A New Approach for Delivering Information Technology Capabilities in the Department of Defense

Report to Congress

November 2010

Office of the Secretary of Defense

Pursuant to Section 804 of the
National Defense Authorization Act for Fiscal Year 2010

DEPUTY SECRETARY OF DEFENSE
1010 DEFENSE PENTAGON
WASHINGTON DC 20301-1010

DEC 9 2010

To comply with the requirement of Section 804 of the National Defense Authorization Act for Fiscal Year 2010 (FY10 NDAA, PL 111-84) and to further the effectiveness and efficiency of the Department of Defense (DoD), the DoD has prepared the following report, "A New Approach for Delivering Information Technology Capabilities in the DoD."

This report provides an update on the DoD's progress toward developing a new acquisition process for information capabilities, discusses the timeframe for implementation, and anticipates the legislative changes that will be required to fully implement the new acquisition process. As a first step, initial phases will focus on DoD business systems and will leverage provisions within existing statutory authorities to accelerate information capability delivery. Future phases will incorporate lessons learned and may require new legislation in a number of areas, including changes to the requirements process, the Planning, Programming, Budgeting, and Execution process, and the processes used to conduct acquisition and contracting as they relate to information technology.

I have established an information technology (IT) Acquisition Task Force that I chair and the Deputy Chief Management Officer leads. The Task Force includes extensive participation from across the Department and is engaged with key stakeholders throughout the Department and industry to further refine the details of the new process, begin implementation, and provide top-level oversight for the transition to the new process.

The Department considers IT critical to accomplishing its national security mission. We appreciate the encouragement from Congress to undertake major reform of the processes used to acquire IT, and we are committed to working with Congress to build a process that matches the dynamic nature of today's information age and the evolving needs of our forces.

Table of Contents

I. Introduction

II. Background

III. Accomplishments

IV. Guiding Principals

V. Strategic Intent of the New Process

a. Governance and Management
b. Funding
c. Acquisition
d. Requirements

VI. Alignment with Section 804 Criteria and DSB Chapter 6

VII. Implementation Schedule

VIII. Categories of IT Acquisitions

IX. Legislative Change Considerations

Appendix A – Section 804 Language

Appendix B – Interim Acquisition Guidance for Defense Business Systems (DBS), dated 15 November 2010

I. Introduction

This report responds to Section 804 of the Fiscal Year (FY) 10 National Defense Authorization Act that directs the Department of Defense (DoD) to develop and implement a new acquisition process for information technology (IT) systems based, to the extent determined by the Secretary, on the recommendations of Chapter 6 of the March 2009 Defense Science Board (DSB) Report. This report complies with Section 804 and includes:

- A description of the new acquisition process [referred to herein as our strategic intent]
- Explanations of deviations from the DSB Report
- An implementation schedule
- Identification of the applicable categories of IT
- Recommendations for legislative change considerations

The DoD is developing a comprehensive new process to acquire and deliver IT capabilities. This process will leverage ongoing Department efforts to streamline Defense Business Systems (DBS) acquisition and incorporate best practices garnered from engagement with industry and lessons learned from ongoing DoD efforts. The new process is intended to take full advantage of the speed of IT innovation from commercial industry to foster an environment for mission-focused and time-critical deliveries that support the full spectrum of IT applications within the DoD. Significant and fundamental change across the Department's processes is envisioned to not only improve the IT acquisition cycle time but also to realize the advantages inherent within the operations and maintenance of IT products and services. Requirements, resourcing, and acquisition management will be synchronized and streamlined with risk-scaled oversight through frequent in-process reviews and milestone decision points. IT will be acquired as "time-boxed" projects delivering capability in an iterative fashion using mature technologies, while managed in capability-aligned portfolios to identify and eliminate redundancy. The new IT acquisition process will apply across the DoD information enterprise, delivering effective IT to our front line warfighters and enabling more efficient business operations.

Engaged senior leadership will be crucial to our successful development and implementation. To that end, an IT Acquisition Task Force has been established that is chaired by the Deputy Secretary of Defense and led by the Deputy Chief Management Officer (DCMO). The Task Force includes participation by the Under Secretary of Defense for Acquisition, Technology & Logistics (USD(AT&L)), Assistant Secretary of Defense for Networks and Information Integration/DoD Chief Information Officer (ASD(NII)/DoD CIO), the Director for Cost Assessment and Program Evaluation (D,CAPE), the Under Secretary of Defense Comptroller (USD(C)), the Director, Operational Test and Evaluation (DOT&E), the Under Secretary of Defense for Intelligence (USD(I)), the Joint Chiefs of Staff (JCS), and the Military Departments (MILDEPs). The Task Force will engage with Congress, the Government Accountability Office, and key stakeholders throughout the Department and industry to further define and implement the new process in accordance with this report.

II. Background

The DoD is an immense and complex organization. It has more than 1.4 million men and women on active duty, 750,000 civilian personnel, and 1.1 million serving in the National Guard and Reserve, making it the nation's largest employer. Additionally, more than 5.5 million family members and military retirees receive benefits. Supporting the diverse IT needs of this population is a tremendous challenge that involves approximately 15,000 unclassified networks, more than seven million computers and IT devices, and a 170,000-person information management/IT workforce.

