Integrating IT Service Management Practices into the Defense Acquisition Lifecycle
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Introduction

Increasing dependence on information technology (IT) to execute the national security mission requires Defense acquisition programs to deliver mission-aligned IT services to the warfighter in a timely and cost-effective manner. With these demands, many IT acquisition programs often struggle to keep pace with technology innovation and adequately integrate and manage new IT infrastructure and systems and, as a result, encounter significant cost and service quality issues.

Key challenges include misalignment between the IT services delivered and the mission requirements they support, overlapping or missing roles and responsibilities across traditional IT functions and government organizations, and lack of situational awareness of the critical interdependencies required to deliver and support the IT services needed.

To address these challenges and enhance the delivery of IT services to the warfighter, the Department of Defense (DoD) is evaluating its acquisition policies and procedures. In doing so, the Department must also consider the IT service management (ITSM) practices required to effectively acquire and operate IT.

In this paper, Booz Allen Hamilton, a leading strategy and technology consulting firm, identifies the challenges IT acquisition programs face when integrating and managing IT systems and services procured by the government and proposes approaches to more effectively incorporate ITSM principles into the Defense acquisition lifecycle. Specifically, this paper emphasizes the importance of embedding service management requirements in the acquisition of every IT capability. Further, it presents methods to better inform and guide IT acquisition strategies and decisions that are essential to driving interoperability across the enterprise.

Background

Current Trends in IT

The Federal Government has established a number of significant IT consolidation and efficiency initiatives in response to the nation’s current economic situation and the importance of IT to government and military missions. These initiatives are challenging the way
the Government budgets, acquires, and operates IT systems in an effort to reduce costs and increase operational efficiencies. Historically, IT management has been distributed across independent, often fragmented, organizations, each pursuing unique requirements with differing systems, standards, and processes. Within the last year, however, then Secretary of Defense Robert Gates released policy and guidance to change the status quo and drive IT to deliver more value to the mission. In a January briefing, Secretary Gates announced plans to move to a single, integrated information enterprise for DoD through consolidation of IT infrastructure, services, and organizations as well as aggregation of IT procurements at the enterprise level. These consolidation efforts are designed to drive standardization, eliminate traditional IT stovepipes, cut costs, and, most important, improve mission effectiveness.

Then federal Chief Information Officer Vivek Kundra also published a comprehensive implementation plan that addresses IT management challenges within the Federal Government and identifies critical steps for agencies to enable a more efficient and effective government. Kundra’s 25-point plan directs all agencies to start migrating IT services to cloud solutions and reduce the number of federal data centers by more than 800. The plan also lays out steps to strengthen IT program management practices and the workforce, and reinforces current efforts to turn around or terminate more than one-third of underperforming IT projects within 18 months. The Gates and Kundra IT initiatives are driving a general shift toward standardization, eliminate traditional IT stovepipes, cut costs, and, most important, improve mission effectiveness.

However, some government IT shops are reevaluating all or a subset of their outsourcing relationships as they experience poor service quality, challenges meeting mission and operational requirements and objectives, and a desire for more visibility and control of their IT resources. Therefore, several recent enterprise IT procurements have incorporated IT service management frameworks and best practices to more effectively manage the complexity of these different acquisition environments and ensure the Government has increased control of its providers and has the means to effectively measure and improve service quality. Examples of these procurements include the Air Force Network Centric Solutions-2, Defense Information Services Agency ITSM Office, Department of Navy Next Generation Enterprise Network, Special Operations Forces Information Technology Enterprise Contracts, and North American Aerospace Defense Command-Northern Command ITSM.

Ultimately, government IT efficiency, consolidation, and outsourcing trends are driving better justification of IT’s value to the taxpayer and warfighter.

**Defense Acquisition Overview**

Currently, the Defense Acquisition System (see Figure 1 on the following page) manages the acquisition of DoD IT capabilities and services. It comprises the management framework, policies, and processes required for all DoD acquisition programs and is governed by the DoD 5000 series directives. These directives guide acquisition programs through a series of milestone reviews and decision points to authorize advancing to the next critical program phase. Historically, Defense Acquisition policies and processes were designed to support the acquisition of large-scale weapons systems.

