

Blueprint for Establishing Risk-based Governance of IT Investments in a Net-centric Department of Defense

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Includes Report of the IT Acquisition Management
Transformation Rapid Improvement Team (RIT) Pilot

Available electronically in the [IT Community of Practice](#)

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This blueprint for information technology and national security system (IT/NSS) investment management in a net-centric Department of Defense (DoD) is primarily an analysis and synthesis of the contributions made by the IT Acquisition Management Transformation Rapid Improvement Team (RIT), the RIT Pilot team and the associated pilot programs during the course of a two year pilot. The team members are listed in [Appendix D.5](#). For leadership of the RIT Pilot and many hours of productive discussion, I wish to recognize Mr. John Laychus who is now retired from Federal Service. For temporal support I thank Mr. Ray Boyd, the acting Director of DASD (DCIO) Commercial Policies and Oversight. My appreciation to the participants of the Net Centric Operation Functional Concept workshops for insight into the potential of net-centricity. The several reviews of the team products and interim reports by the RIT Executive Council were especially valuable in the analysis of the outcomes. The RIT Executive Council members are listed in [Figure 10](#) of Section B.1.1.2..

I wish to thank the writing team (Noel Dickover, David Meyers, Andrea Lombardi, and Jeanita Williams) for their numerous gap analysis, contributions and reviews. Mr. Dickover collaborated on the development of the business analog to the warfighter's self-synchronization outcome of Net-centric operations, and is instrumental in the web version of this report and blueprint.

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Prologue

The Department is committed to a transformation from a cold war posture to a force capable of quickly adapting to new challenges and to unexpected circumstances. In his April 2003 Transformation Planning Guide foreword, Secretary Rumsfeld states that:

We must transform not only the capabilities at our disposal, but also the way we think, the way we train, the way we exercise and the way we fight. We must transform not only our armed forces, but also the Department that serves them by encouraging a culture of creativity and prudent risk-taking. We must promote an entrepreneurial approach to developing military capabilities, one that encourages people to be proactive, not reactive, and anticipates threats before they emerge.

The role of information technology (IT) is well recognized to be a vital enabler in such a transformation. Moreover, information technology itself has been undergoing a transformation to an information centric model. The convergence of the IT transforming enabler with the Department's transformation objectives has created an unparalleled opportunity to field an information age fighting force.

The Department's IT transformation began with the implementation of the Clinger-Cohen Act (CCA) of 1996. CCA brought national security systems and business IT under the aegis of the DoD CIO, who is charged by the Secretary to provide management and oversight of all DoD IT, including national security systems (NSS). CCA came with a sense of Congress that successful implementation should result in an annual 5 percent decrease in the cost of maintaining IT, together with an annual 5 percent increase in the efficiency of the Department's operations.

The post CCA period has been fruitful with respect to the Department's migration from a system-centric to a net-centric architecture, and the exploitation of that architecture to further the Director of Force Transformation's, VADM Arthur K. Cebrowski, USN (Ret), vision of Net-centric warfare. In June 2000, the Chairman of the Joint Chiefs of Staff published Joint Vision 2020, which articulated full spectrum dominance as the means for achieving the objectives directed by the National Command Authorities, and information superiority as the principal enabler.

Yet, while our fighting forces are world-class, and the Comptroller General, David Walker gave them an A+, on economy, efficiency, transparency and accountability he rated the Department of Defense with a grade of D. In response, the Department's acquisition community undertook a revolution in business affairs (RBA). RBA became the engine that would generate revenue and would in turn be applied to sustain force transformation.

By the summer of 2001 it became clear that the revolution in business affairs had not adequately transformed the IT/NSS requirements generation and acquisition processes to ensure that our warfighters would continue to be equipped with current information technology. Hence, information superiority was at risk.

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Glossary

ACAT – Acquisition Category
ACC – Acquisition Community Connection
ADM – Acquisition Decision Memoranda
AF/XIW –Director for C4ISR Architecture and Integration
AIM – Acquisition Information Management System
AIS – Automated Information System
AMIP – Acquisition Management Information Plan
AoA – Analysis of Alternatives
APB – Acquisition Program Baseline
AT&L – (Under Secretary of Defense) Acquisition Technology and Logistics
BMSI – Business Management and System Integration
BPA – Blanket Purchase Agreement
BPR – Business Process Reengineering
C2CS – (Air Force Program Executive Officer) Command, Control and Combat Support
C4ISP – Command, Control, Communications, Computers, and Intelligence Support Plan
CCA – Clinger-Cohen Act
CCRP – Command and Control Research Program
CDD – Capability Development Document
CINC – (now replaced by COCOM; Combatant Commander)
CJCSI – Chairman of the Joint Chiefs of Staff Instruction
CMM – Capability Maturity Model
CMMI –Capability Maturity Model Integrated
COI – Community of Interest
CoP – Community of Practice
COTS – Commercial-Off-The-Shelf
CPR – Cost Performance Report
DAES – Defense Acquisition Executive Summary
DAG – Defense Acquisition Guidebook
DAMIR – Defense Acquisition Management Information Retrieval
DASD – Deputy Assistant Secretary of Defense
DAU – Defense Acquisition University
DID – Data Item Description
DISA – Defense Information Systems Agency
DoD CIO – DoD Chief Information Officer
DoD DCIO – DoD Deputy Chief Information Officer
DON – Department of the Navy
DOT&E – Director, Operational Test and Evaluation
EAA – Economic Alternatives and Analysis
EADR – Evolutionary Acquisition Design Reviews
ESI – Enterprise Software Initiative
FAM – FAA-iCMM Appraisal Method
FAR – Federal Acquisition Regulation
FCB – Functional Capabilities Board
FEA – Federal Enterprise Architecture

FIRST – Financial Information Resources System
FSC – Federal Supply Schedule
FY – Fiscal Year
GAO – Government Accountability Office
GCCS – Global Command and Control System
GCSS AF – Global Combat Support System Air Force
GCSS CC/JTF – Global Combat Support System Combatant Commander/ Joint Task Force
GIG ES – Global Information Grid Enterprise Services
GSA – General Services Administration
GTN 21 – Global Transportation Network
IA – Information Assurance
ICD – Initial Concept or Capabilities Document
ILSP – Integrated Logistics Support Plan
ILS-S – Integrated Logistics System – Supply
IMDS/PAMS – Integrated Maintenance Data System / Precision Measurement Equipment Laboratory (PMEL) Automated Management System
IOC – Initial Operational Capability
IOT&E – Initial Operation Test and Evaluation
IPR – In-process Review
IPT – Integrated Product Team
IRMC – Information Resources Management College
ISP – Integrated Support Plan
IT – Information Technology
IT/NSS – Information Technology/National Security Systems
JCIDS – Joint Capabilities Integration and Development System
JCS – Joint Chiefs of Staff
JICIDS – Joint Capabilities Integration and Development System
JROC – Joint Requirements Oversight Council
JS – Joint Staff
KPPs – Key Performance Parameters
MAIRD – Minimum Acquisition Information Requirements Decision
MAPR – Monthly Acquisition Program Report
MDA – Milestone Decision Authority
MID – Management Initiative Decision
MILSPEC – Military Specification
MNS – Mission Need Statement
MOE – Measures of Effectiveness
MS – Milestone
NCA – National Command Authority
NCES – Net-centric Enterprise Services
NCW – Net-centric Warfare
NII – Networks and Information Integration
NTCSS – Navy Tactical Command Support System
OHIO – Only Handle Information Once
OMB – Office of Management and Budget
ORD – Operational Requirements Document

OSD – Office of the Secretary of Defense
OT&E – Operational Test and Evaluation
OUSD(AT&L) – Office of Undersecretary of Defense (Acquisition, Technology, and Logistics)
PA&E – Program Analysis and Evaluation
PBSC – Performance-Based Service Contracting
PEO – Program Executive Officer
PM – Program Manager
PMO – Program Management Office
POA&M – Plan of Actions and Milestones
QMO – Quality Management Office
QSM – Quantitative Software Management
RBA – Revolution in Business Affairs
RBG – Risk-based Governance
RIT – Rapid Improvement Team
SA – Software Acquisition
SAE – Service Acquisition Executives
SAF/AQX – Deputy Assistant Secretary Management Policy and Program Integration
SAMP – Single Acquisition Management Plan
SAPIP – Software Acquisition Process Improvement Programs
SBIRS – Space-Based Infrared System
SCS SPO – Stock Control System Program Office
SEI – Software Engineering Institute
SEMP – System Engineering Management Plan
SMART – System Metric and Reporting Tool
SMM – Software Maturity Matrix
SOW – Statement of Work
SPO – System Program Office (Air Force)
T&E – Test and Evaluation
TC AIMS II – Transportation Coordinator’s Automated Information for Movement System II
TEMP – Test and Evaluation Master Plan
VADM – Vice Admiral
VCJCS – Vice Chairman, Joint Chiefs of Staff
XP – Extreme Programming

Executive Summary

Transformation is about creating the future, rather than perfecting the past.

David Walker, Comptroller General

The Blueprint

The blueprint for information technology and national security system (IT/NSS) investment management in a net-centric Department of Defense is a set of existing and proposed practices for reducing cycle time and improving the product. This blueprint comes at a propitious time because it compliments and leverages the Department's transformation toward net-centricity, portfolio management and enterprise architecture. It is complimentary because it proposes a methodology for managing acquisition at the lowest practicable organizational level, thus expediting decision making and freeing oversight resources for efforts such as portfolio level management. It leverages the thrust toward enterprise architecture by recognizing that mature enterprise architectures and functional concepts reduce the risk of making duplicate and non-interoperable investments. The blueprint capitalizes on the Department's transformation to net-centricity by presenting a concept for self-organization. Just as the warfighters' exploitation of net-centricity achieved information superiority and in turn enabled self-synchronization, exploitation of net-centricity by the business community will achieve business information superiority and enable self-organization.

It is important to recognize that this report presents but one part of the whole to-be blueprint. Transformation of the as-is IT investment management processes, as found in the directive system and Chapter 7 of the Defense Acquisition Guide, to the net-centric investment environment will complete the blueprint.

This blueprint is presented in three sections. The first section describes risk-based governance as the key reorganization principle, and makes the case that an environment must be created to achieve a measure of self-organization within a PEO structure. Attributes of risk-based governance are:

1. A clear understanding of desired investment outcomes
2. Institutionalized risk assessment and management
3. Provision for insight into selected investment information sets
4. Process for assessing Sponsor/PEO/PMO investment capability
5. Organizational support for capability improvement
6. A trusting relationship between corresponding headquarters and subordinate oversight actors

The second section describes how the Department can foster the shared situational awareness necessary to make self-organization a reality. The third section provides a number of

initiatives that, when applied within the risk-based environment, can reduce the time required to deliver meaningful IT/NSS capability to the warfighter.

The blueprint touches on all four IT investment processes: Joint Capabilities Integration and Development System (JCIDS), PPBE, acquisition and sustainment. For clarity and conciseness in this report, we will refer to these four processes using the collective term, investment process, and define the associated actors as the investment community.

The Road to Blueprint Development

In the spring of 2001, senior leaders of the Department determined that emerging threats, new defense strategies, technological opportunities and the mandates of the Clinger-Cohen Act (CCA) required a fundamental transformation of how DoD acquires and manages its critical IT resources. Accordingly, an IT Acquisition Management Transformation Rapid Improvement Team (RIT) and its associated Pilot were conducted in three phases shown in Figure 1. The first phase formed the RIT, identified its objective and conducted an intense series of workshops to formulate recommendations. The second phase piloted a number of the RIT recommendations in real-world circumstances. The third phase evaluated and synthesized the RIT Pilot findings, and most promising RIT recommendations, to the Department's policy development process for policy or guidance consideration. A detailed report of the RIT Pilot governance structure and operations is found in Section B.

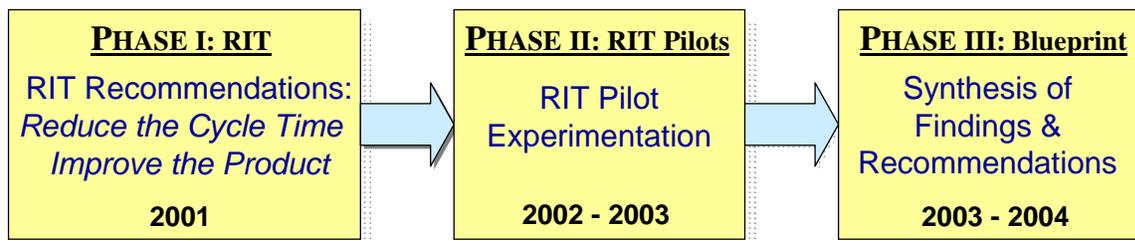


Figure 1: RIT Phases

The transformational goal of the RIT was to “***Reduce the cycle time to deliver mission-effective IT capabilities to 18 months or less and improve the product.***” In support of this goal, the RIT developed 32 recommendations that were briefed and approved by the Department senior leaders. To develop a plan for transformation, it was determined that some of the recommendations should undergo experimentation within active programs by employing a pilot approach. The principal output of the RIT Pilot was a set of findings, that in combination with the RIT recommendations, could be used to develop a “***A Blueprint for IT acquisition that is transferable to the acquisition of other IT systems.***”

The principal thrust of the RIT Pilot was to assign milestone responsibility of eight ACAT IA programs to the acquiring Components, issue a set of ground rules, provide a set of recommendations for experimentation, simulate net-centricity, and monitor their progress over an 18-month period. Also participating were two ACAT III programs and one ACAT IAM program that remained under OSD milestone decision authority. The selection of the RIT Pilots was based on the real-world realities of program availability for participation. In

other words, the RIT Pilots were “volunteered” by their Components. The selected programs were not uniform in current execution approaches or cost-schedule-performance profile prior to entering the RIT. However, because the goal of the RIT was experimental in nature, it was deemed acceptable to proceed with the set of programs provided by the Components.

The RIT Pilot recommendations provided opportunities for innovation, improved transparency of data, increased program flexibility and reduction of unnecessary tasks. During the experimentation with the recommendations and the subsequent analysis, a synthesis of ideas emerged to form the basis of a Blueprint for moving IT investment management into a net-centric environment.

Conclusions and Next Steps

The goal of the RIT Pilots was to experiment with a set of RIT recommendations that represented new ideas for reducing cycle time and improving quality. While some RIT Pilots delivered meaningful functionality within the eighteen month time period, others did not. To the extent these recommendations clearly have merit, they have been included in the Blueprint. In this sense, we did not base the development of the blueprint solely on the overall performance of the pilots.

The conclusions we draw from the RIT Pilot effort are:

- By instituting an RBG environment, milestone decision authority can be assigned to a subordinate organization without adding unacceptable risk to the investment process.
- Success of RBG and cycle time reduction is predicated on the adoption of net-centricity by the business community.

An independent in-process review (IPR) conducted by DASD(NII) for C3ISR and IT Acquisition on the six ACAT IA programs that completed the Pilot phase, concluded that milestone responsibility should remain with their respective Components.

The next steps are the implementation of the Blueprint for IT investment in a net-centric environment. Implementation of the Blueprint is presented in two parts. Blueprint I contains the 28 policy and non-policy recommendations of this report. Blueprint II sets a path for continuous exploitation of net-centricity and self-organization. [Section A.6](#) addresses the recommendations and recommends the chartering of an implementation team. The implementation team will develop a coalition of recommendation champions, develop an implementation Plan of Actions and Milestones (POA&M) and provide periodic status to the leadership.

A. Blueprint for IT Investment in a Net-centric Environment

A.1. Introduction to the Opportunity of Net-centricity

Alberts et al. refer to self-synchronization as one example of highly decentralized C2, in which lower-level decision makers are guided only by their training, understanding of the commander's intent, and their awareness of the situation in relevant portions of the battlespace.¹ In this section we endeavor to make the case that self-synchronization is analogous to what the business community calls self-organization. Self-synchronization puts forward an answer to the essential asymmetry of modern warfare that size is no longer proportional to power. In combat, each individual soldier or small unit is empowered to autonomously understand, locate and destroy targeted threats. Empowering decentralized action with precision, synchronization and agility is the goal of Net-centric warfare. Specifically, NCW states:

*“Self-synchronization is a mode of interaction between...two or more robustly networked entities, shared awareness, a rule set, and a value-adding interaction. The combination of a rule set and shared awareness enables the entities to operate in the absence of traditional hierarchical mechanisms for command and control. The rule set describes the desired outcome in various operational situations. Shared awareness provides a mechanism for communicating the ongoing dynamics of the operational situation and triggering the desired value-adding interaction.”*²

Alberts and Hayes, writing in “Power to the Edge,”³ state the assumptions for self-synchronization that ensure that the results will not be chaos in the battlespace:

- Clear and consistent understanding of command intent
- High quality information and shared situational awareness
- Competence at all levels of the force
- Trust in the information, subordinates, superiors, peers, and equipment

In a recent interview, Garstka, one of the authors of Network Centric Warfare (NCW), stated that Operation Iraqi Freedom demonstrated the power and precision of NCW:

“Almost every aspect of network-centric operations described in the book came to pass in some capacity during Operation Iraqi Freedom. These included improved information sharing, common operational and tactical pictures, enhanced shared situational

¹ Alberts, Garstka, Hayes and Signori, *Understanding Information Age Warfare*, CCRP, August 2001, page 219

² Alberts, David S. et al. *Network Centric Warfare: Developing and Leveraging Information Superiority*. CCRP Publications: 1999. Pages 175-176.

³ Alberts, David S., Hayes, Richard E., *Power to the Edge*, CCRP Publications: 2003, Page 27

awareness, and increased speed of command and self-synchronization—with the net result being increased mission effectiveness.”⁴

With this background we are prepared to argue that:

Self-synchronization, as achieved in Network Centric Warfare, has a corollary in the business world: It is called self-organization.

Self-organization embraces the notion of developing “virtual” organizations to handle the complexity presented in a knowledge work situation. Self-organization is a key attribute of today’s professional teams and communities. The leadership of IBM Global Services⁵ found that self-organization has a number of enablers, including:

- Leadership proactively supports a value system that encourages sharing behavior
- Leadership provides incentives to reinforce the value of sharing
- A strong alignment with strategic goals
- Best of class processes for management of intellectual capital
- Balance and linkage between formal and informal organizations
- Organizations are open systems for flow of data and information
- Enterprise-wide technology for effective knowledge management.