In March 2009, the DSB reported that the DoD was struggling to keep pace with the speed at which new IT capabilities are being introduced in today's information age—and the speed at which potential adversaries can procure, adapt, and employ these same capabilities against the United States. The House Armed Services Committee (HASC) Defense Acquisition Reform Report of 23 March 2010 reached similar conclusions but broadened the list of concerns to include the major DoD processes for requirements, resourcing, and acquisition. The government is inefficient by design, burdened with a deliberate set of checks and balances, and clearly, it is time for the Department to review the sources of those inefficiencies and develop a new acquisition approach that is compatible with the fast-paced commercial IT sector and the evolving needs of the diverse DoD user base.

III. Accomplishments

Reforming the DoD IT acquisition process is a critical endeavor to effectively accomplishing the warfighter mission and efficiently operating the Department. The introduction of changes in the IT acquisition process will occur incrementally and will build upon many of the important accomplishments the Department has already made that include:

- **Portfolio Alignment:** The DoD has rationalized acquisition oversight of IT through broad portfolio alignment to responsible authorities: AT&L oversees the acquisition of warfighting systems; the DoD CIO currently oversees the acquisition of infrastructure, communications, and command and control capabilities; and the DCMO oversees the acquisition of DBS.
- **Governance**: The Department has created the Combined Investment Review Board (CIRB) to manage the Major Automated Information System (MAIS) Programs, including the Major Defense Acquisition Program (MDAP) business portfolio. The CIRB integrates the governance of these DBS. It evaluates programs from a cross-functional perspective that includes delivering business value and capability, acquisition compliance with appropriate statutes, and risk evaluation.
- **Requirements**: The Department is using the Joint Capabilities Integration and Development System (JCIDS) "IT Box" to capture warfighter requirements. The JCIDS "IT Box" is a new process that provides agility and streamlining for IT programs. The "IT Box" defines performance and cost ranges and delegates authorities for change approval within those established ranges.
- **Business Process Reengineering (BPR):** Section 1072 of the FY2010 National Defense Authorization Act (NDAA) mandated a new approach to BPR for business systems. The

Department's BPR guidance directs programs to define clearly articulated problem statements with measurable performance metrics tied to reengineered business processes resulting in well-scoped and well-defined requirements.

- **Business Capability Lifecycle (BCL):** The BCL, as described in Appendix B, is a framework tailored to rapidly deliver business IT capabilities within the DoD, by consolidating oversight requirements (i.e., funding, requirements, and acquisition) into one structure while streamlining documentation requirements. Key attributes of BCL include:
    - Streamlined capability documentation
    - Streamlined governance and tiered accountability
    - Independent risk assessment
    - Flexibility in capability implementation strategies
    - Emphasis on the use of mature technologies
    - Use of "time constrained" process management and program execution
    - Capability delivery in increments of 18 months or less
    - User and test communities engagement throughout the life cycle

IV. Guiding Principles

The traditional acquisition process used to develop and acquire military technology is not aligned with the speed, agility, and adaptability at which new IT capabilities are introduced in today's information age. New approaches require new principles, and the IT task force has adopted several to guide the Department's approach to IT acquisition. These principles embrace the recommendations of the DSB and include:

- **Deliver Early and Often:** This principle is aimed at changing the culture from one that is focused typically on a single delivery to a new model that comprises multiple deliveries to establish an environment that supports deployed capabilities every 12 to 18 months.
- **Incremental and Iterative Development and Testing**: This principle embraces the concept that incremental and iterative development and testing, including the use of prototyping, yield better outcomes than trying to deploy large complex IT network systems in one "Big Bang."
- **Rationalized Requirements**: User involvement is critical to the ultimate success of any IT implementation, and user needs must be met. However, this principle also recognizes the need for users and requirements developers to embrace an enterprise focus across a portfolio of capabilities with established standards and open modular platforms vice customized solutions to ensure interoperability and seamless integration.
- **Flexible/Tailored Processes**: The Department's IT needs range from modernizing nuclear command and control systems to updating word processing systems on office computers. This principle acknowledges unique types of IT acquisition and embraces flexible and tailored—and risk-appropriate—IT paths based on the characteristics of the proposed IT acquisition.

- **Knowledgeable and Experienced IT Workforce**: This principle recognizes that a top priority is to establish a cadre of trained professionals and that the lack thereof is a significant impediment to successful implementation of any future process.

V. Strategic Intent of the New Process

The new process for acquiring IT will be a key element of the broader DoD effort to improve operational efficiency. This significant reengineering effort has implications well beyond the traditional acquisition process and will include innovations in requirements and financial processes to accelerate the delivery of IT capabilities. This section describes the strategic intent of the IT acquisition approach in the following broad categories: governance and management, funding, acquisition, and requirements.

The new process will be implemented incrementally as new policies are designed and adopted. Additionally, existing programs as well as proposals for new starts will be phased into the new process on a case-by-case basis based on criteria developed by the Task Force.

(a) Governance and Management

The new IT acquisition approach will include an integrated governance and management structure to rapidly deliver capability. Integrated governance is envisioned to eliminate service- and department-level oversight redundancy where practical. Roles and responsibilities will be aligned to accelerate decision-making by the most knowledgeable and relevant stakeholders. Ultimately, authorities will be appropriately delegated to lower levels for smaller projects, but with accountability mechanisms for senior-level decision-making tied to performance-based project execution.