In March 2009, the Defense Science Board Task Force on Department of Defense Policies and Procedures for the Acquisition of Information Technology found that DoD’s current acquisition policies as articulated in DoD Directive 5000 were ill-suited to support acquisition of IT, in large part because of the speed of technology innovation and change in industry. In November 2010, the Office of the Secretary of Defense (OSD) Acquisition, Technology, and Logistics (AT&L) submitted a report to Congress documenting the progress of current IT acquisition reform efforts. According to this report, the Department had made progress in the
The BCL is designed to enable delivery of incremental IT capabilities more rapidly while continuing to require that these capabilities comply with business process requirements.

**Enterprise Architecture**

In addition to complying with Defense Acquisition policies and processes, all IT investments and acquisitions must demonstrate consistency and interoperability with the DoD Enterprise Architecture (EA). The DoD EA describes and documents the current and desired relationships among warfighting operations, business and management processes, and IT, and provides the context and rules for making IT investment decisions while ensuring operational needs are met and enterprise interoperability is maintained. Each IT acquisition program is required to develop an integrated solution architecture, composed of operational, system, and technical views, and use these products over the program lifecycle to ensure that acquisitions align with all layers of the DoD EA.

This alignment and the compliance with all supporting business requirements and standards must be demonstrated and justified in the Capital Asset Plan and Business Case Summary (Exhibit 300). The DoD EA provides a means to guide IT investment strategies and decisions, define capability and interoperability requirements, and establish and enforce standards.

**Current Challenges**

As DoD executes its IT efficiency and consolidation plans and addresses IT acquisition reform, the Department should consider critical IT service management challenges, including—

- Misalignment between the IT capabilities delivered and the mission requirements they support
- Overlapping or missing roles and responsibilities across traditional IT functions and government organizations
- Lack of standardization and interoperability across disparate service management systems within the enterprise

Table 1 on the following page presents these challenges and their impact on IT and mission operations.

**IT Service Management Overview**

ITSM is the design, implementation, and operations of IT services and supporting infrastructure to meet the needs of the business, or mission, and end user. ITSM fundamentally shifts the focus from the traditional...
Table 1 | Defense IT Service Management Challenges

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| **Misalignment with mission/user needs** | • Alignment of IT services and capabilities to the supported mission/business need is not always well understood  
• IT organizations and acquisition programs may define requirements, delivery models, and acquisition plans with limited or no engagement with direct consumers of services—mission/business users | • Results in unfulfilled user requirements that can have a significant impact on mission/operational readiness  
• Limits situational awareness regarding the operational impact of IT services on the mission |
| **Limited enterprise-level alignment** | • Program-centric approaches to service delivery may not consider enterprise level IT strategies and initiatives  
• Approaches may yield management capabilities, governance, processes, and tools that are unique and not standard across the enterprise  
• Lack of common, enterprise-level governance and decision making limits the ability to drive standardization and interoperability | • Affects interoperability and standardization across IT programs and systems  
• Creates gaps between enterprise-level strategies and program specific goals  
• Leaves programs to de-conflict competing priorities  
• Limits enterprise visibility and could affect efficacy of consolidation efforts |
| **Unclear or undefined roles and responsibilities** | • Existing acquisition practices leave programs to establish their own roles and responsibilities  
• Many responsibilities may not be defined or well communicated  
• Those roles that are defined are often acquisition oriented and tend to differ across programs | • Creates gaps or conflicts in accountability for critical IT functions  
• Leads to disparate and disjointed IT management practices across the enterprise  
• Yields cost and performance inefficiencies |
| **Poorly defined organizational relationships** | • IT functions are distributed across acquisition, engineering, and operations organizations  
• Organizational relationships and associated management interfaces are often poorly defined and lack guiding policies and controls | • Adds complexity to organizational structures and business processes  
• Creates gaps in communications among IT organizations and functions  
• Contributes to management process failures and inefficiencies |
| **Inadequate visibility into performance** | • Individual programs may not have a common understanding of the operational impact of IT on the business/mission | • Limits the ability to identify inefficiencies and drive improvement of IT capabilities when required to support the mission |
technology-centric approach to IT management to a focus on the people, process, tools, and governance capabilities that enable delivery of that technology in the form of services. ITSM provides a framework to more effectively structure these capabilities and the relationship and interactions of the IT organization with business customers and users to ensure service quality and value for the business.

Although ITSM is often thought of simply as a discipline to optimize back office IT activities, its primary focus is the relationship between those activities and the business they support, and more important, the business’ perspective of the value IT provides. To strengthen that relationship, ITSM concepts and best practices center on the improvement and optimization of services through standardization of processes, roles and responsibilities, and business rules and the continual evaluation and improvement of those capabilities. The optimization is driven by the need to provide value to the business and demonstrate the relationship between the IT services delivered and the business processes they enable.