To gain insight into the consequences of not providing the enablers of the IBM Global Services experience, or the Alberts and Hayes assumptions presented earlier in this section, we turn to Paul Bracken, writing in the Autumn 2002 edition of *Joint Forces Quarterly*. His view is that without these assumptions and enablers, not only does self-organization not happen, the result can be disorganization:

“Self organization, while it occasionally takes place, is hardly automatic. What often occurs is self disorganization as each division sub-optimizes to manage the complexities that confront it. Enron, for example, was once a natural gas company that transformed itself within five years into an essentially unregulated investment bank that made money from trading futures contracts on oil, gas, electricity, broadband, and other commodities. It raised money to build these trading systems by selling gas fields in Texas and power plants in South America. Moreover, it borrowed heavily to leverage its trading positions. Enron did not have to keep a minimum capital base as did its real competitors, the Wall Street investment banks. Because it was not regulated like a bank, it could transform hard

⁴ Onley, Dawn S. *Government Computer News* Interview. http://www.gcn.com/23_10/interview/25740-1.html. 05/03/04; Vol. 23 No. 10

⁵ IBM Business Consulting Services, *Executive Technology Report*, “Open communities: One route to accessing talent on demand”, July 2003, <http://www-1.ibm.com/services/us/imc/pdf/g510-3304-00-etr-open-communities.pdf>

assets such as gas pipe lines into soft ones - bits and trading positions. Enron carried this practice farther than any other company.”⁶

Self-organization concepts have been entering the acquisition process since 2001, when a change in DoD 5000 series documents transformed the acquisition regulations to allow the program manager more freedom to manage toward program goals. This change in the DoD 5000 series documents was designed to move the implementation of the acquisition regulations from a prescriptive model to one that fostered efficiency, creativity and innovation. Specifically, the goals of the change included the following:

- Encourage innovation and flexibility
- Permit greater judgment in the employment of acquisition principles
- Focus on outcomes instead of process
- Empower program manager to use the acquisition system as a tool rather than a burden.

This goal for more innovation was accompanied by increased emphasis in three areas:

- Spiral development, where the desired end-state requirements are not known
- Evolutionary acquisition (using a time-phased requirements approach), and
- Better integration of the requirements and acquisition processes.

All of these initiatives are driving the acquisition process toward a self-organization model – one which readily adapts to the changing needs of the environment and warfighter in order to deliver critical capability as rapidly as possible.

Net-centricity provides significant opportunities for improving the adoption of self-organization concepts to the DoD acquisition of IT. In fact, it allows us to think in terms of a net-centric acquisition environment in which self-organization is the key to meeting warfighter needs quickly and reliably. Net-centric acquisition involves application of net centric tenets in a self-organizing manner to ensure optimal support to the warfighter, similar to how self-synchronization provides another alternative to traditional hierarchical mechanisms for command and control. Self-organization in a net-centric acquisition environment would allow programs and their stakeholders an alternative method of tailoring the implementation of policies and procedures to optimize speed, quality, and response time to better meet needed capabilities.

⁶ Paul Bracken, “Corporate Disasters-Some Lessons for Transformation”, *Joint Forces Quarterly*, Autumn 2002, pp 83-87

As Network Centric Warfare has had a profound effect on changes in how combat is conducted, net-centricity and the net-centric tenets are expected to have as profound an effect on our method for conducting IT investment.

The RIT Pilots and their experimentation with the RIT recommendations have allowed a re-examination of the DoD requirements development, reporting and decision making processes. The program management office in a net-centric environment can in many cases work directly with the warfighter during the acquisition process to ensure their information needs are met. Information that is always accessible and available provides new options for reporting and decision making processes.

For insight into the application of the blueprint in a real world situation, we present the experience of a RIT Pilot program, Global Combat Support System Combatant Commander/Joint Task Force (GCSS CC/JTF) to demonstrate its ability to respond to warfighter needs during Operation Iraqi Freedom.

GCSS CC/JTF adopted a proactive RIT Pilot plan that introduced risk-based governance to the DISA organization, supported a high degree of situational awareness and served as a model for the other pilots. Consequently, the Program Management Office (PMO) was in a position to anticipate validated Combatant Commander (COCOM) requirements and work cooperatively with their functional sponsor, JS-J4 (Logistics Directorate) to deliver innovatively the new functionality/enhancements to a Pilot Services Suite in about a one-month cycle. These capabilities were then integrated into the next major release. The following achievements are testimony to the value of freedom to manage within risk-based governance.

GCSS CC/JTF Response to Iraqi Freedom Theatre Needs:

- Established a Pilot Services Suite in our GCSS Lab to enable immediate availability of critical and emergent capabilities at combatant commands and forward deployed locations.
- Developed an Air Tracker enhancement, requested by USEUCOM, which reduced the time to develop a daily report from 7 hours to 15 minutes.
- In partnership with USEUCOM and USAREUR, provided an in-transit visibility (ITV) capability, requested by CENTCOM, which allowed visibility and web mapping of intra-theater ITV data on the SIPRNET, e.g., water, MREs, ammunition, fuel.
- Provided an enhancement to the Strategic Air Movement Report, requested by SOUTHCOM and CENTCOM, that reduced the time to develop a daily report identifying everything coming into theater, from hours to minutes.

A.2. A Vision For Risk-based Governance (RBG)

A.2.1. Overview

Risk-based governance (RBG) is the central element of the Blueprint, and it creates an environment for continuous reduction of cycle time and improvement of the product. In its basic form, RBG is essentially a restatement of DODD 5000.1 paragraph 4.3.5. Streamlined and Effective Management, which states,

Responsibility for the acquisition of systems shall be decentralized to the maximum extent practicable.

To use risk-based governance we recommend restating paragraph 4.3.5 of DODD 5000.1 to read:

Responsibility for the investment in systems shall be decentralized to the maximum extent practicable, consistent with the risk of the investment and the capability of the investing organization to manage the risk.

It is important to note that by expanding the scope of the DODD 5000.1 language from acquisition to investment, we are recommending that the interfaces between the JCIDS, PPBE, acquisition and sustainment processes be more integrated and be made flexible enough to enable an IT cycle time for a new start IT program that approximates the 18-month IT innovation cycle.

Our definition for risk-based governance follows this recommended directive language. RBG is an environment that contains a process for determining the appropriate level of oversight and insight for an investment, based on the aggregate risk of the investment and the capability of the investing organization to manage the risk. Furthermore, when operating within the RBG environment:

The covenant between the Sponsor, the Acquiring Agency headquarters and the subordinate acquiring echelon is that the delegation of milestone decision authority to the subordinate echelon will add no unacceptable risk to the investment.

A graphical depiction of RBG is provided in Figure 2. The y axis represents the investment capability of the acquiring organization, and the x axis the aggregated risk of the investment. The intersection of the two values indicates a corresponding level of insight-oversight by a headquarters. More discussion on the computation of the risk and capability values is found later in this section.

Note that when an acquiring Agency headquarters delegates oversight to a subordinate echelon, both the Sponsor and Agency headquarters must retain adequate insight into the investment and the subordinate echelon's investment capability. The value of insight will be made clear in the following sections of this report.

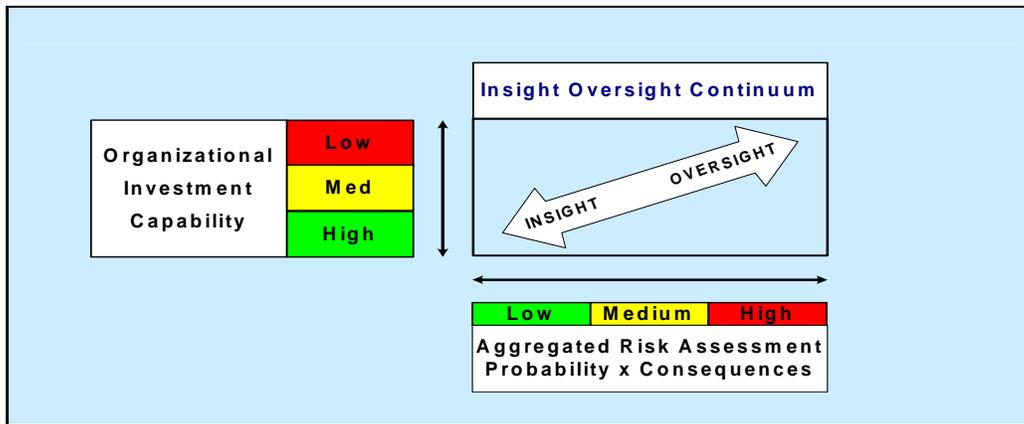


Figure 2: Risk-based governance model

A.2.2. Underlying Basis for Risk-Based Governance

During our analysis of the pilot programs that were able to significantly reduce the IT delivery cycle time (see for example program summaries of GCSS-AF and GCSS CC/JTF in [Section D.12](#)), we looked for common characteristics within their operating environments that were relevant to their cycle time reduction success. We found the following:

- Full awareness of the program’s objectives within all levels of the PEO and PMO
- A thorough understanding of the ultimate users’ needs
- Direct communications with the ultimate users and user surrogates
- A leadership climate that valued innovation and aggressive management
- Maximum employment of available net-centric management tools

The environment these characteristics describe suggests a parallel to the self-synchronization goal of net-centric warfare discussed in [Section A.1](#). Correlating these common characteristics of the Pilots with the business equivalent of the Alberts and Hayes prerequisites above, has resulted in the six elements we consider essential for creating a self-organizing environment that we refer to as Risk-based Governance, RBG.

1. A clear understanding of desired investment outcomes
2. Institutionalized risk assessment and management
3. Provision for insight into selected investment information sets
4. Process for assessing Sponsor/PEO/PMO investment capability
5. Organizational support for capability improvement
6. A trusting relationship between corresponding headquarters and subordinate oversight actors

[Section 2.3](#) describes in detail the six elements of RBG.

Recommendation 1:

Change DODD 5000.1 paragraph 4.3.5. Streamlined and Effective Management. From, “Responsibility for the acquisition of systems shall be decentralized to the maximum extent practicable.”

To, “*Responsibility for the investment in systems shall be decentralized to the maximum extent practicable, consistent with the risk of the investment and the capability of the investing organization to manage the risk.*”

A.2.3. Benefits of Risk-based Governance (RBG)

The benefits of RBG observed during the RIT Pilot provide a compelling argument for its implementation throughout the Department. We believe that the adoption of RBG:

- Enables a program start commensurate with the urgency of the need
 - See [AMIP](#) and [Fast Track](#) in Section A.5.1.
- Sets decision responsibility and authority to the lowest appropriate level
 - Results in reduced management overhead
- Provides incentive to the organization for continuing improvement of its investment capability
 - Result is that more investments move from oversight to insight
 - Frees oversight resources to focus on
 - Strategic and transformational issues
 - Portfolio management
 - Coaching subordinate organizations
- Improves quality of both the investment processes and the product
 - Strengthens institutional capabilities and reduces rework
 - Improves the product because more energy is allocated to the product vice developing and presenting briefing materials
 - Reduces investment cycle time
 - Supports objectives of OMB Circular 130 and provides rationale for the elimination of annual Congressional language requiring reporting of Clinger-Cohen Act implementation

Recommendation 2:

That OSD implement risk based governance and resource an OSD organization to assess OSD and Component IT investment capability.

A.2.4. RBG, an Alternative to Cost-Threshold Investment management

The traditional cost-threshold criteria for setting the oversight levels came to the IT community from GSA and OMB during the system-centric cold war era. In today’s post 9/11 environment, the Department has a mandate to exploit our emerging net-centricity and

forge a knowledge-based decision process. The placement of the oversight responsibility is a key element of such a decision process.

Experience:

Based on the experience of the RIT Pilots and their results, we believe that RGB, on the basis of risk, coverage and opportunity, as described below, is a feasible alternative for defining the acquisition category (ACAT) of an investment.

Today's IT/NSS investments are largely commercial-off-the-shelf-software, COTS-based software applications. Use of COTS has shifted the Department's IT/NSS investment risk from software development to system integration and configuration management. Consider for example that a typical automated information system (AIS), consists of integrated multiple vendor applications with multiple upgrade and end-of-maintenance cycles frequently resulting in unintended compatibility and performance issues.

A search for an alternative to the present ACAT definition is not limited to IT. In a *Defense AT&L Magazine* article⁷, "Doing Less with More; the pitfalls of overfunding," the author argues that the current cost threshold definition of a major defense acquisition program (MDAP) fails to recognize that it is not just cost but contribution to capability that should be considered. In fact, he argues that focusing on cost tends to produce higher cost programs.

With a Federal annual IT budget at \$46B and half of it slated for DoD, does the cost threshold approach provide adequate oversight coverage? DoD has in excess of 5000 mission critical and mission essential IT/NSS systems of which more than 1000 are in some stage of development. Using the cost threshold model, the Office of the Secretary of Defense provides oversight over 189 mission critical/mission essential investments. OMB, on the other hand, has concluded that it will conduct reviews of all IT investments that exceed \$1M in a given year. Likewise, the Comptroller is required by Section 8084 of Public Law 108-87 to certify compliance with the Department's Financial Management Modernization Plan for investments in excess of \$1M. In each case, adoption of a RBG approach to IT management would minimize the intrusive oversight, shorten the time to market and improve the product.

Finally, and to reiterate our thesis, we must be ready to take full advantage of the process and technology changes as they come on line. Functional and joint operational concepts and enterprise architectures are maturing; and as we apply them we reduce investment risk and shorten the time to market. The significance of the maturing enterprise architectures is that much of the technical oversight at the headquarters level deals with interoperability and sustainment issues. The Department has now assigned responsibility for warfighting architectures to Functional Capability Boards/Domains and business architectures to the Business Enterprise Architecture Domains. Additionally, the Federal Enterprise Architecture

⁷ Capt. Dan Ward, USAF, "Doing Less With More; the pitfalls of overfunding", *Defense AT&L*, November-December 2004, pp30-33. http://www.dau.mil/pubs/dam/11_12_2004/nov-dec04.pdf

(FEA) has published all five of its reference models and OMB is requiring the FY 05 capital investment reports for all IT investments in excess of \$1M to present their measures of effectiveness and results using the FEA Performance Reference Model. As we write this report, the Department has published a draft version of the [DoD Enterprise Architecture](#), including a Performance Reference Model.

The technology enabler for RBG is the Department's commitment to network-centricity and its movement to web-based services. As the Department's net-centric enterprise services come on line, they will provide the means for the key players, the FCB/Domain program sponsor and acquisition organization headquarters to pull data posted by a subordinate agency and conduct asynchronous insight. The pull process will be accomplished by agents operating either on our command or with preset time, event or threshold triggers. More on essential insight information in [Section A.4.2.1](#).

[Recommendation 3:](#)

That the Department, in its follow-on to "The transformation for the 21st Century Act", propose that Congress change the definition of a major program from solely a cost threshold basis to one that includes both cost and the risk of achieving a needed capability or transformation.

A.3. Architecting a Risk-based Governance (RBG) Process

Given the benefits of RBG described above, we strongly endorse the establishment of risk-based governance by all echelons of the Department undertaking IT/NSS investments. To establish an RBG policy that adds no unacceptable risk to the investment, we recommend that the policy include the following six elements previously introduced in [Section A.2.2](#):

1. Clear understanding of desired investment acquisition performance and outcomes
2. Institutionalized risk assessment and management
3. Provision for headquarters' insight into selected investment information sets
4. Process for assessing Sponsor/PEO/PMO investment capability
5. Organizational support for capability improvement
6. A trusting relationship between corresponding headquarters and subordinate oversight actors

These six elements may appear to be self evident, but as we discovered during the pilot phase, each was a project in itself, and required strong leadership commitment to make the changes necessary for their achievement. For Risk Balanced Governance to serve as a Department-wide process, its working parts must necessarily be stable, reliable, and credible. The following discussion will address each element and provide insight into implementation issues.

A.3.1. Clear Understanding of Desired Investment Acquisition Performance and Outcomes

It is Department policy for the sponsor of an IT/NSS investment to state the need in terms of mission outcome measures of effectiveness (MOEs) in the Initial Capabilities Document (ICD), and measure the MOEs after the system has been fielded to determine if the need has been satisfied, and if not, identify a way ahead. Likewise, it is policy to reach agreement on acquisition performance measures such as those found in an acquisition program baseline (APB)

The importance of MOEs and the APB to risk-based governance is that we use them to calibrate our risk-based governance (RBG) process and gain confidence in the selected governance structure. Whereas governance decisions regarding the level of insight and oversight are based on the risk of the investment and capability of the investing organization to manage the risk, we must be able to discern among the contribution of all three phases of an IT life-cycle; Select, Control, Evaluate. Within the requirements and acquisition phases, the acquisition program baseline (APB) measures progress and OT&E results provide relatively short-term feedback to correct RBG decisions. To refine our calibration to include the select and evaluate phases, we add the post implementation review (PIR). The PIR is conducted after IOC and asks the question, “Did we get what we needed and if not, what should be done?” Thus we gain a holistic assessment of investment risk and capability. Figure 3 depicts the calibration process flow.

RIT Pilot experience with this element revealed some weak links in the RBG calibration process model. There was not a uniform understanding of mission outcome measures of effectiveness. Several of the programs equated MOEs to their key performance parameters (KPP) found in the CDD/ORD. A review of their ICD/MNS revealed that the Sponsors had not provided measures of the desired mission outcomes to the acquisition community. It was not surprising then that the quality, in terms of clarity and reliability, of the mission outcome performance measures found in the ICD or MNS, was considerably lower than the quality of the acquisition performance measures as found in the formal APB or equivalent document.

