will lead to delivery of more relevant technology to our digital native warfighters at lower costs to the taxpayers.

I welcome House Armed Services Committee fiscal year 2010 defense language that gives DoD the authority to establish ten pilot programs to rapidly acquire information technology capabilities under an alternative acquisition process and look forward to working with this panel in the future to create an effective acquisition and management construct for information technology systems.

Thank you.