The governance approach that consists of traditional milestone reviews to initiate major DoD 5000 program phases will be realigned to frequent milestone decision points more appropriate for the dynamics of IT acquisition. These milestone decision points will be conducted as in-process reviews for decision-makers to obtain real-time program status for acquisition decisions. The in-process review approach involves a periodic "portfolio" review of related projects by a forum of empowered stakeholders to proactively address project issues including execution status, fielding schedules, and budget planning. This governance approach places more accountability on oversight and mission outcomes, increases stakeholder involvement, increases transparency and use of performance-based metrics, and reduces acquisition program baseline event timelines that reflect multiple operational deliveries.

The DoD Information Enterprise has been rationalized through broad portfolio alignment to the following responsible authorities: AT&L oversees warfighting systems; the DoD CIO currently oversees infrastructure, communications, and command and control systems; and the DCMO oversees DBS. Further definition of acquisition executive and milestone decision authority roles and responsibilities will be addressed by the IT Acquisition Task Force as it continues to refine and rationalize IT portfolios. Additionally, alignment is required within each broad portfolio to leverage economies of scale, eliminate redundancies, fill gaps within the enterprise architecture,

clearly define discrete capabilities with well-defined performance metrics, and develop and enforce information standards and architectures, resulting in greater information sharing across organizational boundaries. The IT Acquisition Task Force will oversee the alignment activities to define the Information Enterprise as portfolios comprised of interrelated projects and headed by managers and oversight officials responsible for planning, acquiring, and deploying assigned IT capabilities.

Information Capability Planning

Requirements setting and management represent the most challenging aspect of an IT project and will be conducted collaboratively to ensure program synchronization and informed decision making. This effort will include information capability planning for both new projects and existing networks/systems, enabling coordinated IT system transitions, and maximizing leverage of existing program investment. Consistent with commercial practices, a multi-level planning approach will be used to strategically align a specific capability mission area via a multi-year roadmap and a detailed release plan for individual programs spanning a 12-month period. These plans will be supported by business and technical architectures and standards and will be augmented with agreements between user and acquisition communities. The new processes will incorporate transparent performance-based metrics to guide subsequent IT planning in concert with the changes being considered for IT funding via the DoD Planning, Programming, Budgeting, and Execution (PPBE) system. Sound planning will produce a roadmap that matches the project plans to required capabilities. Roadmaps will be reviewed frequently in a single portfolio as part of the integrated governance process.

IT Continuous Capability Deployment

In general, IT capabilities have an enduring and evolving nature without a defined end-of-service life. Whenever possible, capability updates to existing system network hardware and software will be planned, vice new system networks, to address frequently occurring obsolescence of commercial items, changes in requirements, and improvements due to technology advances. Current institutional processes make it difficult to adapt from the existing environment to separate and distinct acquisition and sustainment phases. Transforming this environment will require significant reform across several areas, including investment management processes, to incorporate meaningful performance-based metrics for assessing whether activities are providing the desired result. Planning for IT capability improvements will be captured and approved in capability roadmaps and will require sequencing of prioritized capabilities, defining roles and responsibilities, and transitioning legacy networks/systems akin to commercial software vendors' periodic updates and revisions to their products.

Oversight

A major change in the new process will be moving from large multi-year programs to portfolios of short-duration projects. This requires a new approach to project oversight. This approach will place more accountability on timely coordination, quicker decision making, and increased stakeholder involvement through more frequent performance-based in-process reviews. Oversight will be conducted by integrated and empowered governance bodies that have ownership of a capability roadmap. These governance bodies will be chaired by accountable

decision makers and will consist of key stakeholders specific to that portfolio, including systems engineers, users, testers, the CIO, comptroller, the acquisition executive, technology experts, cost analysts, and program evaluators. Oversight bodies will gain an in-depth understanding of the risk within their assigned portfolio of projects, permitting informed real-time decision making, and they will hold forums for portfolio and project teams to raise and resolve important time-sensitive issues. Current detailed project status and execution information will be available on-line for all stakeholders to review, replacing paper-based reporting to the maximum extent possible. These oversight bodies will be accountable for driving efficiency and transparency consistent with modern IT processes by defining acquisition project baseline events of shorter duration, making available detailed schedules and financial information, and tracking performance-based metrics on both the portfolio team's and the oversight body's effectiveness and efficiency. The end result of oversight changes will be to focus project execution and enable trade-offs across a portfolio to reduce redundancy and effectively align resources to deliver valued mission capabilities.

Policies and business rules will be created to provide flexibility while maintaining transparency and stewardship of critical resources entrusted to DoD by the taxpayer. Checks and balances that are the foundation of good government will be created and maintained to ensure accountability to DoD leadership and oversight organizations. Timely and agile but informed and accountable decision-making will be enabled in the new process, permitting managers to:

- Evolve existing capabilities
- Initiate new projects and terminate failing projects
- Transfer funds among projects within the portfolio
- Incrementally deliver user capability (e.g., 80 percent solutions)
- In coordination with the user community, incorporate derived requirements and transfer requirements among projects within the portfolio
- Approve required documentation

The portfolio management activities will include business cases and risk assessments as well as enterprise architecture alignment reviews to inform investment and acquisition decisions in partnership with the user-defined priorities.

(b) Funding

The PPBE system, used to build the entire DoD budget, operates on a timeline that is mismatched to the fast-paced IT commercial marketplace. It is unreasonable to expect the funding process for the entire DoD to be shortened sufficiently to respond to the rapid changes of the IT environment, yet PPBE flexibility is needed. Along these lines, PPBE system changes will be considered by the Task Force including obtaining a single appropriation type for IT projects, establishing an IT revolving fund, and redefining a funding element that more accurately reflects the nature of IT capability investment. All funding approaches will ensure accountability to approved baselines that capture cost, schedule, and performance criteria for approved projects.