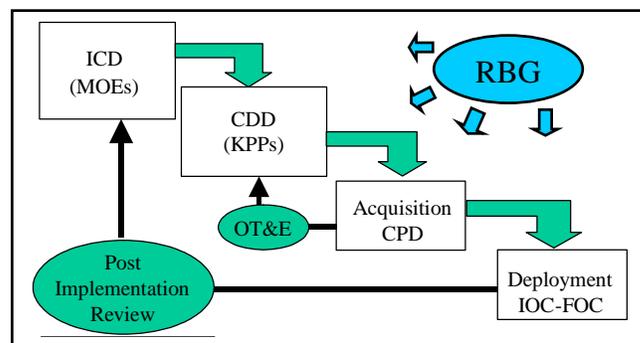


Figure 3: Calibrating Risk-based Governance

Consider the experience of the Food and Drug Administration's (FDA) effort to shorten the time for bringing drugs to market. In the 1990s the FDA decreased the time to market by trading off the front end of the lengthy drug approval process against more emphasis on the back end; post-market surveillance. By 2004 the arthritis drug Vioxx was pulled off the market by its manufacturer and in the ensuing investigation it became clear that while FDA shortened the front end of the drug approval cycle, it failed to enforce the back end.⁸ Dr. Jerry Avorn, Harvard Medical School characterized the situation as follows:⁹

“There is an enormous focus within FDA about approving drugs quickly and getting them on to market. And that’s okay if it’s done well. But then the attention of the FDA really drops off. And the vigilance disappears when it comes to requiring and analyzing the data that we need to be able to learn about the safety of the drugs once in widespread use.”

Dr. Jerry Avorn, Harvard Medical School

This lesson coming out of the FDA’s effort to shorten the time to market for drugs reveals an oversight dynamic that is also found in the Department of Defense. Witness that at the time the RIT Pilots started, there was no record of PIRs for IT/NSS investments, nor were there any post deployment performance reviews (P DPRs) for weapons system investments.

The Blueprint is designed to balance the trade-off between a shorter investment front-end with vigilance in the form of a PIR after IOC in order to avoid repeating the FDA experience. See the three related recommendations below. Program in-process reviews (IPRs) by the ASD(NII) Overarching Integrated Product Team of the ACAT IAM pilot programs that had been designated ACAT IAC, concluded that milestone decision authority should remain with the Components, thus validating the adequacy of the pilot program acquisition control processes. A longer-term study of the pilots will be needed to make judgments of the select and evaluate processes.

The resulting recommendations 4 and 5 are made because the Clinger-Cohen Act legislation bridges the JCIDS and Acquisition processes and provides for accountability for the investment through the measure of MOEs in a post implementation review (PIR). At the time of this writing neither the JCIDS instruction, CJCSI 3170.01E, nor the Functional Capability Board instruction, CJCSI 3137.01C, have assigned responsibility for the generation of MOEs, the planning and conduct of the PIR, or the incorporation of the PIR information into the capability analysis process.

For further investigation of MOEs and PIRs, see the appropriate sections of:

<http://acc.dau.mil/cca>

⁸ Ray Suarez interview of Dr. Jerry Avorn and Dr. Brian Strom, “FDA Drug Screening Measures Under Intense Scrutiny”, *Online Newshour*, November 23, 2004, http://www.pbs.org/newshour/bb/fedagencies/july-dec04/fda_11-23.html

⁹ Ibid

Recommendation 4:

That the instruction governing warfighter functional capability boards, CJCSI 3170.01 and CJCSI 3137.01, include as part of FCB responsibilities the articulation of outcome measures of effectiveness as exit criteria for a functional needs analysis, and a commitment to conduct a post implementation review against those measures and appropriate points after the system is fielded.

Recommendation 5:

Ensure that the portfolio management directives and instructions now being developed by OASD(NII) require that the Business Domain Owners ensure that business systems are based on the functional area, needs and solutions analyses required by CJCSI 3170.01, and that those analyses result in the establishment of outcome measures of effectiveness and the commitment to conduct post implementation reviews against those measures, at appropriate points after the system is fielded.

Recommendation 6:

That the DoD Enterprise Architecture Performance Reference Model include a process for developing measures of effectiveness (MOEs) and a requirement for an assessment of the MOEs after implementation in a post implementation review (PIR).

A.3.2. Institutionalized Risk Assessment and Management

It is the policy of the Department that risk be identified, assessed, and managed during JCIDS, acquisition, and sustainment of an IT investment. To adequately carry out Sponsor and Senior Acquisition Executive responsibilities, there necessarily must be a dialog dealing with all internal and external risks. For the purpose of this IT investment Blueprint, we focus on following risk areas:

- Joint operating concepts
- Proposed materiel solution approaches
- Change management
- Technology
- Integration, especially for multiple commercial off-the-shelf (COTS) software applications
- Programmatic

Our goal is to establish an investment's risk profile during the functional solution analysis so that the acquisition phase and RBG can start as early as is practicable.

The role of risk assessment and management in evolutionary acquisition is amplified because acquisition decisions are made at each spiral, yet the responsible insight/oversight entity typically gains visibility only into the risk associated with each increment. DOT&E provides guidelines for conducting operational test and evaluation for software intensive system increments. [See Appendix D.7](#). Appendix A to the guidelines presents the elements of risk assessment for system increments and provides example issues for evaluating threats to success.

Confidence is needed to ensure that the risk assessment and management process is effective between insight/oversight opportunities. The corollary is that the investment organizations must have the appropriate information needed to make informed risk decisions.

It is of course necessary that for a program to participate in RBG, the risk lexicon must be in use throughout the domains: JCIDS, acquisition, and sustainment. Moreover, the oversight offices of the Components must also be fluent in the risk lexicon. It was a surprise then that few of the programs joining the RIT Pilot had functioning risk assessment and management programs in place.

The Army is piloting a promising risk assessment and management lexicon called the Program Success Factors Model. The Army's SAE, Claude Bolton, directed this effort as a result of his concern that although Army programs were heavily "measured and reported," he repeatedly saw what he referred to as "broken programs" come up for his or USD(AT&L) review. He asked the Defense Acquisition University to work with his staff to develop an alternative method of an accurate, comprehensive method of assessing a program's probability of success. The DAU point of contact is John Higbee.¹⁰

Based on finding multiple examples of successfully-managed programs that lost resources and priority, as well as programs in trouble that retained their resources and priority, Bolton recognized that ultimate programmatic success depended on more than just successful management of cost, schedule and performance risk. Current classical internal factors for cost, schedule, performance and risk (the metrics universally used by the acquisition leadership and largely within the control of the program manager) provide an important part of the program success picture; but the picture is not complete.

DAU determined that program success also depends on external factors (factors largely not within the PM's control, but that the PM can influence by informing/using service/OSD senior leadership. The DAU assessment found that a comprehensive assessment of program success requires a holistic combination of internal and external factors.

- Internal: Requirements, Resources, and Execution
- External: Fit in the Vision, and Advocacy

¹⁰ John J. Higbee, Executive-In-Residence / Professor, Program Management, Defense Acquisition University. Biography at: http://acc.dau.mil/simplify/ev.php?ID=15176_201&ID2=DO_TOPIC

The initiative is currently being piloted on two Army programs at the Army's Communications-Electronics Command. If implemented, this process will be incorporated into the Army's acquisition information management (AIM) application as a selectable option, thus allowing program managers to enter data used in multiple reports only once. In parallel, required reports will be examined with the objective of eliminating those that are redundant. The [Program Success Probability Guide](#) is available for use and download.

Another view of IT investment risk assessment and management can be found at the state government level. One such process that lends itself to DoD IT investments is the process used by the State of Texas Department of Information Resources¹¹. The referenced web site provides a wealth of practical IT project management information as seen in their [table of contents](#). Finally, there is no shortage of information about risk assessment and management in both the public and private sectors, only an occasional lack of appreciation.

[Recommendation 7:](#)

That the Department adopt a generic set of IT acquisition project risk factors, such as is currently being piloted by the US Army, or as has been adopted by the State of Texas Department of Information Resources. Such an inventory of risk factors would be initiated during the Functional Solution Analysis phase and updated as the program evolved.

[Recommendation 8:](#)

That the Department require, as part of Milestone and Decision Reviews, a uniform presentation of investment risk assessment and management using the probability-consequence display format of the DAU Risk Guide.

During the organizational phase of the RIT Pilot, as each of the Pilots implemented appropriate risk assessment and management processes, their oversight entities adopted a risk lexicon, and the result, was an environment that incorporated risk-related dialog for each decision.

For further investigation of risk assessment and management see:

<https://acc.dau.mil/>

¹¹ Process for Analyzing and Managing Project Risk v.1.0 Initial Release March, 2000, State of Texas Department of Information Resources, <http://www.dir.state.tx.us/eod/qa/risk/index.htm>

A.3.3. Provision for headquarter’s insight into selected investment information sets

The Department has policies for documentation of needs, requirements, acquisition and sustainment phases of an investment’s life cycle. Additionally, various staff entities are charged with oversight of specific aspects of the life cycle, and each entity has developed unique information sets to satisfy their oversight obligation.

This *INSIGHT* element of RBG enables the responsible Office of the Secretary of Defense, and Component staff to maintain insight into the health and progress of the programs, and be in a position to intervene should circumstances warrant.

The hypothesis for the *INSIGHT* element of RBG is:

Headquarters staff due diligence can be accomplished through timely and transparent insight into PMO work products.

The PMO work products must therefore produce information sets that fulfill statutory requirements, and meet a tailored information set required by the Department’s policies.

Based on a successful test of this hypothesis during the execution phase of the pilot, this RIT recommendation clarified the relationship between the headquarters and subordinate organizations in the context of the goal to achieve a shortened product delivery cycle.

During the execution phase, this element of RBG was already recognized as an essential ingredient in the mix of initiatives to reduce the IT cycle time and was propagated in various internal DoD management decision documents. More detailed treatment of this RGB element is found in [Section A.4](#), Fostering Shared Situational Awareness.

A.3.4. Process for Assessing Sponsor/PEO/PMO Investment Capability

As depicted in [Figure 2](#), assessment of an acquisition organization’s investment capability is one of the two arguments for calculating the level of insight or oversight needed for a specific investment. The current practice for placement of acquisition responsibility relies on dollar thresholds and general perceptions of the acquisition organization’s capability, largely based on reputation and personal representations. RBG, with its objective capability assessment, provides a practical alternative. The experience of the RIT Pilots demonstrated that if we are to achieve the benefits of RBG, the appraisal of organizational IT investment capability is best implemented through a transparent, validated process that adds value to the organization. See [Appendix D.16](#) for an example of an IT investment capability assessment report of a RIT Pilot program.

Recommendation 9:

That the Department capitalize on the potential synergy between our need for RBG capability appraisal and the requirement of the FY 03 National Defense Authorization Act for the Defense Services and specified Agencies to establish Software Acquisition Process Improvement Programs (SAPIP). We recommend integration of the SAPIP capability assessment with the RBG capability assessment.

A.3.4.1. Validated Appraisal Process

The RIT Pilot capability appraisal instrument was the Federal Aviation Administration integrated CMM, (FAA-iCMM Version 2.0)¹². This integrated reference model tool has been successfully employed by the FAA and by the RIT Pilots. It has been validated through use in both government and contractor IT development and acquisition organizations. It has been found effective in organizations that practice software acquisition, systems engineering, software development, or some combination thereof^{13,14}. Further information about the RIT appraisal instrument selection process is found in [Appendix D.8](#) and the online survey report of candidate methods and tools¹⁵.

The RIT Pilot appraisal process was based on the FAA-iCMM Appraisal Method (FAM) Version 1.0¹⁶. Based on our experience, the minimum required resources are a three-person headquarters appraisal team, headed by a qualified lead appraiser and joined by a member of the organization to be appraised. A six-week lead-time serves to coordinate the scope of the appraisal, confirm the interview schedule, make evidentiary documents available to the team, and complete travel arrangements. The scope of the appraisal will vary with the degree to which the government acquisition office has taken responsibility for integration of multiple COTS solutions. Our experience supports a three-day on-site period as an appropriate balance between the needed confidence in the appraisal and disruption to the SPO/PMO. Our part-time team was able to conduct one mini-appraisal per month. It is reasonable to expect a full-time headquarters appraisal team to handle two such mini-appraisals per month.

¹² FAA-iCMM Version 2.0, <http://www.faa.gov/aio/ProcessEngr/iCMM/>

¹³ Linda Ibrahim, Arthur Pyster, "A Single Model for Process Improvement, lessons learned at the US FAA," *IEEE IT-Pro*, Vol. 6, No. 3, May/June 2004

¹⁴ Lind Ibrahim, "Using an Integrated Capability Maturity Model® - The FAA Experience," *Proceedings 10th Annual International Symposium of INCOSE*, July 2000, pp. 643-648

¹⁵ Leonard Sadauskas, *RIT Survey of Candidate Appraisal and Improvement Methods and Tools*, 27 Sep 2002, http://acc.dau.mil/simplify/ev.php?ID=51740_201&ID2=DO_TOPIC

¹⁶ The FAA-iCMM Appraisal Method (FAM) provides a full robust appraisal method for comparing processes being practiced to the iCMM The FAM also includes five method variations to meet various appraisal needs. <http://www.faa.gov/aio/ProcessEngr/iCMM/>

EXPERIENCE:

We found a three-day on-site mini-appraisal by a four-person team to be the ideal 80% solution for RBG assessment purposes. With full support of an Agency CIO and Senior Acquisition Executive, and a well-prepared PEO/PMO organization, the appraisal team was able to complete a gap analysis, make recommendations, and identify candidate best practices that would otherwise remain undiscovered.

The discovery and sharing of candidate best practices proved to be an unanticipated benefit of the capability appraisal process. By the time the assessments were completed, the RIT Pilots had access to both the candidate best practices on the IT-CoP and direct access to points of contact in the originating programs. See [Appendix D.10](#) for a breakout of candidate best practices by process area.

After the RIT Pilot was completed, the Software Engineering Institute (SEI) published, in February 2004, a CMMI Acquisition Module^{17,18}. This streamlined model of 32 pages targets the acquisition organizations at the PEO/SPO/PMO level. It uses the CMMI framework, integrates best practices from the FAA-iCMM and replaces the Software Acquisition (SA-CMM).

A.3.4.2. Transparency

At the beginning of the RIT Pilot phase, there was great sensitivity surrounding the potential release of capability appraisal findings outside the appraised SPO/PMO. We therefore chose to make transparency a consensus issue for the Pilot Program Managers. The initial rules of engagement restricted the findings to a need-to-know basis.

Findings with regard to addressed processes, however, are of three categories: effective, missing or not effective, and exemplary. To the PMO's surprise, the appraisals turned up many exemplary processes that are candidate best practices, together with assorted deficiencies. The rules of engagement were quickly modified to allow release of the candidate best practices.

The surprise by people in the PMO that some of their processes were identified as candidate best practices deserves further inspection with respect to the "best practices" policy of the Department. People who own or work within a practice, seldom realize that it could be of value to other organizations. An external assessor, with visibility into similar practices across the broader organization, can readily identify the transportability of exceptionally effective

¹⁷ John H. Baumert, "CMMI-Acquisition Module Pilot Program," OUSD(AT&L) Defense Systems, Systems Engineering Directorate, May 5, 2004

¹⁸ CMMI Module for Acquisition, Carnegie Mellon Software Engineering Institute, CMU/SEI-2004-TR-001, February 2004, <http://www.sei.cmu.edu/publications/documents/04.reports/04tr001.html>

practices. The implication is that if we rely solely on voluntary submission of candidate best practices, many will be missed.

Full transparency of findings to the Pilot community was established during a PM face-to-face meeting. While the candidate best practices were of considerable interest, during discussions about the mini-assessments, there quickly grew a realization within the group that each PM can learn as much, or more, from the mistakes of his fellow PMs. A policy for full transparency of the findings was adopted by consensus.

Recommendation 10:

That the implementation of RBG include a facilitated outreach by the SAE to the Component's PEOs during a face-to-face meeting, with the objective of establishing a policy of transparency of all capability appraisal findings. We further recommend that each PEO then lead his or her PMs to a consensus for the policy of transparency of findings.

A.3.4.3. Value Added of a Department-wide Standard Assessment Tool

Based on our pilot experience, establishment of a standard, validated, IT acquisition capability assessment model, such as CMMI-AM, has potential benefit to broad segments of the Department: the oversight community, the Functional Capability Boards, the Business System Domains, the Component sponsors of investments, and to each PMO, in several of the following ways:

- Economy of scale for training of appraisers and support contractors
- Develops broad pool of appraisers
- The same model can also be used by the SPO/PMO to establish a software acquisition process improvement program
- Establishes a common appraisal and improvement lexicon across the Department
- Enables equitable and consistent determination of RBG
- Enables the Functional Capability Boards and Domains to make more informed decisions on "competitive" acquisition allocation questions
- Supports the self-organization precept that the formal organization provides continuous feedback in the form of accepted and widely understood metrics

Recommendation 11:

The Software Engineering Institute CMMI-AM be validated and adopted as the standard IT acquisition capability assessment model for PEO and PM organizations.

A.3.5. Organizational Support for Capability Improvement

A significant benefit of RBG to the Department is its built-in incentive for a Sponsor/PEO/PMO to improve their investment capability. The investment actors who want to benefit from the net-centric investment environment and achieve increased self-organization will undertake the effort to improve their processes in order to achieve more freedom to manage. As RBG is implemented, we envision the exploration of further incentives such as including achievement of team capability gains under team-based merit pay.¹⁹

Having brought the investment actors to the improvement table, it becomes the Department's responsibility to provide an environment that engenders continuous process improvement. Above all, the environment must not become a disincentive. Such a supportive environment provides:

- Philosophical underpinning for continuous process improvement
- Sufficient assessor resources, manpower and training, made available to the investment actors
- Performance metrics that show the investment actors how they are doing relative to others; PEO performance within an FCB/Domain, PMO performance within a PEO
- A community of practice to provide support to the improvement practitioners

With respect to the philosophical underpinning for continuous process improvement, we found Quality to be the best candidate. Consider the definition of Quality used by the Organization for International Standards:

Quality is the totality of characteristics of an entity that bear on its ability to satisfy stated or implied needs. ISO 8402

The Department has a well-established tradition for its contractors to apply quality management practices. We have also observed some of the Department's Component organizations to have undertaken internal quality management programs such as Six-Sigma, CMM, ISO 9000 and the Baldrige National Quality Program. We also found that the Government Sub-Committee within the American Society for Quality has published a report, "Toward an Operational Definition of Quality Government".²⁰ Although the definition in this report is broadly written to include all federal, state and local governments, adding emphasis to the warfighter segment of the nation's citizens results in the following working definition that the Department should consider for adoption:

Quality government is the set of practices and processes defining the approach

¹⁹ Maureen J. Bickley, Alma Whiteley, "Can You Pay for Quality Work? A Government Case Study", *Quality Management Journal*, Vol 11, Issue 4, 2004

²⁰ Michael O'Donoghue, Toward an Operational Definition of Quality Government, American Society for Quality, September 20, 2003

taken to improve the quality of life of a nation's citizens (including its warfighters) and the comprehensive deployment throughout all governmental agencies of this approach in order to deliver prosperous, long-term, and equitable performance results to public and private stakeholders in an ethical manner.