Various industry-recognized ITSM frameworks and maturity models are available to help IT organizations improve service management functions and processes and implement best practices (see Figure 2). The Information Technology Infrastructure Library (ITIL), a set of concepts and practices for ITSM, is the most widely adopted framework for service management in the world. The current ITIL best practices (ITILv3) are detailed in five core publications that provide an approach to ITSM to help IT organizations plan, manage, and continually improve services to ensure they are meeting business goals and delivering value. Capability Maturity Model Integration (CMMI®) is an approach to process improvement that focuses on helping organizations improve their performance. While initially developed to support software engineering and organizational development, CMMI has broader application across IT processes. Other frameworks, such as Control Objectives for IT (COBIT), specifically address the governance and controls of an IT organization and are complements to ITIL and CMMI.

In addition, International Electrotechnical Commission (IEC)/International Organization for Standardization (ISO) 20000 is an international standard for ITSM that is used to measure how well ITSM practices are being adopted within an organization.

Adoption of ITSM best practices can help IT organizations realize significant benefits, including improved service quality, reduced cost, increased operational efficiency, greater interoperability, and, ultimately, improved customer satisfaction.

**Recommendations**

Numerous command, program, and enterprise-level ITSM initiatives have been established throughout DoD to drive standardization and increased operational efficiency and to deliver improved capabilities based on warfighter needs and emerging missions. Although this trend is evidence of an increasing awareness and acknowledgement across the Department that ITSM is a key enabler, these initiatives are not yet fully integrated and coordinated across enterprise initiatives and acquisition programs. A comprehensive

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**Figure 2 | IT Management Frameworks & Standards**

Source: Booz Allen Hamilton
ITSM framework that clearly defines enterprise-level IT management policies, standards, roles, responsibilities, and interfaces is required to inform and guide IT acquisition programs and, ultimately, ensure IT delivers optimal value to the supported mission (see Figure 3).

Booz Allen developed the following recommendations based on lessons learned from various enterprise ITSM initiatives and proposes them to assist each DoD Component to effectively incorporate ITSM principles into its IT acquisition strategies.

**IT Service Management Reference Architecture**

*Develop and maintain enterprise-level ITSM reference architecture to describe how IT services are to be acquired and managed and to ensure that the commands, acquisition programs, and vendors that deliver those capabilities maintain interoperability with the architecture and comply with all supporting standards.*

The DoD EA is a holistic, multilayered view of how IT assets align with the business processes and mission requirements they support. As part of the Defense acquisition process, IT programs are required to develop a solution architecture and implementation plan and use those products over the program lifecycle to ensure that acquisitions integrate with all layers of the DoD EA. Similarly, an integrated ITSM architecture should be developed to consider the people, processes, and tools required to manage the IT capabilities being acquired; demonstrate interoperability across supporting commands, networks, and systems; and ensure compliance with enterprise-level ITSM architecture policies and standards.

Booz Allen recommends, as a layer within the EA, an ITSM architecture that describes the requirements and standards for the management of newly acquired IT capabilities and the relationships between those capabilities and the service(s) and mission/user requirements they support. Managing and enforcing these relationships will ensure acquisition efforts maintain direct line-of-sight with end-user requirements throughout the program lifecycle and provide a platform and mechanism to drive standardization across the enterprise.

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**Figure 3 | Defense IT Service Management Framework**

Source: Booz Allen Hamilton
ITSM Policy & Standards Compliance

Integrate compliance mechanisms into existing enterprise-level governance processes to establish accountability, enforce service management standards, and, ultimately, drive interoperability and consistency across IT acquisitions.

To effectively promote adoption of enterprise-level ITSM architecture policies and standards and drive interoperability and standardization across service management systems, Booz Allen recommends that IT organizations institute an enterprise governance structure enabled with the necessary compliance mechanisms and controls. This structure should serve to monitor, manage, and report command and program-level adherence to enterprise standards.

Enterprise IT governance processes and compliance mechanisms already exist within DoD and should be leveraged to enforce ITSM standards. By using the DoD EA to define and describe an enterprise ITSM architecture, the Department can prescribe ITSM policies and standards and define the criteria by which compliance will be measured. Under DoD 5000 directives, any IT investment or acquisition program must demonstrate conformance to the EA and all supporting business requirements and standards in the Capital Asset Plan and Business Case Summary (Exhibit 300). Exhibit 300 is required to justify the investment and secure the funding necessary.