Single IT Appropriation

IT programs are currently individually funded with a mix of three principal appropriations (research and development, procurement, and operations and maintenance), each with unique rules and definitions that align funding to the traditional weapon system model. IT projects currently use the same construct, although IT differs from a traditional weapon system acquisition in that common solutions range from outsourced enterprise services to purchased commercial off-the-shelf (COTS) hardware and software to custom-developed software applications. In the new IT acquisition approach, a business case evaluation of alternatives, supported by appropriate BPR, will be conducted, and the materiel solution will be selected just prior to project initiation, ensuring that the latest technologies are considered. However, if the Department uses traditional PPBE processes to plan, program, and budget based on the approved business case, there will be a risk of incurring up to a two-year delayed project start. The Department is considering a single IT appropriation, possibly aligned to portfolios that could be planned and programmed far in advance of the business case. The funding appropriation would have the flexibility for development, procurement, and operations and maintenance to permit funding a range of potential IT materiel solutions based on a sound business case. Additionally, the single IT appropriation will contain provisions for performance-based metrics that must be established before funds could be obligated and would offer complete transparency to ensure accountability to oversight officials.

IT Revolving Fund

Another alternative approach the DoD is evaluating to expedite funding availability is establishing a revolving fund similar to the National Defense Sealift Fund (NDSF) to permit incremental funding alternatives to support the IT investment area. NDSF allows for the deposit of funds into a non-expiring account under the Appropriations Act with obligation authority for the purposes provided for under the Act. The benefit of the NDSF approach is that it enables flexible scheduling while allowing for Congressional control over the types of projects that can be paid for using the fund. The concept being explored for IT includes one in which funds are deposited into an NDSF-like account, and projects are authorized through a series of internal controls that include Congressional notification based on defined dollar thresholds of the planned procurement.

Stable Funding Through IT Funding Elements

Another option under consideration is a program/funding element restructuring that will provide the Department with the necessary flexibility to realign funding to proposed projects with sound business cases. IT capability needs are characterized as evolving and enduring without the clearly defined end-of-service life normally associated with weapon system programs. The proposed investment approach for IT capability acquisition will be to fund multiple time-boxed, overlapping projects in accordance with an approved roadmap. Interrelated projects will provide incremental iterative IT capability improvements through hardware and software upgrades to address changing needs, obsolescence, and technology improvements. Funding for the combination of smaller interrelated IT projects may be best addressed by a stable budget defined by a single funding element. The resultant funding element would define desired IT

capabilities—vice individual programs, as is typical today—and would require cost, schedule, and performance parameters to be created and baselined before a project would be authorized. Consistent funding of multiple IT projects will provide better schedule planning for delivering IT capability, better change responsiveness by rapid adjustments across interrelated projects, and a stabilizing influence in an otherwise dynamic IT environment.

Regardless of the approach taken, the Department recognizes the importance of the funding changes being considered and would request initial changes for a pilot effort prior to requesting DoD-wide implementation.

(c) Acquisition

Acquisition activities in the new process for delivering IT capability will differ significantly from the traditional weapon system development acquisition process and will be separately defined in DoD IT acquisition policy issuances. The IT acquisition process will be agile to respond to a dynamic technology environment and to address unique challenges, such as cyber threats.

Short-Duration Projects

Information capabilities will be delivered as a series of short-duration projects that deliver incremental capabilities in shorter timeframes as defined in approved roadmaps. A project manager will be assigned to each project, and performance will be assessed using performance-based metrics available on-line to promote transparency and accountability. Projects will be executed in a time-boxed manner to closely match the commercial IT development cycle and deliver capability more rapidly to the Department. Development efforts will focus on what can be achieved in the short term based on low-risk technology and balanced with user-determined priorities. Major traditional program phases, milestones, and accompanying program reviews will be restructured or replaced and will include refashioned milestone reviews conducted more frequently as in-process reviews at key decision points within the integrated governance structure. Additionally, to be consistent with the March 2009 DSB Report and to ensure project success:

- Requirements will be documented, prioritized, and traceable with clear linkages to performance-based metrics, statute, or policies, consistent with the pace of technological change, and will involve an ongoing dialogue between the system developers and the warfighters/end users. Requirements will include Doctrine, Organization, Training, Materiel, Leadership, People, and Facilities (DOTMLPF).
- Business case analysis will precede and inform the proposed approach.
- BPR will be conducted to ensure that IT solutions are undertaken that support well documented and efficient operations.
- Performance metrics will be identified, posted, and tracked prior to and during project execution.
- Emphasis will be placed on architecture compliance, standardized information definitions, and rationalized performance requirements.

- A modular open system approach will be applied to foster open architecture, enable the widest selection of vendor options for ease of upgrades, and encourage competition throughout the life cycle.
- Information assets needed to support the requirements (capability) will be characterized in the context of the business processes or mission to be supported.
- Development, when necessary, will include prototyping and maturity assessment activities and will involve continual test and evaluation with user involvement.
- As applicable, modern commercial IT processes will be adopted, such as model-driven development, user-centered design, feature-driven developments, and other proven IT practices to improve acquisition outcomes.
- Test and evaluation will be structured to support iterative and incremental delivery, making extensive use of prototyping and automated testing, and will be integrated with certification and accreditation activities.
- Information assurance and system security requirements will be integrated with performance requirements to facilitate a complete and total design solution that can operate on the DoD infrastructure.
- Performance will be demonstrated as mature and value-added, and users will be included in fielding decisions.
- Performance-based metrics will be gathered for accountability and oversight review.
- Today's traditional paper-based documentation will be consolidated into fewer planning, execution, and reporting documents and replaced to the maximum extent possible with on-line tools that increase transparency and collaboration.
- Outreach to industry will be conducted to gain insight into commercially driven industry trends.