There appears, however, to be no center of gravity for a proactive quality management focus for the Department's internal processes and products. There is no quality management directive that articulates the Department's policy.

Recommendation 12:

That the Department adopt a proactive posture for quality management throughout the Department and articulate its posture within the directive system.

We found a web site for a Quality Management Office (QMO) within the Office of the Secretary of Defense reporting directly to the Director of Administration and Management. The Mission and Function statement for the QMO is given as:

- Develop and monitor plans for the implementation of Quality Management within the Department of Defense
- Provide guidance to DoD organizations seeking to implement Quality Management
- Determine the appropriate Quality Management training, education, and facilitation requirements for OSD staff members and coordinate available resources to meet those requirements
- Provide the DoD focal point for both internal and external inquiries for Quality Management issues
- Provide the OSD interface with the DoD Components for all matters related to Quality Management

We believe that the Quality Management Office (QMO) can and should provide the philosophical underpinning for the RBG assessment and capability improvement program. The QMO should also be the advocate for quality management workforce training and lead the development of strategies for continuous improvement of quality management throughout the Department. At the present time, however, the Department's Quality Management Program appears to be a web site: <http://quality.disa.mil> that contains information but appears to have no outreach program.

The lack of QMO outreach was in evidence when OSD implemented Section 804 of the FY 03 National Defense Authorization Act. Section 804 requires Services and Agencies conducting major software intensive acquisitions to establish Software Acquisition Process Improvement Programs (SAPIP) and OSD to establish oversight and a best practices clearing house. The Department's Quality Management Office with its best practice database was not a participant.

Recommendation 13:

The Quality Management Office within the Office of the Secretary of Defense serve as the focal point for investment performance excellence and establish a Quality Management Community of Practice.

A.3.6. A Trusting Relationship Among Investment Actors

Our RIT Pilot experience suggests that trust among the investment actors is an essential lubricant for conducting risk-based governance. We recognize that some measure of trust is required in any governance structure. What we are reporting is that a heightened level of trust enables the streamlined management processes that reduce oversight without increasing risk. This is not intended to be an esoteric discussion of values. It is intended to show that trust matters, that we can improve the level of trust, and that there are steps being taken to create a more trustworthy investment environment.

When past senior Department officials compared our business processes to those of the third world, they conjured up not only inadequate infrastructure, but also deceitful and corrupt practices that produced untrustworthy information. While we are under no illusion that implementation of RBG would, by itself, make the cultural changes needed to eliminated the aforementioned lack of trust in business information, we do believe that transformation of IT investment management is a vital piece of the mosaic of initiatives that are converging to make the needed cultural change to a more transparent and trusting investment environment. Consider a few of the initiatives already underway:

- The Department has expanded the financial management modernization program to encompass the entire business enterprise. The objective is to articulate the DoD Enterprise Architecture and provide the Business Domains a path for increasing capability while reducing the number of duplicative information systems. The outcome will be an increased transparency of and insight into management decisions by the Department's Components. The result: *Increased Trust*.
- The CIO is expanding the implementation of the Clinger-Cohen statute that mandates performance and results-based management of and accountability for IT/NSS investments. OMB is also contributing through the Exhibit 300 requirements for all IT investments spending \$1M or more in any year. The outcome again is increased transparency of both the capability owner's expectations and results of our investments. Our expectation is that such transparency will reduce the incentive to "buy-in" with an understated program cost, eliminate the need for multiple accounting systems within a program office, and thereby contribute to the trust of the business information.
- The Department has embraced a balanced scorecard process for strategic and implementation plan development. The process of balancing the scorecard clarifies the relative priorities of needed capabilities and the cost and risks

associated with their fulfillment. The added transparency is expected to contribute to the trustworthiness of the associated business information.

- The Department is moving toward portfolio management of IT investments. This process is also expected to help flush out unnecessary redundancy while focusing on the achievement of the needed capabilities. When the opportunity to maintain unnecessary redundant systems is eliminated, the need to misrepresent the business information related to this system is likewise eliminated.

In this report we look at the trust issue from two perspectives; the net-centric environment and the business ethics environment.

Definition:

For clarity and conciseness in this report, we refer to the four IT investment processes, Joint Capabilities Integration and Development System (JCIDS), PPBE, acquisition and sustainment, using the collective term, investment process, and the associated actors as the investment community.

The developers of the net-centric environment are employing a host of policy and architectural solutions to assure that the investment data received can be trusted to be the authoritative data posted. The technical solution is largely provided by the Net-Centric Enterprise Services (NCES) program in the form of standards and security processes. Trusting that the meaning of the posted data will be turned into correctly-interpreted information is considered to be the responsibility of an investment community of interest (COI). The investment COI would be expected to take charge of the data dictionary, employ collaborative tools and provide feedback to inform the originator of the data about the results of analysis conducted using the data pulled from an originator's posting. A further discussion of the COI within the investment life cycle is found in [Section A.4.5.1](#).

[Recommendation 14:](#)

That the Department establish an IT Investment Community of Interest that will span all Domains and undertake the activities necessary to implement the DODD 8320.2, Data Sharing in a Net-centric Department of Defense, and engender a trusting environment that will in turn enable and support risk-based governance .

The ethics-related trust issue arises under a number of scenarios. One example being that a PM or PEO feels pressure to not post data that may reveal differences between stated and actual positions of the Component. The initiatives cited in the bullets above are addressing this scenario by reducing the occurrence of differing positions. Another ethics related scenario is concern about the posted data triggering unethical behavior by a reader of the data. One instance of such a scenario and its resolution is described in [Section A.3.4.2](#). Further examples showing how the pilot programs harnessed trust and net centric tenets in their effort to create an information sharing culture are found in [Section A.4.1](#).

A.4. Fostering Shared Situational Awareness

An inescapable conclusion of the previous section must be that success of risk-based governance (RBG) is predicated on the adoption of Net-centricity by the business community. In our move toward a net-centric investment environment, it is critical that we develop a shared situational awareness of warfighter needs and the program's progress. The technology enabler for the shared situational awareness required by RBG is the Department's commitment to net-centricity and its movement to web-based services. As the Department's net-centric enterprise services come on line, they will provide the means for the key players, the FCB/Domain program sponsor and acquisition organization headquarters to pull data posted by a subordinate agency and conduct asynchronous insight. Agents operating either on our command or with preset time, event or threshold triggers will accomplish the pull process.

The RIT Pilots experimented heavily with shared situational awareness concepts in a number of ways. By posting all information in transparent portals the RIT Pilots enabled oversight personnel to accept an ongoing insight role in place of the traditional, time-consuming oversight role. Many experimented with the notion of moving away from bundled documents and instead moved toward maintaining the key information sets that feed all the acquisition documents. Additionally, the RIT Pilots formed a community of practice among the program managers. They were able to share lessons learned with one another to improve overall program operations. In some cases, the programs even worked very closely with the requirements and warfighter personnel to change priorities and get needed capability out quicker than would otherwise have been possible.

A.4.1. Work Culture Transformation: Moving from Information Hoarding to Information Sharing

As is clear from both business literature and DoD senior management, trust is essential if we are to move from an information-hoarding environment to an information-sharing environment. Trust is the critical ingredient for moving away from the current information protection scheme that only periodically reports the data.

Immediate access to information needed to do work, as envisioned by net-centricity, requires cooperative relationships in which each person with a need-to-know has access to another's work without the seeker gaining access via special permissions. In a trusting work relationship, work is done in a transparent work environment. The manager trusts that the information used by the subordinate (which is available to the manager at all times) is the latest and most accurate available. The subordinate trusts that his or her data/information is accepted as authoritative. To get all stakeholders to agree to move toward use of "posted" data, new lines of communication have to be re-established and fostered among all stakeholders.

Experience:

GTN 21 is a good example of information sharing within the RIT Pilot Process. GTN 21 developed close relationships with key functional proponents, and adhered to the “post before processing” model for acquisition information.

The stakeholder roles will change in a net-centric acquisition environment. Oversight and functional personnel will see their role as being closely integrated with the program. Instead of intense scrutiny during brief report-out periods on a specific program, oversight personnel now have the opportunity to stay as closely connected to the program as required by the risk-based governance decision. Programs in a net-centric environment have a greater need to ensure that all stakeholders become involved in the program office community. Acquisition functionals, like the test community, need to stay involved in the program to ensure that surprises will not crop up at the last minute.

Net-centricity embraces communities of interest (COI) because it has been shown that change in work culture takes place within and through communities. A COI is comprised of a group of people who work for a common purpose. They may be within an organization or live and work across organizational boundaries. COIs are not restricted to a geographical area.

A.4.2. Essential Programmatic Information Transparently Available

Many of the key lessons learned and recommendations for future improvements deal with the use of oversight information in a portal. Through a number of RIT Pilot recommendations, the RIT Pilots were able to work toward ensuring that their programmatic information was transparently available to all who needed access. All the programs agreed up front to use the AIM system for publishing high-level oversight documentation. Some Pilots, like the TC AIMS II program and the Navy NTCSS, continue to use the AIM system. The Air Force PEO C2 and CS used the AIM portal for posting high-level oversight documentation and the Air Force SMART Portal for daily and monthly program office/PEO communications. Over time, most Air Force programs gravitated to using only the SMART system. This was due to at least two factors: they received little or no oversight feedback on the content posted to the AIM system, and it was difficult to maintain two separate portals for program office communications.

Portal Implementation in the Air Force

Concurrently with the AF PEO C2&CS progress using portals for information sharing, the Secretary of the Air Force provided guidance supporting this position. In a memo dated 3 March, 2004, the responsibilities of information owners are defined as follows:

1. Provide Only Authoritative Data
2. Designate Operational Data Producers
3. Make Data Available to Consumers in the Global Information Grid (GIG)
4. Make Data Discoverable and Understandable
5. Develop and Use Common Vocabularies Via One or More Communities of Interest (COIs)

This memo provides details and requirements for communities of interest (COI) in a way that moves the Air Force in the same direction as the RIT Report findings. The Air Force uses COIs as the primary means of information sharing. Many of the RIT recommendations and the lessons learned detailed in this report are echoed in this Air Force Memo.

A.4.2.1. Development of a “Smart Pull” Portal Structure

One problem that plagued the RIT Pilot was how to develop a net-centric acquisition environment where everyone agrees to use the same portal. The Services have different needs than OSD in terms of access and use. Based on the RIT Pilot experience, we have come to the conclusion that it is extremely difficult and undesirable to force all stakeholders to use the same portal to access information. Each stakeholder has different needs and concerns that necessitate a different latency, access and view of the overall acquisition program data set.

Conclusion:

Based on the RIT Pilot experience, it is extremely difficult, and even undesirable, to force all stakeholders to use the same portal to access information.

A more comprehensive solution involves each program (or information owner) posting their information in an accessible fashion, which is then pulled into various customized portals that subscribed to their information. See Figure 4. The overall architecture must dictate that information owners (primarily programs) ensure their data is accessible at all times to those who require access to it. In instances where either PEO, functional or oversight personnel develop information, they should also make it accessible to those who require access. This approach provides each stakeholder (or groups of stakeholders) the ability to develop customized “views” of the data required for him or her to perform most effectively. The PEO who focuses on a portfolio of programs will have a completely different need than OSD oversight personnel, and their “views” should reflect this. For instance, OSD could create a view for action officers to review a set of programs; this view may be significantly different

from what the DOT&E view or the PEO view looks like. The program’s information becomes the authoritative source which everyone else accesses, but they do so in a way that is tailored for their individual needs

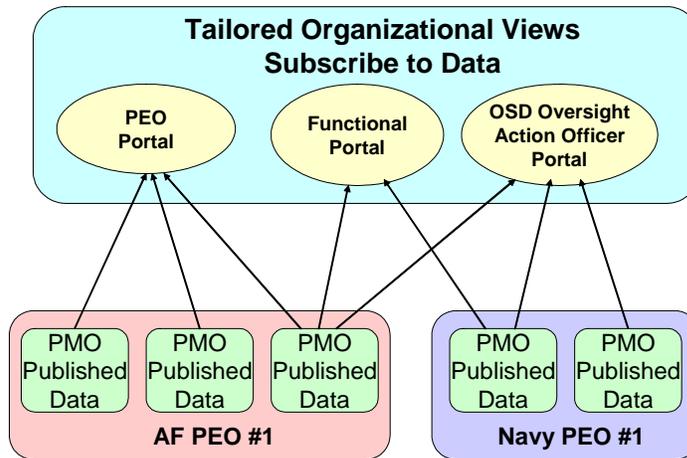


Figure 4: Tailored Organizational Views

A.4.3. Implications to IT Investment Management: The Document That Builds Itself

In a net-centric acquisition environment in which programs have transitioned to a “Post before process” model, the use of smart pulls can change the nature of the reporting processes. Currently, reporting is a laborious and time-consuming exercise in which each echelon has to combine, consolidate, and sanitize information prior to sending it “up the line.” “Post before process” ensures that program documentation is already accessible. Instead of adhering to hierarchical reporting structures, the reporting processes can be revised significantly to allow a smart pull of the information that is already accessible. By providing direct access to the data in an accessible fashion, a significant amount of time and effort can be saved in developing original, fully-structured reports to send up the line. Instead of reporting processes being a “point-in-time” event, reports can be instantly accessible at all times.

Even though information would be accessible, there would still need to be an agreed-upon rhythm for the program to post various pieces of information and documents to allow access. This could function as part of the Minimal Acquisition Requirements Decision.

A.4.3.1. Movement from Documents To Information Objects

Part of a movement toward self-organization and a network-centric acquisition environment involves posting information in a way that others can use for their own needs and purposes.

Observation:

RIT Programs attempting to move toward a more net-centric method of storing information, complain that they are updating the same piece of information into multiple documents. At the same time, RIT Pilot Team conceded that oversight personnel have not stated the individual information elements they need to operate in the to-be net-centric environment. Instead, most OSD action officers state that they want the same document they have today.

Observation:

Problems arose as the RIT pilots and their oversight organizations transitioned between a hard copy document-driven environment and the simulated net-centric “transparent portal”. The simulated environment did not have the to-be agent driven notification of changes warranting an Action Officer’s attention. Consequently, normal (as-is) coordination and staffing procedures for a pilot TEMP were not followed and led to confusion and delays.

One solution is to have the program offices create information objects instead of documents. These information objects should have the ability to be subscribed to, meaning others can access these objects whenever they need, and be automatically updated when these objects are changed. This allows, for instance, the program office, the PEOs and OSD to make “documents” out of the information objects. For instance, if the program office has a watch list of key risks, this can automatically be added to a Test and Evaluation Master Plan (TEMP) or System Engineering Plan (SEP). In the example below, Figure 5, core information from the program is extracted into document templates. For instance, a TEMP template can be developed that pulls together all relevant core program information. This allows the program to keep the information required to build the TEMP (including the risk assessment, acquisition strategy, various test plans, etc.) as separate and distinct information objects that are continuously updated. At the same time, a TEMP document that combines all required objects could be constructed whenever required.

Development of Packaged Information For Net-centric Investment Insight

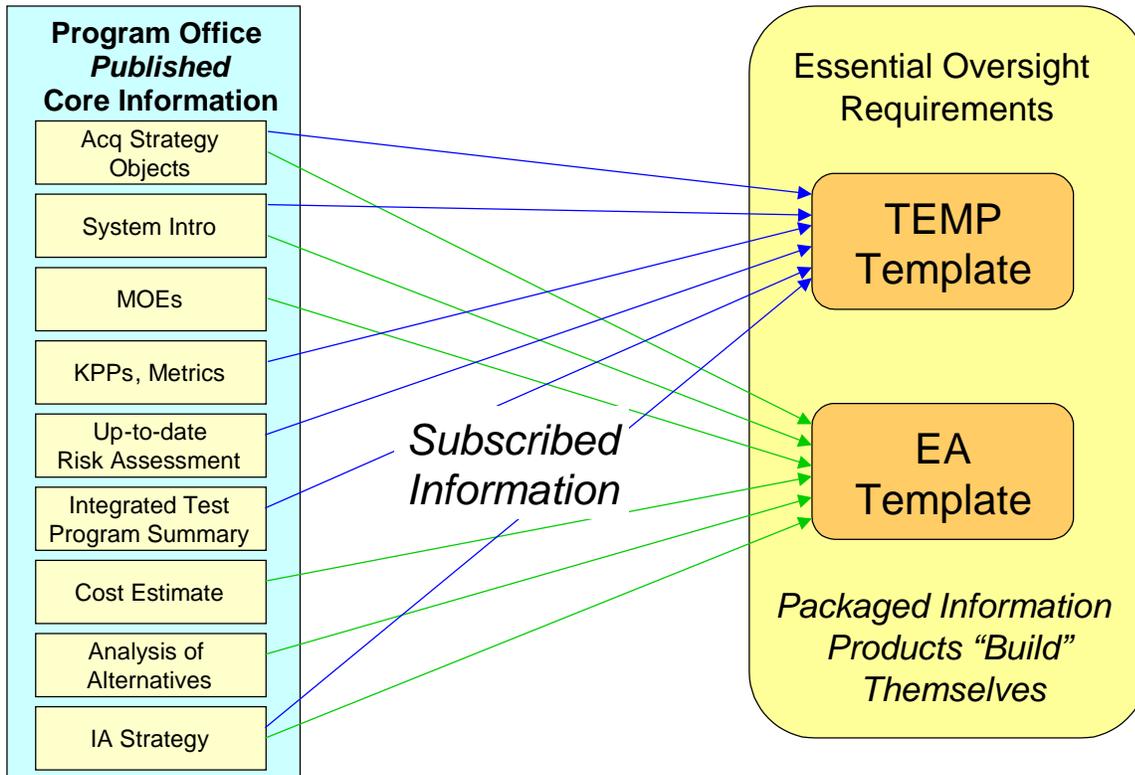


Figure 5: Development of Packaged Information for Net-centric Insight

Similarly, laborious, overlapping documents like the OMB Exhibit 300, the OSD CCA requirements and Service CCA requirements can be automated in the same fashion. This allows the programs to focus their energy on clear thinking, not deadlines for document formation. OSD can take this information and automatically have it accessible to their action officers responsible for reviewing the programs.