In addition to demonstrating compliance through business cases, IT acquisition programs should conduct frequent, iterative technical reviews to continually ensure consideration for service management elements and interoperability with the enterprise ITSM architecture throughout the program lifecycle. These reviews should be clearly defined with pre-established entrance and exit criteria and instituted at the onset of any IT acquisition program.

Clearly Defined Roles & Responsibilities

Identify, define, and promulgate the enterprise-level roles and responsibilities required for the acquisition and ongoing management of IT services to enable consistent accountability and ownership of management practices across programs.

To successfully drive awareness and adoption of enterprise ITSM standards, it is critical that the enabling roles and responsibilities be clearly defined and accepted across the enterprise and that the organizations that support those roles are compelled and empowered to do so. This means that the commands and programs that make up IT management must have not only the authority to fulfill their responsibilities but also a firm understanding of the impact. Clear demonstration of the relationships among IT management responsibilities, the services delivered, and the supported mission is foundational to that understanding.

Within individual programs and commands, roles and responsibilities may exist and be well defined and understood, but they are often not aligned to enterprisewide requirements and tend to focus on fulfilling statutory responsibilities and ensuring new IT systems fulfill program requirements. Booz Allen recommends use of ITSM frameworks and methodologies to define program-agnostic, enterprise-level roles and responsibilities to ensure acquisition programs maintain alignment with enterprise strategies and have the consistent ownership and engagement of the critical IT organizations and functions in program-level decisions. This consistency, in and of itself, will help drive standardization across programs.

IT Service Rationalization

Rationalize existing IT services and service management capabilities against enterprise ITSM architecture and standards as well as the business processes and mission requirements those services support to inform IT investment and acquisition decisions.

Although traditional DoD IT consolidation efforts have focused on rationalizing existing IT systems and applications, Booz Allen recommends that those efforts should take a more service-oriented approach and focus on understanding and rationalizing the services those assets enable. All existing IT assets should directly support or contribute to a customer-facing IT service(s) and that service should enable a business process or mission set. This is how IT enables and provides value to the business or mission and end user. With an enterprise ITSM architecture in place, the relationships between those elements should be described, documented, and well understood. To identify and maintain those relationships in the current operating environment, existing IT infrastructure and services should be continually assessed and rationalized against that architecture and the
business/mission need. Doing this will not only help define customer facing needs, such as the service quality requirements used to develop service level agreements (SLA), but also identify gaps or holes in acquisition plans and inform future investment and acquisition decisions. By informing program-level IT acquisition decisions with enterprise-level strategies and requirements, IT efficiency and consolidation opportunities can be identified and addressed.

**Enterprise IT Service Management Office**

Establish an enterprise-level IT service management office to inform IT acquisitions and oversee and align command and program-level ITSM initiatives across the Department in support of enterprise efficiency and consolidation efforts.

Within DoD, traditional IT service management functions are distributed/fragmented across a number of organizations, programs, commands, and locations, and often with differing or, in some cases, competing priorities. To drive standardization and integration across these disparate organizations and initiatives, Booz Allen recommends establishment of a centralized, enterprise-level IT service management office within each military service (see Figure 4 on the following page).

The office should align organizationally to the enterprise IT governance board and be given sufficient authority to oversee and report on all ITSM matters, including progress of standardization and improvement efforts. Existing program/command-level ITSM initiatives, projects, and working groups (WG) should be subsumed by or aligned to this office. The office should be assembled using existing resources, with representation from acquisition, operations, technical authority, and resource sponsor communities, and have membership in all other DoD IT efficiency and consolidation initiatives. Responsibilities should include the following factors:

- **ITSM Strategy & Governance**: establish ITSM strategy/vision and supporting governance structure for the enterprise. The key objective is to define and assign ITSM roles and responsibilities for the enterprise.

- **Strategic Communications**: manage communications with members, stakeholders, and governance bodies.

- **Standards and Compliance**: develop an enterprise ITSM reference architecture, define minimum standards and conventions for that architecture, develop compliance measures, and monitor/report compliance with policies and standards.

- **Quality Management**: establish enterprise-wide quality management plan/approach and facilitate/support adherence to quality standards across ITSM initiatives.

- **Architect & Integration**: facilitate integration and prioritization of ITSM initiatives, and ensure interoperability.

- **Training**: develop a training and awareness program and facilitate training of ITSM teams.

- **Process Improvement**: oversee and support execution of process improvement efforts in compliance with process and quality standards.