Tailored Execution Processes

The nature of IT acquisition varies significantly, and the Department recognizes the merits of a flexible acquisition approach. To ensure flexibility, IT projects will use tailored acquisition paths, documented in existing templates, to define the best acquisition approach. This approach will be based on a number of considerations, such as technical solution characteristics, certification requirements, contracting methods, and project complexity. The templates will describe the milestone decision points appropriate for each IT capability investment and will also assist in determining the appropriate governance and portfolio management assignments. The templates will guide project and portfolio managers within the DoD to rapidly establish a project acquisition approach while comprehensively addressing IT capability fielding activities.

An initial set of draft project execution templates has been developed based on recommendations from the March 2009 DSB Report and other parallel recommendations from a number of leading government and industry organizations. The initial set of draft templates focuses on the following IT project and mission characteristics:

- Application software development and integration
- COTS hardware and software procurement
- Integrated COTS/Government off-the-shelf (GOTS) capability – for projects engineered to integrate a set of COTS/GOTS hardware and/or software components
- Commercially provided IT services

In practice, responsible managers within the integrated governance structure will determine which template(s) to use for a project. For example, if a project is determined through a business case to be a procurement of commercial IT end items (i.e., COTS), selection of "Template 2" will be appropriate.

An early adopter of the template-driven approach is the business mission area via the Business Capability Lifecycle framework. The BCL incorporates key characteristics, including defined role of the business owner vice JCIDS in developing and approving requirements, streamlining oversight by aligning the Combined Investment Review Board with the milestone decision authority, time-boxing key acquisition activities, and streamlining documentation through the use of an evolving business case to capture program definition and analysis.

Additional templates will be considered and developed as necessary to cover the full range of IT projects, and templates will be reviewed on a regular basis to ensure that they are in sync with the dynamic commercial IT marketplace and with DoD leading practices.

Stakeholder Engagement

Involvement of key stakeholders is considered essential to improving the overall efficiency of the entire acquisition process and to "getting it right" the first time. Stakeholder involvement will extend from the enterprise level down to the project level, beginning with the business case development and continuing to full deployment of mission capability. In earlier phases of the acquisition, stakeholder reviews should be calendar-based events, while later phases should link such reviews with iterations or delivery of capability. It is important to note that analytical rigor/discipline will be enforced throughout the life cycle consistent with the evolutionary process evident within the commercial IT environment.

Continuous User Engagement

The new process for delivering IT will emphasize continuous user engagement that fulfills discrete and defined roles. Chartered agreements between user communities and portfolio managers will formalize rules of engagement. Tools and methods will be furnished by the portfolio managers to engage appropriate echelon users in the entire information capability definition and planning process to prioritize requirements and facilitate user feedback. During implementation, users will be appropriately involved in engineering, design, prototyping, and testing. Users from joint or service/agency organizations will be formally designated to serve as requirements leads to actively participate in oversight reviews.

IT Systems Engineering

A key tenet of the new process will be the disaggregation of large-scale information capabilities into a number of smaller integrated projects that embrace established standards and open modular platforms to ensure interoperability and seamless integration. While this approach provides the government with many advantages and reduces risks, it also requires significant change to traditional systems engineering approaches commonly used across government

organizations and traditional defense suppliers. The deliberate and time-consuming "waterfall" systems engineering process, often with a program-centric focus, will be supplanted with a new emphasis on architecting modular open-system enterprise solutions to ensure proper integration and interoperability continuously throughout the life cycle of networks/systems and services. At the project level, systems engineering, including information systems security engineering, will be integrated with the overall enterprise-level systems engineering approaches and tailored based on a project's risk and the category of information system being procured or developed. Modern practices such as test-driven development, model-driven development, and feature-driven development methods will be considered to reduce complexity and enhance greater insight into the envisioned operational capability.

Common IT Infrastructures

In the new process, common IT infrastructures using non-proprietary interfaces will be emphasized to permit qualified and security-certified standard IT infrastructure services for on-demand use. This will enable DoD information capability projects to take advantage of the benefits of agile development methods and rapidly field capabilities that use state-of-the-practice commercial products, while simultaneously lowering risk.

Additionally, common IT infrastructures will allow the Department to emulate commercial IT business models, in which an established infrastructure encourages multiple smaller firms to develop modular applications that can be rapidly deployed. This model is proven to benefit both the infrastructure provider and the application developer, and offers the potential for tremendous efficiencies (e.g., dramatically reduced time to field new capabilities, increased competition, innovation, reduced application development costs, and an established capability pipeline for future development).