To aid the programs, as OSD creates various analysis reports, these information objects can be put into the same subscription format for PEOs and program offices to receive. This allows programs to see what has been sent to Congress. In a net-centric acquisition environment, all information should be made accessible to those who need it.

The value of managing our investments in a portal-centric environment was identified early in the RIT Pilot experience and was adopted as part of an internal DoD management working group focused on Streamlined Acquisition (toward net-centric acquisition oversight) formed in March 2003. The output of the working group (WG) was two-fold. The WG agreed that the Department should transition toward net-centric acquisition oversight and produced a proposal for an Acquisition Community of Interest. See [Appendix D.11](#). Subsequently two of the RIT Pilot Joint Chairs, Dr. Myers (DCIO) and Mr. Nemetz (AT&L) agreed to pursue

the further development of net-centric acquisition management under the AT&L program, Defense Acquisition Management Information Retrieval (DAMIR). The DAMIR business plan is found in [Appendix D.14](#).

Recommendation 15:

An IPT be chartered to further address the benefits of information objects for a Net-centric investment environment and develop a plan for implementation.

A.4.3.2. Portals and Information Objects Support Portfolio Management

The notion of portfolio management also affects the net-centric environment. With OSD focusing their personnel resources on investment decisions for meeting capabilities at the portfolio level, the Component Headquarters and PEO staff will need to expand their ability to conduct individual program oversight functions. This is imperative and needs to be implemented in such a way that the program offices can simply work their programs, while at the same time, the PEO is able to both gather and correlate key pieces of information from each program to make decisions at the PEO portfolio level. In the example below, Figure 6, the AF PEO C2&CS develops portfolio views of their overall risk profile, overall portfolio metrics, and overall capability delivery schedule.

PEO Portfolio Management Example

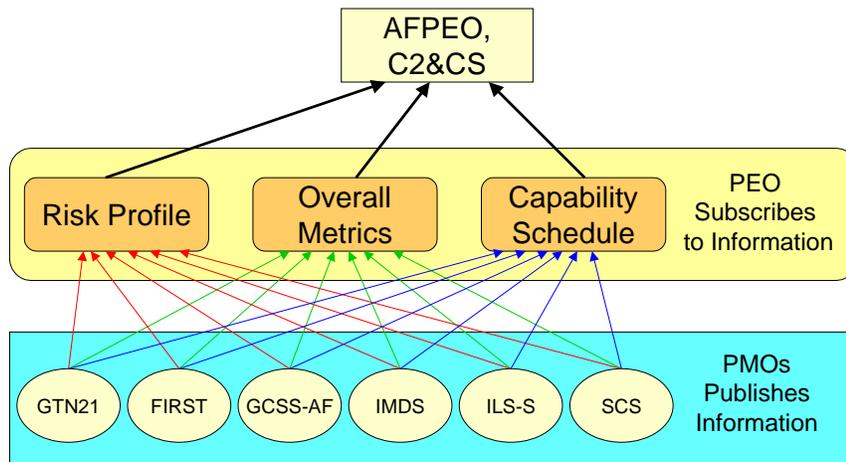


Figure 6: PEO Portfolio Management Example

A.4.4. Implication of Self-Organization: Change in the Role of Surrogate Users

In the draft December 2004 JICIDS release, the Joint Staff moved away from specifying integrated architectures, and instead moved to the development of joint operational and

functional concepts. Integrated Architectures are still essential, but the Joint Staff decided that these are better developed in the acquisition process than during the requirements process. This again is a key indication that self-organization principles are driving the acquisition process. Based on the integrated concept definitions developed by the Joint Staff, the acquisition process must work the development of an integrated architecture that spans different domains and processes. Self-organization principles allow a more responsive acquisition process in supporting the integrated concept definitions.

Currently the interconnections between the warfighter and the acquisition workforce are sparse. The warfighters convey their mission needs to the requirements community, who then translate those needs into an Initial Capabilities Document (ICD), initiating the acquisition process. The acquisition community then joins with the capability owner and they jointly develop the performance requirements in the Capability Development Document (CDD). The warfighter eventually receives the output of the acquisition process and uses a variety of channels to comment back to the requirements community for additional changes.

In a net-centric investment environment, the requirements community role as a surrogate user changes over time. After the statement of needed capability goes through the JCIDS process, and the first increment is being developed, the program is often works directly with the warfighter to gauge how well the IT system meets their needs and makes immediate changes. While the CDD is a point-in-time evaluation as to what system level solution is required to meet the capability gap, it is fully understood that further increments may either change or elaborate the design. The direct connection of the acquisition program to the warfighter ensures that this initial baseline evolves over time with the changing warfighter need. The result can be dramatically faster and a better-tailored capability delivered to the warfighter versus the traditional route.

Although the surrogate user role for the requirements community may decrease in a net-centric investment environment, some roles, such as interpreting warfighter concerns will most likely increase. One way of addressing this is to assign the requirements community personnel to work directly with the program once a direct connection with the warfighter is established. This would ensure that the program correctly interprets the warfighter's needs in real time. Additionally, the requirements community representative could aid the program in making the decision whether or not it's necessary to go through another JCIDS spiral.

Recommendation 16:

Warfighter personnel with requirements engineering training should be assigned to PEO/PMO organizations to serve as liaison with the users and program Sponsor.

Another way in which self-organization can be enhanced is to develop broadly stated KPPs (adequate spread between threshold and goal) in the CDD, and then let the continuing interaction between the warfighter and program further refine the KPPs. This would better ensure that the urgent needs of the warfighter are being met during the acquisition process without having to modify the CDD and thus undertake a new Milestone B decision.

Additionally, increments would become broader in scope, with iterative IT system capability delivered in spirals during the increment versus waiting for a final delivery.

Recommendation 17:

ASD(NII) and JS-J8 form an IPT to further assess the benefits of writing broad KPPs in the CDD and develop a plan for implementation.

Conclusion;

The current investment model is heavily front loaded with documentation and review requirements prior to program start, due to a great degree to no direct feedback loop to the capability owner. In this model, we are attempting to hit the outcome target with predictions rather than feedback of actual outcomes. This report recommends the employment of the post-implementation review (PIR) as the instrument for conveying, to the capability owner, an assessment of the degree to which the investment met the stated capability needs.

A.4.5. The Use of Communities of Interest for Self Awareness

Communities of Interest (COIs) have been advocated as a method for bringing together diverse stakeholders to address cross-cutting issues. COIs provide the best option for generating a shared sense of the larger picture, including changing warfighter needs, capability issues and functional issues. It is the Department's policy that semantic and structural agreements for data sharing be promoted through COIs.²¹ More importantly, the COIs are where self-organization can be realized as different stakeholders can come together face to face or virtually on a quick-turnaround basis and address real-time concerns. There are different types of COIs that can be formed. The RIT Pilots experimented with an operational COI, where the warfighter needs were included, a functional COI focused around Information Technology and Clinger-Cohen Act implementation, and an ad hoc COI that brought together the RIT Pilot Program Managers.

A.4.5.1. Use of Operational Communities of Interest Among PEO and Functional Capability Boards

Operational communities of interest (COIs) made up of the program office and their stakeholders provide a mechanism for operating in a net centric acquisition environment. The *Communities of Interest in the Net-centric DoD Frequently Asked Questions*²² document defines a COI as "any collaborative group of users who must exchange information in pursuit

²¹"Data Sharing in a Net-centric Department of Defense," *DODD 8320.2*, December 2, 2004, , paragraph 4.7

²² DoD CIO Information Management Directorate. *Communities of Interest in the Net-centric DoD: Frequently Asked Questions*. May 19, 2004, Version 1.0

of their shared goals, interests, missions, or business processes, and who therefore must have shared vocabulary for the information they exchange.” Self-organization’s concept of blending formal and informal organization structures are brought together in COIs, although informal in nature, are tied to a domain or PEO. Communities of interest allow all stakeholders with a participative role in the program to engage with one another. One can envision a COI with areas devoted to the program and PEO that the warfighter, functional oversight personnel and others can access and participate in.

The GCSS CC/JTF program experimented with an operational COI in bringing together the warfighter, the requirements personnel and program office to better prioritize needed community of this type is vertical in nature in that it is still carrying out essential functions of oversight and control alongside program office operations. For this reason, it is essential in program office communities that all participants adhere to update schedules so that the stakeholders can trust that the information presented is both current and accurate.

Within its own program, the GCSS-AF used a number of different communication venues available for COIs, including instant messaging, chat rooms, and other information sharing mechanisms. This led to unprecedented levels of communication with the customer: Weekly and “virtual” meetings exposed challenges and areas where senior leadership must intervene quickly to sustain the pace.

[Recommendation 18:](#)

A business transformation leader be appointed to oversee the development and employment of a net-centric investment environment that spans both the JCIDS and Acquisition communities.

[Recommendation 19:](#)

An IT investment community of interest ITI-COI be formed under DoD CIO, JS J8 and AT&L sponsorship to articulate the semantics of IT investment information.

[Recommendation 20:](#)

Coordinate the IT investment community COI needs with the Net-centric Enterprise Services (NCES) program.

A.4.5.2. Ad Hoc Community of Interest

The RIT Pilot programs developed an ad hoc COI among their PMs, who were all under PEO C2&CS but geographically dispersed. The AF RIT Pilot Team member conducted weekly conference calls with the PMs that gave rise to fruitful discussion about the different approaches PMs used to deal with various emerging issues.

The RIT Pilot set up a web site to facilitate collaboration within work groups and enhance dialog among the PMs and Pilot Team members. The Pilot Team made good use of the site, but only two RIT Pilots actively employed the community of practice (CoP) aspects of the site. We determined that the reason for this apparent underutilization of the site was twofold. First, most of the programs already had their own facilities set up within their COI, consisting of the program office, program director and various contractors. Second, the QuickPlace site we used for the RIT CoP was on an overloaded server and was not an attractive alternative to the existing PM facilities.

Experience:

TC-AIMS II made good use of the RIT CoP for the development of documentation. They primarily used the facility as a site for the working group to collaborate on evolving versions of a document and gain buy-in from their gatekeepers and oversight action officers. When the document was completed, the acceptance process was complete except for signatures.

A.4.5.3. Use of Functional Communities of Practice for Knowledge Sharing and Retention

One type of community being cultivated in the acquisition workforce is a cross-functional community of practice (CoP). Cross-functional communities provide a horizontal slice across the workforce for the purpose of sharing lessons learned and best practices across the workforce. During the period of the RIT Pilot, the PM-CoP QuickPlace migrated to the Defense Acquisition University and is now called the Acquisition Community Connection. It is found at URL: <http://acc.dau.mil>. We proposed to DAU that we transition our RIT-CoP into a broader based IT-CoP based on the architecture shown in Figure 4. The proposal was accepted and the community was chartered. IT-CoP is now located on the ACC site at URL: <http://acc.dau.mil/it>. Screen shots of several RIT CoP and IT-CoP pages are found in [Appendix D.13](#).

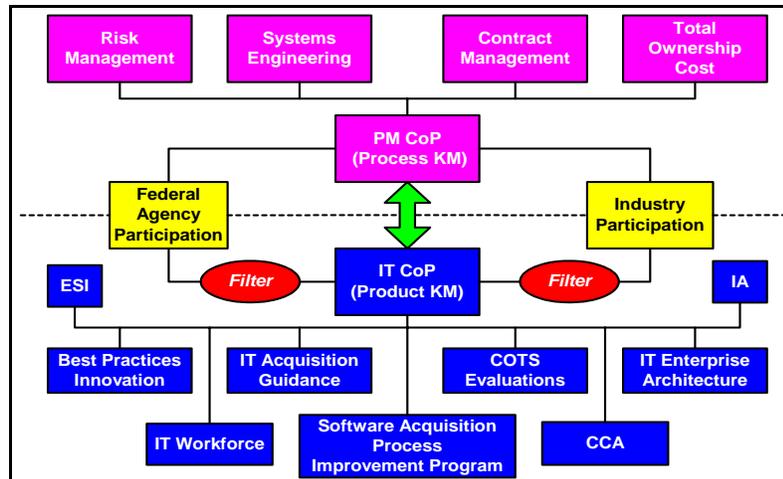


Figure 7: IT Community of Practice, CoP, Architecture

At this point, a fledgling community has been established for Clinger-Cohen Act implementation, in which all relevant policies are online, along with task-oriented guidance on all CCA tasks.

A.4.5.4. Implications to IT Workforce Training in Communities of Interest

The development of functional communities of practice that span both government and industry serve to create shared government and industry knowledge resources. This allows the collection and sharing of best practices in a way that leverages pockets of expertise across the workforce. More importantly, it allows a significant shift in learning and training. For instance, the IT CoP is providing a real-time learning resource by combining:

- Policy,
- Guidance information,
- Community developed knowledge assets such as
 - case studies,
 - best practices, and
 - lessons learned.

Discussions with experts are integrated into a structure that, over time, will become a robust knowledge resource that supports the learning and performance of the IT workforce.

A.5. Reducing the IT Investment Process Cycle Time

The RIT Pilots successfully experimented with a number of RIT recommendations. When employed in the risk-based governance (RBG) environment described in [Section A.3](#), the following RIT Pilot recommendations provide operational changes that can be broadly applied to many IT investments with an expectation of an 18 month, or less, delivery of meaningful capability to the warfighter.

A.5.1. DocX: Acquisition Management Information Plan (AMIP)

The acquisition management information plan (AMIP) is defined as the sum of information needed to enable a decision maker to set a program on a given acquisition path with a level of oversight defined by the application of risk-balanced governance. It is one of the first products of RBG and supports the Fast Track practice described in Section 2.5.2. The term Doc X was coined by the RIT and used in subsequent briefings. Doc X is not however a descriptive term and has been the source of confusion. For this report we will use the more descriptive AMIP term.

The thrust of AMIP is threefold:

- Focuses on information not documentation
- Translates the capability and aggregate risk information of RBG into an acquisition management information plan
- Serves as the metadata model for information generated during the program life-cycle

First a brief introduction. The purpose of acquisition documentation has been twofold. Within a program management office (PMO), the quality of an acquisition document is one measure of the progress being made toward completion of the task that the document addresses, be it internally or externally prepared. At the oversight level, the quality (not quantity) of the document is a measure of the clarity and completeness of a program manager's grasp of the scope and approach needed to accomplish the task related to the document. In both cases, the document's intended purpose is to convey the appropriate information at the appropriate time to the appropriate decision maker.

During the period of MILSPEC and regulation-driven acquisition, the document metaphor was a useful device for assuring compliance. In the current climate of performance and result-based management, we consider the information metaphor to be more suitable. More suitable because the Department has largely adopted industry standards and specifications, and there is much less reliance on the DoD data item description (DID) to describe a contractor's deliverables; a statement of work (SOW) typically calls for the information to be delivered in the Contractor's format unless it is part of a continuing data collection requirement, such as a Cost Performance Report (CPR) DID, DI-MGMT-81466. Using the Contractor's format saves not only time in translation, but also avoids incompatibility between the Contractor's data collection processes and the specific data requirements of a DID.

Another argument for moving away from the document metaphor and toward the information metaphor is the opportunity presented by Net-Centric Enterprise Services (NCES). The net-centric tenets include post before processing, provide smart pull of data, and OHIO (only handle information once). Today, an ACAT I program may produce in excess of 20 documents and spend one to two years in the approval loop until reaching program start, Milestone B. The configuration management of these acquisition documents, to just ensure

consistency of the many duplicated data elements, is a major task that rarely brings joy and satisfaction to the task owner. AMIP embraces net-centricity and proposes to deliver the agreed-to information in a comprehensive information set without data duplication.

Experience:

The GCSS (CC/JTF) program used AMIP principles to tailor and consolidate acquisition documents such as the Economic Alternatives and Analysis (EAA), Incremental Program Baseline, and the Risk Management Strategy.

The Air Force acquisition community started down the information metaphor path in 1994 with their single acquisition management plan (SAMP)²³ and SAMP guidance²⁴. The SAMP was the result of a business process reengineering effort to find a more efficient way to arrive at an agreed-to set of acquisition information that, together with specific separate contractual documents, is sufficient for a program start. The Air Force currently requires a SAMP for all ACAT I and II non-space programs and allows MDA discretion for ACAT III programs. The SAMP serves three purposes:

- Meets FAR requirements
- Describes acquisition, program management strategy and life cycle sustainment support strategy
- Provides a vehicle to identify and request the required statutory and regulatory approvals for implementation of the program strategy

As an example of the SAMP's benefit, consider the Space Based Infrared System (SBIRS), which was one of the first programs to employ a SAMP²⁵. SBIRS consolidated 20 documents that would normally number 1000 pages, into a SAMP of 37 pages. With well structured execution and oversight IPTs, SBIRS accomplished the development of the SAMP and approval of the program in 90 days. Admittedly, the SBIRS experience is not the norm. It was however accomplished in 1995, well before web services and collaborative work-spaces became available.

The documents that are candidates for consolidation and replacement by a SAMP are:

²³ Acquisition Planning, AFFARS Part 5307, 4 Aug 2004, http://farsite.hill.af.mil/reghtml/regs/far2afmcfars/af_afmc/affars/5307.htm#P57_5489

²⁴ *AF SAMP Guide*, 24 Aug 2004: <http://www.safaq.hq.af.mil/contracting/affars/5307/library-5307.html#training>

²⁵ "Space-based Infrared System," *Fact Sheet U.S. Air Force*, , http://www.losangeles.af.mil/SMC/PA/Fact_Sheets/sbirs_fs.htm

- Acquisition Plan
- Acquisition Strategy Plan
- Test & Evaluation Master Plan
- Waivers
- Acquisition Program Baseline
- Human Systems Integration Plan
- Integrated Logistics Support Plan
- Need Statement and MOEs
- Risk Assessment
- Acquisition Capability

In the case of the SBIRS, the SAMP contained eight sections:

- Summary, 1 page
- Background, 2 pages
- Program Content, 2 pages
- Cost and Financial Mgmt, 4 pages
- Management Approach, 11 pages
- Acquisition Strategy, 5 pages
- Program Reviews and Oversight, 3pages
- Acronyms, Related Programs, 9 pages

AMIP takes the SAMP concept two steps further. With the benefit of program risk and IT investment capability information, the acquisition organization that will serve as the MDA is in a position to (1) tailor non-statutory information requirements; (2) craft an oversight plan that reflects the urgency expressed by the Sponsor and Domain owner, as well as the level of risk the acquiring organization is willing to retain;

Experience:

The Milestone Decision Authority (MDA) for NTCSS approved an AMIP acquisition information set and was able to oversee the program with no intermediate milestones.