- **Acquisition Support**: support the reform of acquisition processes and practices to ensure ITSM principles are incorporated and acquisition decisions are informed by the enterprise ITSM architecture.

**Conclusions**

As DoD continues to address current economic challenges and embarks on its IT consolidation and efficiency initiatives, each DoD Service, Combatant Command, and Agency should consider the recommendations presented in this paper as key enablers and tools for increasing the value of their respective IT organizations to the collective national security mission. These recommendations promote the growing importance of incorporating ITSM principles into Defense IT acquisition programs and will generate several benefits to the Government as IT investments are planned and executed. These benefits include—

- **Mission Alignment**: Direct linkage between the IT services delivered and the mission requirements they support drives IT organizations and acquisition programs to make investment and management decisions that demonstrate value to the mission.

- **Increased Operational Efficiency**: Standardized IT services and service management practices across the enterprise improve interoperability of programs and systems and reduce operational complexity.
• **Reduced Cost.** Informing program-specific acquisition decisions with enterprise-level service management policies and standards enables the identification of redundancies or inefficiencies and, with that, opportunities for consolidation and reduced acquisition and operations cost.

• **Improved Service Quality.** Consistent situational awareness regarding the mission/business perspective of IT performance, with the mechanisms in place to inform future IT investment decisions and management actions based on that performance, improves overall service quality.

Ultimately, adopting these methods will help IT organizations and programs shift from a cost-center mentality to that of a mature service provider, measuring success in terms of value to the warfighter.

**BOOZ ALLEN CAN HELP YOU BE READY FOR WHAT’S NEXT**

Booz Allen has supported many IT transformation efforts. We have found that employing a multidisciplinary approach that holistically applies ITSM frameworks, such as COBiT, ITIL, as well as Lean Six Sigma (LSS), and the Skills Framework for the Information Age (SFIA), provides a platform for success. To support this approach, we have more than 1,300 certified staff in our ITSM Community of Practice, including 12 COBiT Practitioners, 10 CMMI L3 Practitioners, 19 ISO 27001 Lead Information Security Management System (ISMS) Auditors, 1 ITIL Master Candidate, 19 ITIL v3 Experts, 3 Certified ITIL Trainers, 18 LSS Black Belts, and 5 ISO 20000 Lead Auditors, including a contributor to ITIL v2 and v3. This staff has the experience to help government organizations comply with federal directives and mandates, and ultimately deliver the intended value of their enterprise IT programs by addressing the most critical dimensions of ITSM-based transformations.
About the Authors

Francis Arambulo, a Senior Associate at Booz Allen Hamilton, has 17 years of industry and consulting experience in both the public and private sector. He is the ITSM Community of Practice (CoP) lead for Booz Allen responsible for managing the firm’s investment to maintain and enhance the firm’s ITSM capabilities for the 1,300+ professional staff in the CoP. In addition, Mr. Arambulo manages a capability team that specializes in the transformation of IT infrastructure delivery into discreet products and services for the Defense community.

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About Booz Allen

Booz Allen Hamilton has been at the forefront of strategy and technology consulting for nearly a century. Today, Booz Allen is a leading provider of management and technology consulting services to the US government in defense, intelligence, and civil markets, and to major corporations, institutions, and not-for-profit organizations. In the commercial sector, the firm focuses on leveraging its existing expertise for clients in the financial services, healthcare, and energy markets, and to international clients in the Middle East. Booz Allen offers clients deep functional knowledge spanning strategy and organization, engineering and operations, technology, and analytics—which it combines with specialized expertise in clients’ mission and domain areas to help solve their toughest problems.

The firm’s management consulting heritage is the basis for its unique collaborative culture and operating model, enabling Booz Allen to anticipate needs and opportunities, rapidly deploy talent and resources, and deliver enduring results. By combining a consultant’s problem-solving orientation with deep technical knowledge and strong execution, Booz Allen helps clients achieve success in their most critical missions—as evidenced by the firm’s many client relationships that span decades. Booz Allen helps shape thinking and prepare for future developments in areas of national importance, including cybersecurity, homeland security, healthcare, and information technology.

Booz Allen is headquartered in McLean, Virginia, employs more than 25,000 people, and had revenue of $5.59 billion for the 12 months ended March 31, 2011. Fortune has named Booz Allen one of its “100 Best Companies to Work For” for seven consecutive years. Working Mother has ranked the firm among its “100 Best Companies for Working Mothers” annually since 1999. More information is available at www.boozallen.com. (NYSE: BAH)

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