IT Testing and Certification

Integrated developmental and operational testing is strongly embraced in DoD test policy. To meet the unique demands of fast-paced IT projects, test and evaluation will be further integrated to include:

- Activities for incremental and provisional certification of IT capabilities for security and interoperability
- Ongoing representation of operational capabilities for risk analysis and risk management (especially for certification and accreditation)
- Continuous monitoring of capabilities in the operational environment

The resource demands on the test community may increase as the frequency of released products increases. The DoD currently does not replicate commercial providers' ability to conduct almost continuous rapid regression tests of new capabilities. To meet this new need, the DoD will increase its use of test automation, develop processes for conducting in-situ testing on beta versions prior to release, and integrate existing test infrastructure into a persistent, virtual, service-based environment. The IT Task Force will weigh the benefits of establishing DoD-sponsored labs to test COTS capabilities within the DoD infrastructure.

To facilitate incremental fielding of capabilities aligned with user priority, the test community must balance project schedule demands with functional criticality to determine testing priority. This will require a test planning approach that accounts for the consequences of failure of specific capabilities (i.e., scale test commensurate with risk). The DoD testing approach will include evaluations of operator interface and workload, and adequacy of operator and maintenance personnel training prior to a fielding recommendation. The DoD will extend its testing tools and processes to increase use of automated monitoring of capabilities in operational environments.

IT Cyber Security and Mission Assurance

The new process will address the growing concern that the cyber threat will undermine the DoD's ability to achieve its mission. Alignment with the Risk Management Framework defined by the Joint Task Force Transformation Initiative that ensures the inclusion of enterprise-, portfolio-, and project-level organizations to address all tiers of a risk management hierarchy by all federal agencies will be part of the new process. Emphasis will be made throughout the new process on gaining a strong understanding of user needs and priorities, crucial to identifying the cyber resources (e.g., information, IT, communications, and networked embedded sensors and process controllers) needed to maintain mission capabilities.

IT Industry Considerations

The DoD recognizes that the emphasis placed on smaller projects in the new IT acquisition process will impact its relationship with industry. While smaller efforts reduce entry barriers for small and mid-size companies, they also remove the relative business security afforded by larger, longer-term efforts. It is expected that the net result will be an increase in the relevant industry base, provided that the potential for sufficient profit exists.

To encourage competition, the DoD will inform industry about what it plans to acquire by developing and publishing roadmaps detailing performance requirements, standard architecture and common infrastructure compliance, and standards for information definition. The DoD objective will be to incentivize industry to invest in and direct internal corporate efforts toward developing both off-the-shelf products (applications) and the ability to deliver bounded code and code documentation, etc., in support of reusable services to meet portfolio roadmap capability needs. By adopting standard interfaces and an open, modular architecture that minimizes proprietary elements to the lowest modular level without creating proprietary dependencies outside the module, the DoD will be in a better position to insert capability without being locked into single vendor solutions. This approach will also allow the Department to more quickly incorporate and field new capabilities while reducing government project development risk.

To increase speed to market, the new process will favor non-developmental products using approaches similar to qualified products lists (QPLs). Contracts for QPL technology may include increased use of General Services Administration schedule contracts, government-wide acquisition contracts, and multiple-award contracts. These competitive contracting vehicles will provide access to qualified prime contractors and subcontractors, greatly reducing delivery times.

To decrease risk in source selections, DoD will follow proven commercial processes when selecting IT providers by increasing emphasis on past performance and experience with similar government and commercial efforts and defining source selection evaluation criteria presuming potential COTS solutions. Moreover, tangible evidence of relevant development capabilities in the form of prototypes or deployed systems will have preference in an evaluation with a commensurate decrease in paper-based proposal components.

IT Government Acquisition Workforce

The new process will substantially change the skills needed to effectively manage delivery of information capabilities. Included among the needed skills are knowledge of the IT marketplace and technology trends, knowledge of cyber security, a strong understanding of user needs and priorities, the ability to perform trade-off assessments between alternative strategies for implementing needed capabilities, the ability to actively manage risk, and the ability to create capability and investment roadmaps. As such, the DoD will thoroughly review its IT acquisition workforce needs from the perspectives of training, certification, career path, recruiting, and retention. Given the dominant commercial market influence and rapid technological advancements of IT capabilities, strong consideration will be given to establishing a program with industry for rotational personnel exchanges leveraging Section 1110 of the FY2010 National Defense Authorization Act, which authorizes a limited pilot program for the temporary exchange of IT personnel.

The DoD is exploring the following initiatives for possible development/implementation by the IT Government Acquisition Workforce: establishing an organizational structure with critical billets designated for individuals in IT disciplines at the enterprise, portfolio, and project levels; establishing an incentive program for initial base-level entry, mid-level entry from industry, and continued career progression for government IT acquisition professionals; and targeting program/project managers with IT experience and proven superior track records for career and retention incentives to remain as IT acquisition managers.

In parallel, an assessment of current IT-focused training/certification programs will be conducted. Training curriculum development will be required for the new IT acquisition process. The current Defense Acquisition Workforce Improvement Act positional certification process will be reviewed and modified as necessary to accommodate industry best practices and dynamic change of the commercially driven IT technology environment. Additional training opportunities provided by industry will be examined for possible collaboration with the Defense Acquisition University and the National Defense University.

(d) Requirements

Requirements generation and management in the new IT acquisition process will need to acknowledge the uncertainty associated with the dynamic IT environment and incorporate the flexibility to responsively manage changing needs. In some cases, the requirements may not be well-developed, but the urgency to field useful capability mandates project initiation. With the proposed approach for acquiring IT capability through time-boxed projects, the probable result will be that end-user functionality that cannot be delivered within time-boxed constraints will be

deferred on some projects. The requirements generation and management process will be adjusted to reflect the time-boxed development constraints, to acknowledge requirements uncertainty, and to recognize the value of 80 percent solutions.