The presentation of the AMIP information set for oversight and insight purposes is initially envisioned to be in a SAMP-like form of a document that builds itself. Under the DoD Data Strategy, the AMIP specified information would be appropriately tagged and stored. Personnel needing information in a specific format will have the ability to pull the information and have it presented in a format that suits their needs. See [Document that Builds Itself](#).

Recommendation 21:

That DoD CIO sponsor an IPT of OSD gatekeepers and Component representatives to reach agreement about the minimum content and approval process for consolidated acquisition information for IT programs, AMIP.

Recommendation 22:

That DoD 5000.2 Enclosure 4, IT Considerations, have a section added that describes the process for setting the required consolidated acquisition information for IT programs. Add the process to the Defense Acquisition Guidebook.

The ILS-S program was successful in employing “virtual” reviews, called Evolutionary Acquisition Decision Reviews (EADRs). These were done in place of traditional milestone reviews. The FIRST program engaged in a process working with the AF Directorate for C4ISR Architecture and Integration (AF/XIW) to eliminate duplicative certification requirements/documents. Another step in moving toward the AMIP approach was the practice of disseminating draft documents instead of final documents. The Deputy PEO for C2&CS, Ms. Williamson, mentioned in the November 18, 2003 Principals’ meeting that the FIRST program was able to improve the C4ISP process largely by working with draft documents.

A.5.2. Minimum Acquisition Information Requirements Decision (MAIRD)

The Minimum Acquisition Information Requirements Decision (MAIRD) represents the entry of a proposed IT materiel solution into the IT acquisition process. The entry criteria to MAIRD are the risk-based governance (RBG) information and the acquisition management information plan (AMIP).

MAIRD is envisioned to take place at a time consistent with the urgency of the need. In the case of a life threatening need, the sponsor would inform the appropriate Functional Capability Board or portfolio manager and call for a MAIRD without further JCIDS activity. In an urgent but less than life-threatening need, the sponsor would approach the FCB/Portfolio Manager with a request for an expedited DOTMLPF analysis followed by a MAIRD.

The MAIRD can be viewed as a MS A under the current acquisition management system. The MAIRD is expected to be conducted by the C3ISR and Space OIPT and would result in an Acquisition Decision Memorandum setting an oversight/insight requirement consistent with the RBG and AMIP.

Recommendation 23:

DoD CIO sponsor an IPT composed of OSD IT oversight and JCIDS Action Officers to clarify provisions in CJCSI 3170.01E for urgent initiation of the initial deployment of IT functionality without the use of JCIDS, and develop a process for expedited DOTMLPF analysis.

Recommendation 24:

Update the DoD Chief Information Officer October 24, 2001 Memorandum, Subject: Policy and Procedures for the Fast Track Deployment of Information Technology, to reflect Risk-based Governance, SAMP and urgent program initiation without a completed JCIDS process.

A.5.3. Delegate all IT/NSS to Components to Maximum Extent Practicable

It is the policy of the Department that responsibility for the acquisition of systems shall be decentralized to the maximum extent practicable. A successful implementation of RBG within a Component provides ASD (NII) a documented and verified rationale for calculating the investment risk and making the appropriate delegation decision. Congressional acceptance of Recommendation 3 that redefines acquisition categories will fully institutionalize the criteria for delegation.

Based on the RIT Pilot designation, seven programs were assigned ACAT IAC designation or changed from pre-IAD to IAC. Consistently, both the PEOs and the program directors lauded this recommendation as key to improving their ability to meet schedule and performance. One program that was not able to experiment with this, TC-AIMS II, mentioned the problem of delegating a joint program to a Component.

A.5.4. Implications to Decision Making Process: Reduction of Point-in-Time Reviews

Another important area that net-centric acquisition should change is our decision making processes. Currently, point-in-time milestone reviews structure acquisition program rhythms. If programs now adhere to the eighteen-month development cycles, and start directly interacting with the warfighter, the amount of product they can deliver is no longer limited to the initial CDD. In line with this and the MAIRD, programs and their Service Acquisition Executives (SAEs) will find it effective to move away from point-in-time milestone decisions to something that is embedded in the everyday work process. The notion of a single pass-fail review is replaced by ongoing insight by the SAE and acquisition functionals to ensure the program is on track. This allows work to proceed without causing large disruptions prior to and immediately following a milestone review. Our observation of the RIT Pilot Component governance processes is that the quality of the Component's decisions was adequate as borne out by the outcomes of the pilot programs that completed the pilot phase.

A.5.5. Conduct Evolutionary Acquisition Design Reviews (EADR)

Milestone reviews in the current acquisition process often end up being a large production exercise for the program. Milestones can both delay development progress while serving to hide the program ending up to be more of a "ceremony," in which the stakeholders are never sure they have access to the "real" data. Moving toward a Net-centric acquisition environment where "post before process" is the norm, there is an opportunity to change the

process for conducting milestone reviews. The RIT Pilots experimented with an Evolutionary Acquisition Design Review or EADR for short. The EADR worked under the assumption that all stakeholders, including oversight and PEO personnel maintain ongoing insight into the program. In combination with a Minimal Acquisition Requirements Decision the EADR allows the program to focus on working the program and then using only the work products and the status found in the SMART portal for the EADR.

The ILS-S program was successful in employing “virtual” reviews, EADRs with an Execution Plan review, which the PEO C2 & CS refers to as the “X-Plan Reviews.” These were done in place of traditional milestone reviews. The FIRST program engaged in a process working with AF/XIW (Director for C4ISR Architecture and Integration) to eliminate duplicative certification requirements/documents. Deputy PEO C2 & CS, Ms. Williamson, mentioned in the November 18, 2003 Principals’ meeting that the FIRST program was able to improve the C4ISP process largely by working with draft documents. The success of the draft approach relied on both continuing insight and willingness by OSD gatekeepers to accept the maturation of costing, C4ISP, IA and other information with targets for final information delineated in the AMIP and MAIRD.

The Navy’s NTCSS program instituted a “management by exception” approach to milestone decisions and a monthly review of program schedule, cost, and performance metrics. Virtual monthly meetings were conducted, and the AIM portal was used exclusively for program office communications and reporting. The quarterly DAES report was replaced with a Monthly Acquisition Program Record (MAPR) within the AIM portal. The NTCSS program claims that approximately two man months of work across both the program and the PEO were eliminated as a result of these streamlined procedures.

A.5.6. Restructure Acquisition Decision Memoranda to Address Issues

At least five RIT Pilots in both the Air Force and the Navy experimented with restructuring acquisition decision memoranda (ADMs) to address issues. Evolutionary Acquisition Development Reviews (EADRs) were used extensively by most of the AF PEO for C2&CS programs. EADRs, which were targeted for senior level reviews involved neither milestones nor formal reporting, and provided day-to-day program management information accessible through a continuously-updated website (SMART).

The EADR minutes serve as the Acquisition Decision Memorandum.

This process dramatically sped up progress and improved communications. In some cases, Pilots mentioned that changes to the program affected this process. For instance, due to changes in program direction, which caused revisions in the Life Cycle Cost Estimate, the ILS-S program was not able to conduct a formal EADR.

In the September 24, 2002 Principals' Meeting Minutes, LtCol Laing discussed the use of the EADR in GTN 21. He noted key benefits of the RIT delegation and the application of EADR:

- The MDA is closer to the program, and understands the program “end-to-end.” This cuts down time spent educating and saves time in other ways. For example, it results in streamlined Clinger-Cohen certification accountability (not 2-levels up).
- The “AMIP” concept, enabled in AIM, provided information vice documents so users can pull the information. This activity is more efficient and collaborative. An issue here is the perceived need by some communities (e.g., test) for OSD signature approval on a formal, baselined document.
- The EADR minutes formed the basis of an ADM and were posted on AIM.

EADR represented a change from oversight to insight – this was really an attitude change that resulted in “initiative sharing.” The PM must write down something to fulfill his/her commitments and the PEO must take the initiative to approve it.

A.5.7. Establish 18-Month Cycle

All RIT Pilots agreed to the eighteen-month life cycle as a prerequisite to being a RIT Pilot Program. This recommendation has borne a number of benefits. Capability among the teams was able to be pushed out significantly faster, and in some cases, was able to aid troops engaged in Operation Iraqi Freedom.

Overall, most were successful in meeting the 18-month schedule. Some programs were exceptionally successful, well under the 18-month goal. For instance, the GTN 21 Program cites in their RIT Program Pilot summary, the following (See appendix 10 for details):

“GTN-21 delivered their first increment ahead of schedule. It included three spirals: Infrastructure, Passenger In Transit Visibility (Pax ITV) and Itineraries and Schedules (I&S). The Infrastructure nine-month effort finished on time. The Pax ITV and I&S twelve-month efforts finished ahead of schedule.”

The spiral “micro-release” approach adopted by the GCSS-AF program allowed them to deploy more than 40 systems and capabilities in the first year and 150 systems in FY 2003.

In some cases, program direction changes led to delays over the 18-month cycle. For instance, ILS-S intended to have IOC within one year of inception and to be fully fielded within 18 months. IOC was attained within one year; however, the full fielding was delayed due to a decision to replace the COTS component used to provide legacy system access.

Recommendation 25:

Add guidance to the Defense Acquisition Guide recommending an 18-month IT capability release cycle.

A.5.8. Flexible Funding

Flexible funding addresses the fundamental issue that prevents a new start to plan for an 18-month capability delivery: The PPBE system requires a three-year cycle from planning to execution.

To resolve this issue, the Comptroller agreed to explore the use of a broader program element that would provide rapid access to already budgeted funds.²⁶

Flexible funding was not attempted by any of the RIT Pilots. The TC-AIMS II program suggested that this recommendation could not be enacted at the program level. To be successfully implemented, it must be worked at the Department level. Other pilots had already established their funding.

Recommendation 26:

The Comptroller develop a white paper on use of broader program elements and the use of O&M and Defense Business Operations Fund (DBOF) funds for emerging IT requirements.

A.5.9. Develop AoA Policy and Toolkit

The analysis of alternatives (AoA) process has for some time been considered to be an obstacle to completion of concept refinement and achievement of Milestone A. The RIT concluded that a lack of AoA policy and analysis tools contributed to this unproductive environment.

The PA&E member of the RIT Pilot Team pursued the development of AoA guidance and has published the results in [Section 3.3 of the Defense Acquisition Guidebook \(DAG\)](#). Development of guidance in lieu of a policy was chosen in keeping with the move within the acquisition management system to become less prescriptive. Section 3.3 of the DAG provides a recommended outline of an AoA plan, describes the role of AoA in concept refinement, and provides a notional template for displaying the results of a cost-effectiveness analysis. [Section 3.3.4 of the Defense Acquisition Guidebook](#) is dedicated to AoA considerations for major automated information systems.

²⁶ “Defense Business Operations Fund General Policies and Requirements,” *DoD Financial Management Regulation DoD 7000.14-R*, 9 December 2004, Volume 11B, Chapter 50.

The contribution of the MAIS AoA guidance in Section 3.3.4 toward a shortened cycle time is twofold:

First, by clarifying the linkage of the AoA process with the requirements of CCA. The guidance states that the analysis should include a discussion as to whether the proposed program:

- Supports a core/priority mission or function performed by the DoD Component,
- Needs to be undertaken because no alternative private sector or governmental source can better support the function, and
- Supports improved work processes that have been simplified or otherwise redesigned to reduce costs, improve effectiveness, and make maximum use of commercial off-the-shelf technology.

The analysis should be tied to benchmarking and business process reengineering studies, such as analyses of simplified or streamlined work processes, or outsourcing of non-core functions.

Linking these CCA best practices with the AoA process within the Functional Solution Analysis (FSA) provides the investment sponsor and the PMO a clear picture of who is responsible and when these activities should occur.

Second, by recommending that the [Functional Solution Analysis \(FSA\)](#), completed according to the Joint Capabilities Integration and Development System (JCIDS) process, may meet the analytic intent of the AoA, and therefore not require another AoA during concept refinement. The rationale being that the increased usage of commercial off-the-shelf software and hardware enables the FSA process to adequately identify the range of alternatives and that the outcome measures of effectiveness developed during the Functional Needs Analysis, provide an effective means for judging the alternatives. See the FSA link above for a description of the process and see Figure 8 for a depiction of the activities and dependencies of the Functional Solution Analysis with the JCIDS.

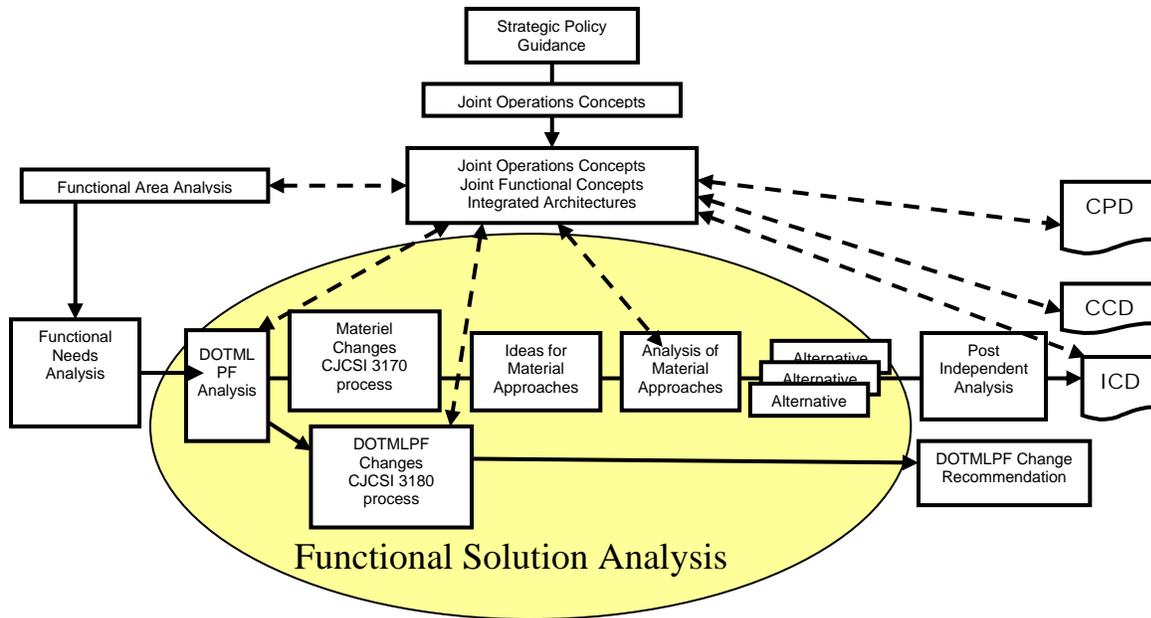


Figure 8: Functional Solution Analysis within JCIDS Analysis Process

For potential and designated Acquisition Category IAM programs, OD/PA&E prepares the initial AoA guidance, reviews the AoA analysis plan, and reviews the final analysis products (briefing and report). After the review of the final products, OD/PA&E provides an independent assessment to the Milestone Decision Authority. For ACAT IAC programs, it is the responsibility of the Component PA&E counterpart to provide such guidance and review.

A.5.10. Employ Common Components and Infrastructure

Mr. Stenbit, ASD (NII)/DCIO, registered concern that we may build each element of the GCSS in accordance with specification, but still not be certain that it will work as needed. In response, the Air Force member of the team recommended a policy change that will mitigate part of Mr. Stenbit’s concern. The rationale for the change is that efficiencies can be achieved thru the use of common components in GCSS and GCCS.

Recommendation 27:

Change DODD 5000.1, Enclosure E1.27: Systems Engineering to read: Acquisition programs shall be managed through the application of a systems engineering approach that optimizes total system performance and minimizes total ownership costs. A modular, open-systems approach using common components and infrastructure shall be employed, where feasible.

A.6. Implementing the Blueprint

The RIT Pilot was not tasked to implement the Blueprint recommendations. However, we do provide our insight into implementation strategies.

The Blueprint makes recommendations that were substantiated by the RIT Pilot experience to decrease the cycle time for delivery of meaningful functionality to 18 months (or less), and improve the product. Based on our study of the pilots, our conclusion is that the actors within the investment process, the investment community, must continue to exploit net-centricity and set a path that leads to self-organization. Accordingly, our recommended strategy for implementation is in two parts: Blueprint I and Blueprint II.

Implementation of Blueprint I makes available the acquisition environment of the RIT Pilots to other IT acquisitions. It lists the recommendations made in the report and proposes champions for their execution.

Implementation of Blueprint II sets a path for continuous exploitation of net-centricity and self-organization. This path is closely coupled to the progress of net-centricity and the yet incomplete understanding of the cultural changes needed to achieve self-organization within the community. Although this path is unknown, the goal of maintaining information superiority for both the warfighter and those who support the warfighter is clear. This is a path that will require resolute leadership over an extended period.

Recommendation 28:

That the Sponsors charter an implementation/transformation team operating under a modified RIT governance structure described in [Figure 9](#) of Section 5.1.2.

The RIT implementation/transformation team will prioritize and combine the recommendations, gain commitment from the Champions, and submit a periodic report of progress to the Principals.