Initial requirements will be defined at the mission level in broad, measurable terms that are not expected to change. This broad definition will include basic IT system functions, appropriate cyber security controls, data standards, process flows, architecture, and minimum system-specific key performance parameters approved by the Joint Requirements Oversight Council (JROC) as appropriate. Prioritization and further definition of requirements will be an ongoing activity during governance reviews to ensure that efforts are aligned with user priorities. Early project activities will include user system/network knowledge gained through modeling and simulation, prototyping, and beta testing. The user will also be informed about the system's technical possibilities and limitations. This continuous user involvement will assist in developing more precise requirements definition and prioritization. Following deployment, performance metrics will be tracked to inform subsequent requirements. Regular requirements reviews and updates will be conducted to communicate changing needs and technology advances.

Within the information enterprise, requirements owners and relevant processes will differ according to mission area. However, all processes will include business process reengineering and an implementation management plan describing all DOTMLPF actions necessary to prepare the user community before receiving the IT capability. Modifications to requirements processes will be made for warfighter IT capabilities, and the BCL framework will address business system needs.

Joint Capabilities Integration and Development System "IT Box"

DoD updated the JCIDS process to streamline requirements oversight and management for MAIS programs, excluding custom hardware development. JCIDS updates now respond to the dynamic nature of IT and the shortened timelines required to rapidly field IT-enabled operational capabilities by approving an "IT Box." The "IT Box" describes the operational performance and life-cycle affordability bounds of the program and is defined in the program capability development document (CDD). The boundaries imposed by the "Box" expedite program initiation and streamline oversight by reducing return trips to the JROC for change approval. Subsequent change approvals within the "IT Box" will be delegated to the assigned Governance Council. The JCIDS "IT Box" process has been employed across a number of DoD IT programs, including the Integrated Strategic Planning and Analysis Network, the Consolidated Afloat Networks and Enterprise Services, and the Public Key Infrastructure programs allowing delegated authority for integrated incremental capability upgrades.

The new IT acquisition process will leverage attributes of the "IT Box" concept. Because the current JCIDS "IT Box" documentation is program-based, changes will be considered that extend the approach to the portfolio level, permitting multiple projects to be derived from a single CDD. For all investments, requirements discipline will be exercised and accountability will be established by user and acquisition organization-approved project-level documents.

Business Capability Lifecycle (BCL)

The BCL process will be used for acquisition of Defense Business Systems, including MAIS DBS as directed in Appendix B. Generally, the BCL process focuses on incremental capability delivery in condensed timeframes, rapid decision making, reduced documentation, and flexibility. A key component of BCL is to use a single business case throughout the process, updating critical information as more is learned. The business case also incorporates requirements that are managed through BPR activities conducted prior to initiating an acquisition project and then conducted continuously during project execution. The objective of BPR in IT DBS is to ensure compliance with data standards, enforce robust architectures, and focus on interoperability. The BCL process integrates governance structures, streamlines documentation, incorporates independent risk management, and through time-constrained management and oversight, delivers capability in a more rapid and responsive manner.

An example implementation using BCL philosophy is the Army's eNOVA COTS enterprise resource planning (ERP) solution. Leveraging the processes and architecture inherent in the ERP solution and rapid incremental implementation (3-6 months), the Army systematically migrated over 300 legacy systems along with their data to the ERP to eliminate unnecessary interfaces.

VI. Alignment with Section 804 Criteria and DSB Chapter 6

The new process will be consistent with the criteria established in Section 804 of the National Defense Authorization Act of Fiscal Year 2010. It is designed to include (a) early and continual involvement of the user, (b) multiple, rapidly executed increments or releases of capability, (c) early, successive prototyping to support an evolutionary approach, and (d) a modular, open-systems approach with standard interfaces. Additionally, the DoD concurs with the findings of the House Armed Services Committee Defense Acquisition Reform Panel Report dated 23 March 2010. The Panel Report embraced broad changes to the Defense Acquisition System to include the requirements resourcing acquisition processes. As a result, the DoD is planning for significant changes to these major processes. In addition, the following project-level differences and rationale are highlighted:

- The new process will include project milestones conducted as in-process reviews by integrated governance councils with decision authority, vice the traditional acquisition program milestones. IT project activities do not generally align with traditional program phases and requisite milestone decisions, and IT projects employing the new process will not be designing unique hardware or conducting technology development. IT projects requiring those activities will use the traditional DoD acquisition policy (DoD 5000 processes) to ensure appropriate focus on those areas.

- The new process will greatly shorten the lengthy project initiation timeline. The shortened timeline is necessary to be responsive to the dynamic IT environment and is enabled by a combination of integrated governance, appropriately sizing and time-boxing projects, proposed PPBE changes, streamlined in-process reviews and decision points, and information vice paper-based documentation.

- The IT certification and accreditation process will be fully integrated with the integrated test and evaluation approach. Decisions regarding project scope throughout the project duration will involve both the test and user communities.

VII. Implementation Schedule

As noted earlier, the new process will require broad changes encompassing DoD requirements, resourcing, and acquisition processes. DoD will iteratively develop and implement the new IT acquisition process over time incorporating, lessons learned and proactively addressing, cultural and training issues enabling stakeholder confidence in the new process.