A.6.1. Implementing the Recommendations; Blueprint I

The RIT Pilot Team will conclude its charter with the publication of the final RIT Pilot report. The following activities remain: (Target schedule noted in parens)

- Coordinate the draft report with RIT Pilot Team (Includes Component, JS and OSD representatives) (Q2 FY 05)
- Refine the report and brief the RIT Joint Chairs and Principals (Q2 FY 05)
 - a. Chop draft of Implementation team Charter
- Refine the report, brief the Sponsors and issue the Implementation Team Charter (Q2 FY 05)
- Incorporate Sponsor comments and publish a final report, the Blueprint (Q2 FY 05)

#	Recommendation	Champion	Section
1	<p>Change DODD 5000.1 paragraph 4.3.5. Streamlined and Effective Management.</p> <p>From, “Responsibility for the acquisition of systems shall be decentralized to the maximum extent practicable.”</p> <p>To, “<i>Responsibility for the investment in systems shall be decentralized to the maximum extent practicable, consistent with the risk of the investment and the capability of the investing organization to manage the risk.</i>”</p>	AT&L , DAPWG	A.2.2. Page 18
2	That OSD implement risk based governance and resource an OSD organization to assess OSD and Component IT investment capability.	NII, AT&L	A.2.3. Page 19
3	That the Department, in its follow-on to “The transformation for the 21 st Century Act”, propose that Congress change the definition of a major program from solely a cost threshold basis to one that includes both cost and the risk of achieving a needed capability or transformation.		A.2.4. Page 21
4	That the instruction governing warfighter functional capability boards, CJCSI 3170.01 and CJCSI 3137.01, include as part of FCB responsibilities the articulation of outcome measures of effectiveness as exit criteria for a functional needs analysis, and a commitment to conduct a post implementation review against those measures and appropriate points after the system is fielded.	JS, DASD DCIO	A.3.1. Page 23
5	Ensure that the portfolio management directives and instructions now being developed by OASD(NII) require that the Business Domain Owners ensure that business systems are based on the functional area, needs and solutions analyses required by CJCSI 3170.01, and that those analyses result in the establishment of outcome measures of effectiveness and the commitment to conduct post implementation reviews against those measures, at appropriate points after the system is fielded.	JS, Comptroller, DASD DCIO	A.3.1. Page 23
6	The DoD Enterprise Architecture Performance Reference Model include a process for developing measures of	DASD DCIO	A.3.1. Page 24

#	Recommendation	Champion	Section
	effectiveness (MOEs), and a requirement for measure of the MOEs after implementation in a post implementation review (PIR).		
7	The Department adopt a generic set of IT acquisition project risk factors such as is currently being piloted by the US Army, or as has been adopted by the State of Texas Department of Information Resources. Such an inventory of risk factors would be initiated during the Functional Solution Analysis phase and updated as the program evolved.	DASD (DCIO), AT&L	A.3.2. Page 26
8	The Department require a uniform presentation of investment risk assessment and management using the probability-consequence display format of the DAU Risk Guide.	DASD (DCIO), AT&L	A.3.2. Page 26
9	Capitalize on the potential synergy between our need for RBG capability appraisal and the requirement of the FY 03 National Defense Authorization Act for the Defense Services and specified Agencies to establish Software Acquisition Process Improvement Programs (SAPIP). We recommend integration of the SAPIP capability assessment with the Risk Balanced Governance capability assessment.	DASD (DCIO), AT&L	A.3.4. Page 27
10	The implementations of RBG include a facilitated outreach by the SAE to the Component's PEOs during a face-to-face meeting, with the objective of establishing a policy of transparency of all capability appraisal findings. We further recommend that each PEO then lead his or her PMs to a consensus for the policy of transparency of findings.	DASD (DCIO)	A.3.4.2. Page 29
11	The Software Engineering Institute CMMI-AM be validated and adopted as the standard IT acquisition capability assessment model for PEO and PM organizations.	AT&L	A.3.4.3. Page 30
12	Adopt a proactive posture for quality management throughout the Department and articulate its posture within the directive system.		A.3.5. Page 31
13	The Quality Management Office within the Office of the Secretary of Defense serve as the focal point for		A.3.5. Page 32

#	Recommendation	Champion	Section
	investment performance excellence and establish a Quality Management Community of Practice		
14	Establishment of an IT Investment Community of Interest that will span all Domains and undertake the activities necessary to implement the DODD 8320.2, Data Sharing in a Net-centric Department of Defense, and engender a trusting environment that will in turn enable and support risk-based governance (RBG).		A.3.6. Page 34
15	An IPT be chartered to further address the benefits of information objects for a Net-centric investment environment and develop a plan for implementation.	DASD (NII) Programs	A.4.3.1. Page 40
16	Warfighter personnel with requirements engineering training should be assigned to PEO/PMO organizations to serve as liaison with the users and program Sponsor.	JS J1	A.4.4. Page 41
17	ASD(NII) and JS-J8 form an IPT to further assess the benefits of writing broad KPPs in the CDD and develop a plan for implementation.	DASD (NII) Programs	A.4.4. Page 42
18	A business transformation leader be appointed to oversee the development and employment of a net-centric investment environment that spans both the JCIDS and Acquisition communities.		A.4.5.1. Page 43
19	An IT investment community of interest ITI-COI be formed under DoD CIO, JS J8 and AT&L sponsorship to articulate the semantics of IT investment information.	DASD (DCIO), JS J8, AT&L	A.4.5.1. Page 43
20	Coordinate the IT investment community COI needs with the Net-centric Enterprise Services (NCES) program.	DASD (DCIO)	A.4.5.1. Page 43
21	DoD CIO sponsor an IPT of OSD gatekeepers and Component representatives to reach agreement about the minimum content and approval process for consolidated acquisition information for IT programs, AMIP.	DASD (DCIO)	A.5.1. Page 48
22	Add to DoD 5000.2 Enclosure 4, IT Considerations, a section to describe the process for setting the required consolidated acquisition information for IT programs Add the process to the Defense Acquisition Guide.	DASD (NII) Programs	A.5.1. Page 48

#	Recommendation	Champion	Section
23	DoD CIO sponsor an IPT of IT OSD oversight and JCIDS Action Officers to clarify provisions in CJCSI 3170.01E for urgent initiation of the initial deployment of IT functionality without use of the JCIDS, and develop a process for expedited DOTMLPF	DASD (DCIO), JS J8	A.5.2. Page 49
24	Update the DoD Chief Information Officer October 24, 2001 Memorandum, Subject: Policy and Procedures for the Fast Track Deployment of Information Technology, to reflect Risk-based Governance, SAMP and urgent program initiation without a completed JCIDS process.	DASD (NII) Programs	A.5.2. Page 49
25	Add guidance to the Defense Acquisition Guide recommending an 18 month IT capability release cycle.	AT&L	A.5.7. Page 53
26	Comptroller develop a white papers on use of broader program elements and the use of O&M and Defense Business Operations Fund (DBOF) funds for emerging IT requirements.	C	A.5.8. Page 53
27	<u>Change DODD 5000.1, Enclosure E1.27: Systems Engineering</u> to read: Acquisition programs shall be managed through the application of a systems engineering approach that optimizes total system performance and minimizes total ownership costs. A modular, open-systems approach using common components and infrastructure shall be employed, where feasible.	AT&L, DAPWG	A.5.10. Page 55
28	That the Sponsors charter an implementation/transformation team operating under a modified RIT governance structure described in Figure 10 of Section 5.1.2.	AT&L, NII, FTO	A.6. Page 56

A.6.2. Implementing Blueprint II

The goal for Blueprint II is to institutionalize the reduced cycle time and improved product quality gains achieved under Blueprint I. The recommended approach is threefold. First, review the existing transformation strategies for opportunities. Second, undertake a strategic shift toward a learning organization. The Defense Acquisition University has undertaken the Learning Organization Initiative²⁷. Third, refine and continue the activities that enable self-organization within the IT PEO/PMO organizations.

From the perspective of the RIT experience, we make the following recommendations for implementing Blueprint II:

1. Identify and prioritize the steps needed to exploit the NCES and become a Net-centric investment management information environment
2. Research and identify the cultural changes needed to move the Department's investment community toward self-organization
3. Articulate the linkage between self-synchronization under information superiority and self-organization under business information superiority
4. Develop measures of effectiveness and metrics for measurement of progress toward adoption of net-centricity and realization of self-organization within the community
5. Plan and initiate a request for a management decision to support implementation of Blueprint II
6. Execute the implementation plan
7. Plan and conduct a multiyear campaign of measurements
8. Report on progress toward achieving business information superiority and a culture that supports transparency and accountability.

²⁷ Jerry Davis and Keisha Vanleer, "DAU South Spearheads Learning Organization Initiative", *Defense AT&L*, July-August 2004, http://www.dau.mil/pubs/dam/07_08_2004/davi-ja04.pdf

B. RIT Report

B.1. RIT Pilot Background

An IT Acquisition Management Transformation Rapid Improvement Team (RIT) was chartered by DoD CIO, USD(AT&L) in their [2 August 2001 memorandum](#)²⁸, and conducted by DoD CIO, USD(AT&L), USD(C) and VCJCS (The Sponsors) in the summer of 2001. The principal transformational goal of the RIT was to:

Reduce the cycle time to deliver mission effective IT capabilities to 18 months or less

The RIT was organized into 5 teams and on October 31, 2001, reported their conclusions in the form of 32 recommendations. The Sponsors accepted the recommendations and initiated a pilot effort to implement some of the recommendations and an integration team to transition the promising recommendations into policy or legislation as required. Accordingly, a RIT Pilot was chartered by DoD CIO and USD(AT&L) on December 21, 2001²⁹. USD(C) and VCJCS joined the pilot effort as co-sponsors. The sponsors defined the principal output of a successful RIT pilot to be:

A Blueprint for IT acquisition that is transferable to the acquisition of other IT systems

B.1.1. IT Acquisition Management Transformation Rapid Improvement Team (Jun-Oct 2001)

B.1.1.1. RIT Origin and Charter

On June 13, 2001, a group of senior leaders from across the Department met to discuss the issues and concerns relating to the process used to acquire information technology (IT). This group included the DoD CIO, USD(AT&L), USD(C) and VCJCS. They met because emerging threats, new defense strategies, technological opportunities and the mandates of the Clinger-Cohen Act (CCA) require a fundamental transformation of how DoD acquires and manages its critical IT resources. Several areas of improvement were identified:

- Reduction in cycle time
- Increased interoperability
- Family-of-systems management

²⁸ Joint DoD CIO, USD(AT&L) memorandum subject: Rapid Improvement Team (RIT) for IT Acquisition Management Transformation, 2 Aug 2001

²⁹ Joint DoD CIO, USD(AT&L) memorandum subject: Designation of Pilot Programs for the Rapid Improvement Team (RIT) for IT Acquisition Management Transformation, 21 December 2001

- Common infrastructure
- Streamlined oversight

Based on the strong resolve for transformation during this meeting, the DoD CIO and USD(AT&L) initiated a Rapid Improvement Team (RIT), chartered to focus on what was considered to be the highest priority: [See Appendix D.1.](#)

B.1.1.2. RIT Organization

In response to the charter, the RIT was organized as depicted in Figure 9 below. The sponsors through the executive council provided governance. 5 teams were formed to develop recommendations for reducing the cycle time, and Integration and Pilot Teams were planned for implementing the recommendations. The AT&L Change Management Center provided logistic support.

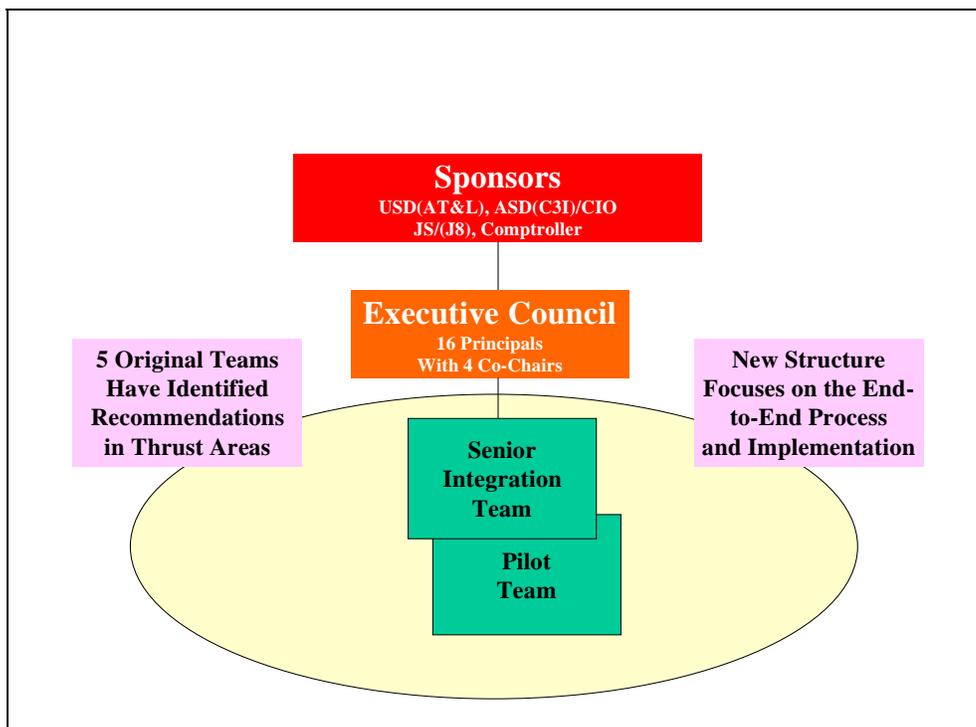


Figure 9: RIT Organization

The membership of the RIT Executive Council consisted of the following sponsors, joint chairs and principals listed in Figure 9.

Sponsors:	
-Mr. Aldridge (AT&L)	Mr. Stenbit (C3I/CIO)
-Mr. Lanzilotta (Comptroller)	LTGEN. Carlson (J8)
Joint Chairs:	
-Dr. Margaret Myers (DCIO) (Comptroller)	Mr. Ron Garant
-Mr. Bob Nemetz (AT&L) (J-8)	ADM Stanley Szemborski
Principals:	
-Mr. Dave Borland (Army DCIO) OIPT)	Mr. John Landon (C3ISR)
-Mr. Ron Turner (Navy DCIO)	Mr. Dale Uhler (DASN)
-Mr. John Gilligan (AF CIO)	Mr George Wauer (DOT&E)
-Ms. Diane McCoy (DISA)	BG Riemer (AFPEO/CS/CS)
-Mr. Bill Curtis (DCIO)	Mr. John Osterholz (DCIO)
-BG Charles Croom (J-6)	COL Mike Perrin (J-8)

Figure 10: RIT Executive Council

B.1.1.3. RIT Recommendations

During their two months of deliberations, the RIT concluded that they must focus their recommendations on not only reducing acquisition cycle time, but also improving the effectiveness of the Department’s IT investments. The team summarized their work in an October 18, 2001 Executive Council presentation to the Sponsors. The principal focus of the IT RIT activities is identified in Figure 11.

- Innovation, agility and speed to meet emerging threats -- e.g., Homeland Defense
- Delivery of mission-effective IT capabilities to the warfighter within threat / technology cycle times
- Shift to risk-based oversight with reduced burden and staffing
- Delegate responsibility and accountability to the lowest levels -- process owners & developers
- Establish improved DoD “End-To-End” IT Acquisition, Management and Oversight Policies and Processes that rapidly deliver mission effective

Figure 11: Principal Focus of RIT Activities

As the 5 Teams were formulating their recommendations, the Principals were considering the issues surrounding their implementation within the Department. To reduce the risk of the recommendations falling into the tepid waters of bureaucratic acceptance, the Principals formed an implementation team charged it with introduction of candidate recommendations into the Department. The implementation team consisted of an integration team to interface with external stakeholders and formulate implementation strategy, and a RIT Pilot team to test selected recommendations in a controlled acquisition environment

In their 31 October 2001 report-out to the Sponsors, the RIT identified 32 recommendations of which 16 found in [Appendix D.2](#) were considered suitable for implementation by a RIT Pilot Program.

B.1.2. RIT Pilot (Jan 2002-Dec 2004)

B.1.2.1. RIT Pilot Charter and Participating Components

Following the conclusion of the RIT recommendation development phase, a RIT Pilot Phase was chartered in a December 21, 2001, memorandum entitled, Designation of Pilot Programs for the Rapid Improvement Team (RIT) for IT Acquisition Management Transformation. The selection of the RIT Pilots was not conducted in a scientific fashion, but was instead based on the real-world realities of which programs were available to participate in this experiment. The selected programs were not uniform in current execution approaches or cost-schedule-performance profile prior to entering the RIT. Because the goal of the RIT was experimentation with these ideas, it was deemed acceptable to proceed with the set of programs provided by the components. See [Appendix D.4](#).

The goal for a successful RIT pilot was set to be:

A Blueprint for IT acquisition that is transferable to the acquisition of other IT systems

To facilitate experimentation with the RIT recommendations, those participating programs that were currently designated ACAT IAM were designated ACAT IAC. Those programs in a lower than ACAT IA category remained in that category. The pilot phase would span a 24-month period from January 1, 2003 through December 31, 2003. The programs selected for piloting are shown in Figure 12.

COMPONENT	PROGRAM	PRE-PILOT ACAT	PILOT ACAT
Air Force	Global Combat Support System (GCSS-AF)	I AM	IAC
	Integrated Logistics Support – Supply (ILS-S)	IAM	IAC
	Integrated Maintenance Data System (IMDS)	IAM	IAC
	Standard Contracting System (SCS)	III	III
	Financial Information Resources System (FIRST)	III	III
	Global Transportation Network (GTN 21)	IAM	IAC
Navy	Global Combat Support System – Maritime (GCSS-M)	Withdrawn IAC	Withdrawn IAC
	Navy Tactical Command Support System (NTCSS)	Withdrawn	Withdrawn
	Navy Enterprise Maintenance Automated Information System (NEMAIS)		
Army	Transportation Coordinator’s Automated Information for Movement System II (TC-AIMS II)	IAM	IAM
DISA	Global Combat Support System (GCSS-CIN/JTF)	Pre IAD	IAC
Health Affairs	Theatre Medical Information Programs (TMIP)	IAM	IAC

Figure 12: Participating Pilot Programs

B.1.2.2. Pilot Ground Rules

The ground rules for the pilot program set forth in the charter demonstrated the key compromise reached during the discussions leading up to the December 21, 2001 memorandum: That all pilot programs must comply with the documentation associated with the requirements process in accordance with CJCSI 3170.01B.

Other ground rules set forth by the charter were:

- Within 30 days the responsible Service or Agency shall present a business case for each pilot program
- The business case shall include the Exhibit 300 from the FY 2002/2003 Budget Estimates
- Review of the business cases and permission to proceed shall be accomplished by the co-chairs of the RIT Executive Council shown in Figure 10 above
- The RIT Pilot Team will define the criteria for determining the extent and rigor of documentation requirements and oversight of these programs
- Maintain knowledge-based portal for real-time visibility of the pilot program in a joint/shared secure database, to include specific data elements as directed by the Pilot Team

- Effectively implement the appropriate RIT initiatives
- Be available to brief status of pilot programs on an as required basis
- Regularly interchange lessons learned with pilot leads from other pilot programs

Additionally, the charter provided for exit and removal of a program and designated Mr. John Laychus of DASD(DCIO) as the Team Lead.