The DoD IT Acquisition Task Force chaired by the Deputy Secretary of Defense will comprehensively refine the new IT acquisition process and direct implementation activities according to the following schedule:

- Actions to Date:
    - Rationalized the Information Enterprise through broad portfolio alignment to responsible authorities
    - Instituted the JCIDS "IT Box" to delegate requirements management recognizing the evolving nature of IT requirements
    - Developed the BCL model as a first step in streamlining the acquisition process for business systems
    - Met with industry associations to receive input for consideration
    - Developed a draft set of IT project execution templates
- Near-term:
    - Designate initial pilot projects (new start projects and existing programs) aligned within each broad portfolio
        - Initiate aspects of the new process not requiring legislative changes
        - Determine and implement project performance tracking metrics and tools
    - Engage with industry associations to gather their input in developing the new process
    - Define the organizational structure and designate portfolios within the Information Enterprise
    - Complete development of the project templates
    - Develop DoD policy issuances to apportion roles and responsibilities, authorities, and accountabilities within the new process
    - Define platform standards and common test and integration capabilities in consultation with the DoD CIO
    - Develop interim training curriculum and initiate training
    - Exploit existing mechanisms for execution year resourcing flexibility
    - Develop legislative proposal for FY12
- Mid-term:
    - Expand set of pilot projects to fine-tune the new processes and initiate pilot portfolio
    - Further develop training curriculum and expand staff training
    - Submit proposed legislative changes for FY12

- Long-term:
    - Update DoD policies as legislative approvals are obtained and to reflect lessons learned
    - Formally establish DAU training curriculum
    - Expand implementation of the new process to all new DoD IT projects
    - Transition legacy IT programs to the new process as appropriate

VIII. Categories of IT Acquisitions

DoD information capabilities are delivered through a wide range of computing, networking, human-computer interfaces, and information-handling systems and services to enable communications, coordination, and collaboration across all DoD missions. DoD information systems range from information capabilities hosted on weapon platforms and sensor systems to networked information in operational command centers to information systems used to conduct the full scope of DoD business operations. Many of these are developed and operated locally; others are provided through managed services. Collectively, these IT capabilities constitute approximately 10 percent of the overall DoD acquisition budget (FY11 IT budget $37B; total DoD acquisition budget $389B).

The new process is applicable across the DoD IT Enterprise (including National Security Systems) in the following categories:

- Networked IT Systems (e.g., command and control, business information):
    - User-facing applications
    - Computing infrastructure (e.g., common applications, operating system)
    - Security and information assurance for applications, systems, and networks
    - Computing hardware including configuration modification for network integration, etc. (e.g., servers, laptops)
    - Communications/networking infrastructure

    Note: IT hardware requiring unique development and requisite production decisions will be acquired using traditional DoD acquisition policy (DoD 5000 processes) to ensure appropriate focus on these areas.
- Weapon Platform IT Systems
    - Platform-hosted IT mission systems that are not considered embedded
      Note: IT embedded in weapon systems will continue to be developed, acquired, and managed as part of that weapon platform and not separately acquired under the new IT acquisition process. Upgrades to embedded IT software in weapon systems may be considered for applicability to the new IT acquisition process when no hardware change is required.
- Services acquired or developed as a service-oriented architecture

IX. Legislative Change Considerations

Current policy for requirements, funding, and acquisition of IT is based on long-standing statute and regulation using 20th century protocols and industrial age practices designed principally for custom-developed hardware acquisition. These issuances and legislature will be reviewed for

applicability to IT acquisition in the 21st century information age. Changes will likely be required to statute and regulation to facilitate the outcomes described in this report, such as the establishment of a single IT appropriation.

The statutory review will be broad and will include examination of:

- Approval authorities for content of acquisition in Title 10, Title 44, and Title 50
- Opportunities to align organizational roles for investments, enterprise integration, and acquisition practices in Title 10 and Title 44
- Spending authorization authorities and limits in Title 10 and Title 50

The Department appreciates the invitation to propose changes to statute and plans to submit specific legislative change proposals in future correspondence to support the FY12 National Defense Authorization Act deliberations.

APPENDIX A

SECTION 804

(a) NEW ACQUISITION PROCESS REQUIRED—The Secretary of Defense shall develop and implement a new acquisition process for information technology systems. The acquisition process developed and implemented pursuant to this subsection shall, to the extent determined appropriate by the Secretary—

(1) be based on the recommendations in chapter 6 of the March 2009 report of the Defense Science Board Task Force on Department of Defense Policies and Procedures for the Acquisition of Information Technology; and

(2) be designed to include—

(A) early and continual involvement of the user;

(B) multiple, rapidly executed increments or releases of capability;

(C) early, successive prototyping to support an evolutionary approach; and

(D) a modular, open-systems approach.

(b) REPORT TO CONGRESS—Not later than 270 days after the date of the enactment of this Act, the Secretary of Defense shall submit to the Committees on Armed Services of the Senate and the House of Representatives a report on the new acquisition process developed pursuant to subsection (a). The report required by this subsection shall, at a minimum—

(1) describe the new acquisition process;

(2) provide an explanation for any decision by the Secretary to deviate from the criteria established for such process in paragraphs (1) and (2) of subsection (a);

(3) provide a schedule for the implementation of the new acquisition process;

(4) identify the categories of information technology acquisitions to which such process will apply; and

(5) include the Secretary's recommendations for any legislation that may be required to implement the new acquisition process.