B.1.2.3. Pilot Team Structure and Timeline

Membership in the RIT Pilot Team was designated in the charter to be drawn from: DoD CIO (Team Lead), AT&L, PA&E, DOT&E, PEOs, Services and participating Defense Agencies. A listing of the participating members may be of value to the reader and is provided in [Appendix D.5](#). The list is cumulative and represents those active in the Team who could serve as a resource for additional lessons learned and further analysis of the pilot phase.

The team organized itself to accommodate the three views of the Pilot effort: Strategies, Program insight and OSD gatekeeper processes. The Pilot Team met as a committee of the whole to hammer out strategies for meeting the ground rules and other objectives. Component representatives conducted weekly telephone conferences to foster sharing of experiences and provide insight into their progress. Each Component created a reporting structure that provided an opportunity for review of progress by the responsible decision authority. The dialog with the OSD gatekeepers centered on an effort to understand the risk they were managing and seek to describe the trade space that would adequately address the risk while shortening the cycle time.

The two-year timeline for the RIT Pilot was divided into three phases: Organization, Execution and Evaluation, as shown in Figure 13.



Figure 13: RIT Pilot Timeline

A six-month organizational period was crafted to allow the Pilot Team to implement the Sponsor’s ground rules and work out the strategies and relationships needed for execution. The execution phase duration reflected the 18-month goal for delivery of meaningful capability. The evaluation phase was originally planned for three months but was expanded to include in-process reviews (IPRs) of the ACAT IA programs to establish the health of the programs following their two year RIT Pilot phase. The IPRs were concluded 22 July 2004 and the DASD (Programs) assessments are included in [Appendix D.15](#).

B.1.2.4. Strategy for Meeting RIT Goals

The activities and milestones of each phase are shown in Figure 14. The first order of business was to agree on a strategy for reducing the cycle time while improving the quality of the product. After several weeks of deliberation, it became clear that the principal thrust of the Pilot was to be the establishment of an acquisition environment that enabled achievement of both the Departments Transformation Guidance³⁰ and the President’s “Freedom to Manage Agenda”.³¹ It was also agreed that the freedom to manage would be earned by each Component and program. Although each program was in a different phase of acquisition, they all adopted the following four tenets as their principal pilot thrust to enable quality products in 18-month cycles:

- Risk-based process for determining oversight and level of required information
- Portal-centered insight enabling “Exception Processing” oversight
- Delegation of ACAT IA programs to the Components (except TC-AIMS II)
- Standard practices for PEO staff and program management organizations

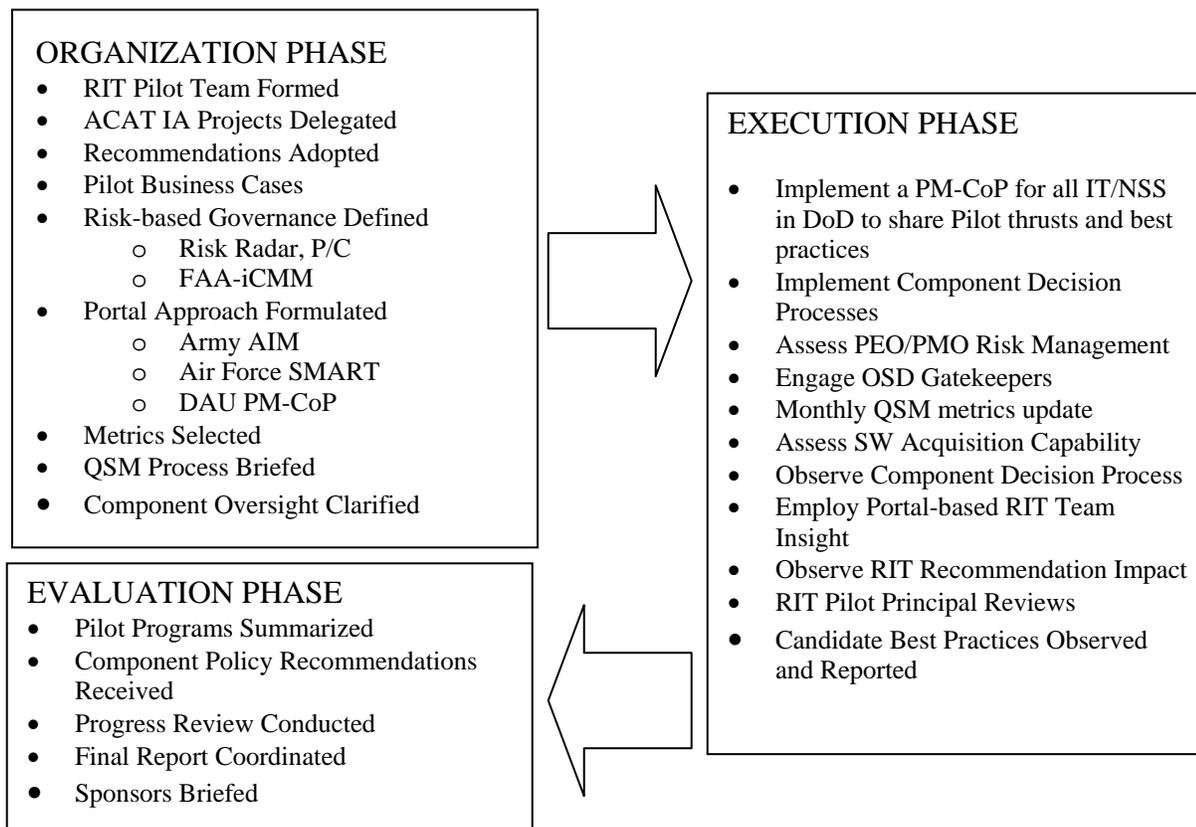


Figure 14: Pilot Team Phases and Activities

³⁰ Transformation Planning Guide, Office of Force Transformation, <http://www.oft.osd.mil>

³¹ President’s Management Agenda, OMB, http://www.whitehouse.gov/omb/budintegration/pma_index.html

A description of the oversight process adopted by each of the Components is found in [Appendix D.9](#).

To execute this strategy, each pilot program selected a subset of the 16 RIT Pilot recommendations as described in [Appendix D.2](#).

B.1.2.5. Details of Organization Phase

The pilot phase ran from January 1, 2002 through December 31, 2003, and the evaluation phase was conducted during the 1st quarter of CY 2004. Initially, 12 programs were nominated, two withdrew and of the 10 remaining, 8 completed their planned 18-month delivery cycle. A RIT Pilot Team, consisting of representatives of the DoD CIO, AT&L, PA&E, DOT&E, PEOs, Services and participating Defense Agencies, was formed to oversee the pilot in accordance with the following ground rules:

- Within 30 days the responsible Service or Agency shall present a business case for each pilot program
- The business case shall include the Exhibit 300 from the FY 2002/2003 Budget Estimates
- The co-chairs of the RIT Executive Council shown in Figure 10 above shall accomplish review of the business cases and permission to proceed
- The RIT Pilot Team will define the criteria for determining the extent and rigor of documentation requirements and oversight of these programs
- Maintain knowledge-based portal for real-time visibility of the pilot program in a joint/shared secure database, to include specific data elements as directed by the Pilot Team
- Effectively implement the appropriate RIT initiatives
- Be available to brief status of pilot programs on an as required basis
- Regularly interchange lessons learned with pilot leads from other pilot programs
- Must comply with all documentation associated with the requirements process in accordance with CJCSI 3170.01B

During an October 18, 2002 status update to the Sponsors³², the RIT Pilot and RIT Integration Teams were directed to undertake the following actions:

- Reduce risks by applying the Software Acquisition (SA) - Capability Maturity Model (CMM) to Program and Program Executive Offices and capture lessons-learned for the Sponsors.
- Develop a plan for sharing DoD IT acquisition information at all levels through a common Portal.

³² Minutes of IT Acquisition RIT Sponsors Status Update Prebrief, 18 October 2002, 1330 to 1430 hours, Pentagon 3D1019

- Pilot data-centric oversight and integration approaches that help ensure the GCSS family of systems will work together to support the warfighter.
- Increase emphasis on working with the Joint Staff and Comptroller to create a streamlined and effective life-cycle process that includes requirements, funding and acquisition.

B.1.2.6. Sponsor and Principal Guidance

RIT Sponsors Meeting, October 31, 2001

The Sponsors provided the following Guidance:

- The Pilots should have a reliable Business Case (vetted by the Comptroller), a Baseline that shows they are good projects, a management plan and a funding approach. The Business Case can be in the form of a streamlined justification based on a common Template developed as part of the Pilot effort. They would also need to have a validated requirement, e.g., an approved ORD following the JROC process.
- The Pilots should show how the RIT improvements will amplify success for the programs against the existing Baseline.
- The Pilots should take a reasonably disciplined approach so that the benefits accrued by applying the RIT improvements to the existing baseline can be measured and allow DoD to “brag” about its success with the facts to back it up.
- The Pilots should put a risk mitigation plan in place.

RIT Principals meeting December 13, 2001

The RIT Principals provided the following guidance:

- PA&E will have QSM brief the Principals on their comparisons of DoD and industry incremental software development practices at the January 14, 2002 meeting.
- Pilot Team will report progress every two months to the Principals.
- Integration Team will review Offsite “stickies” and other improvement recommendations for use in the RIT.
- Co-Chairs will begin to bring Congress and GAO into the picture to avoid misunderstandings.
- Pilot Team will determine if CCA pilot process could be used without impeding progress.
- Pilot Team will monitor resources for efficiency and value.

Interim Status Report (August 14, 2002) to Sponsors

Goals for execution phase:

- Test out the approved recommendations before exporting them across DoD.
- Conceive a future-oriented net-centric IT management process, constructed from the validated recommendation “building blocks” and aligned to the Department’s vision for net-centric Warfare.

RIT Interim Report, October 2002:

As the Principals stated in several meetings, the RIT Team was not “overseeing” the delegated programs. It was helping them to transition smoothly from OSD oversight to Component oversight, while ensuring that the gaining organizations applied appropriate management and oversight / insight mechanisms.

The primary objectives of the Implementation phase are,

- a. Test out the approved recommendations before exporting them across DoD.
- b. Conceive a future-oriented net-centric IT management process, constructed from the validated recommendation “building blocks” and aligned to the Department’s vision for net-centric Warfare.

RIT Principals Decision on the QSM Process:

- Establish formal project baselines for each increment
 - Project size estimate and application domain (QSM)
 - Product Construction vs. time (QSM)
 - Effort vs. time (QSM)
 - Schedule (QSM)
 - Staffing vs. time (QSM)
 - Defect discovered vs. time (QSM)
 - Functionality toward mission requirements
 - User satisfaction
- Provide periodic data to monitor performance
 - Monthly data to QSM
 - OSD updated via Portal
- QSM provides curve fits of actual performance and extrapolates long-term performance through Pilot time period

The Goal was for PA&E/QSM to work with the Pilot Program Managers to develop metric baselines:

- QSM metrics may be added to complete the initial IT-300 baseline
- Usually requires a 1-2 hour meeting with program manager and development contractor
- Provide relevant development plans and a POC prior to meeting
- PM/Contractor data will be used; no independent assessment

The following table provides a summary of the approved metrics:

Metric	Definition	How Developed	IT-300 Relationship
Project size and application domain	Translation of project into measurable construction units	PM with PA&E/QSM	IT-300 Part III Earned value
Product construction vs time	Cumulative # of size units completed per month	PM with PA&E/QSM	IT-300 Part III Earned value
Effort vs time	Cumulative person-hours or months	PM with PA&E/QSM	IT-300 Part III Earned value
Schedule	Key project development milestones	PM with PA&E/QSM	IT-300 Part III Earned value (Most DoD 300 use oversight milestones)
Staffing vs time	# of FTE per month	PM with PA&E/QSM	IT-300 Part III Earned value
Defect discovered vs time	# of defects per month	PM with PA&E/QSM	IT-300 Part III Earned value
Functionality towards mission requirements	ORD requirements and/or # of KPPs completed per month	PM with OSD CIO	IT-300 Part II
User Satisfaction	Survey of user agreement with performance	PM with DOT&E	Not required in 300; used in OT&E

Figure 15: Summary of Approved Metrics

Additionally, the goal was for monthly reports against approved metrics to be provided to PA&E or posted to portal if available.

B.1.2.7. RIT Report to the Principals, November 18, 2003

The RIT Pilot Team Staff and participating Component representatives presented a summary of the pilot phase and their conclusions and recommendations. Minutes of this meeting are presented in Appendix D.6.:

The Principal Observations were as follows:

- RIT final report must make specific policy recommendations
- Best practices and non-policy recommendations can be submitted directly to the 5000 guidebook
- The RIT Pilot reporting and decision support tools (AIM & SMART) are difficult for OSD programs oversight officials to access and use
- The current C4ISP process is not responsive to the 18 month delivery objective

- Software development metrics collection should be completed and entered into the PA&E sponsored QSM SLIM life cycle model by December 31, 2003.
- The Harvard Business School case study format will be used as a model for reporting the pilot program experiences
- RIT output materials will be made available to the BIC initiative “AM-45”

B.2. External Events Impacting RIT Pilot Operations

During the course of the RIT and the RIT Pilot, there were a number of internal and external events that either impacted or were impacted by the RIT and the RIT Pilot. Here is a sketch of the environment to help set the context of this report.

- The DoD IT budget was in excess of \$20B (not including NSS)
- The September 11, 2001 terrorist attack and subsequent Afghanistan and Iraq campaigns added urgency to the RIT objectives. Several of the RIT Pilots responded by delivering the needed functionality inside the 18-month acquisition cycle.
- The DoD moved to a Joint Capabilities Integration and Development System (JCIDS) with the issue of CJCSI 3170.01C and CJCSM 3170.10
- Under JCIDS the Joint Staff formed warfighter Functional Capability Boards (FCBs)
- OMB issued the Federal Enterprise Architecture Reference Model and mandated that FY 05 Budget submissions would conform to the Performance Reference Model
- The Acquisition Management System was revised and streamlined with the elimination of the Mandatory Procedures for MDAPS and MAIS Acquisition Programs, DoD 5000.2R.
- The President’s Management Agenda brought the DoD into the E-Government arena and articulated a Freedom to Manage initiative that addresses:
 - Statutory cleanup
 - Fast-track authority, and
 - Managerial flexibility and authority
- The SECDEF formed an Office of Force Transformation and issued the April 2003 Transformation Planning Guidance
- The DoD proposed an omnibus Defense Transformation for the 21st Century Act that featured:
 - Personnel transformation
 - Acquisition transformation
 - Relief from a number of Congressional reports
 - Removal of CIO responsibility for NSS and registry of mission critical and mission essential IT systems
 - Administrative transformation
- OMB took aggressive control of IT investments by requiring submission of business plans for all investments exceeding \$1M.
- The Department undertook implementation of the remainder of the IT Management Reform Act (Clinger-Cohen Act of 1996) by initiating review of Domain and Functional Capability Board IT/NSS investments at the portfolio level

B.3. RIT Findings

The conclusions from the RIT Pilot are drawn from RIT Team meetings, on-site assessments of PMO capability to acquire IT, program self-assessments, OSD review, and inputs from the Component representatives. This section is divided into several parts, each answering one of the following questions:

- What external influences directly affected the results of the Pilot?
- How well did the Pilot meet the sponsor's ground rules and direction?
- Were adequate resources allocated by OSD and the participating Components?
- Which of the RIT recommendations was brought into play?
- Which of the RIT recommendations did or did not contribute toward the RIT goal and why?

B.3.1. Piloted Practices for Reducing IT Cycle Time

The RIT Pilots employed a number of RIT recommendations and from them developed practices that were successful in reducing IT cycle time. Most, but not all of these practices are reflected in the Blueprint for broad implementation, so to prevent duplication of content, they have been placed in Appendix D.4. Some helped create a climate of self-organization; others made good use of that climate. They are all however useful for exploring investment strategies that can reduce cycle time and improve the product.

B.3.2. Other RIT Recommendations for Reducing IT Cycle Time

B.3.2.1. Flexible Funding

Flexible funding was not attempted by any of the RIT Pilots. The TC-AIMS II program suggested that this recommendation could not be enacted at the program level. To be successfully implemented it should be worked at the Department level.

B.3.2.2. Develop AoA Policy and Toolkit

The PA&E member of the RIT Pilot Team pursued the development of AoA guidance and has published the results in [Section 3.3 of the Defense Acquisition Guidebook \(DAG\)](#). Development of guidance in lieu of a policy was chosen in keeping with the move within the acquisition management system to become less prescriptive. Section 3.3 of the DAG provides a recommended outline of an AoA plan, describes the role of AoA in concept refinement, and provides a notional template for displaying the results of a cost-effectiveness

analysis. [Section 3.3.4 of the Defense Acquisition Guidebook](#) is dedicated to AoA considerations for major automated information systems.

B.2.3.3. Adopt Performance-based Service Contracting (PBSC) for Services

It has been the policy of the Department since FY 1999 to employ Performance-based Service Contracting (PBSC) for a wide range of services, including IT services such as computer maintenance, software maintenance and support, and operation and maintenance of facilities. The RIT recommendation reflects the Department's goal that 50% of services acquisitions are to be performance-based by FY 2005³³.

Among the RIT Pilots, there was no opportunity to acquire performance-based services, and this report, therefore, does not include a report of their experience. The PBSC recommendation is none-the-less included because during the period of the RIT Pilot, there were a number of IT services PBSC actions within the Department that proved to be successful. See the IT-CoP page [Benchmarking at the Military Health System PEO Joint Medical Information Systems Office](#) for an example of the application of the CCA best practice of benchmarking and a PBSC.

B.3.3. Experimentation with Portals

The Army Acquisition Information Management (AIM) portal was chosen as the RIT Pilot portal of choice. The AIM system required that designated OSD staff and RIT Team members get an OSD/AIM account. This portal allowed OSD Staff and DoD RIT Team members to have read-only access and the Pilot programs to have read, write, and submit access to their own program space. Cross-Service, non-compartmentalized, "READ ONLY" access was provided to all pilot programs data and information to allow sharing of lessons learned.

³³ "Performance-Based Services Acquisition," USD(AT&L) Memorandum of April 5, 2000.

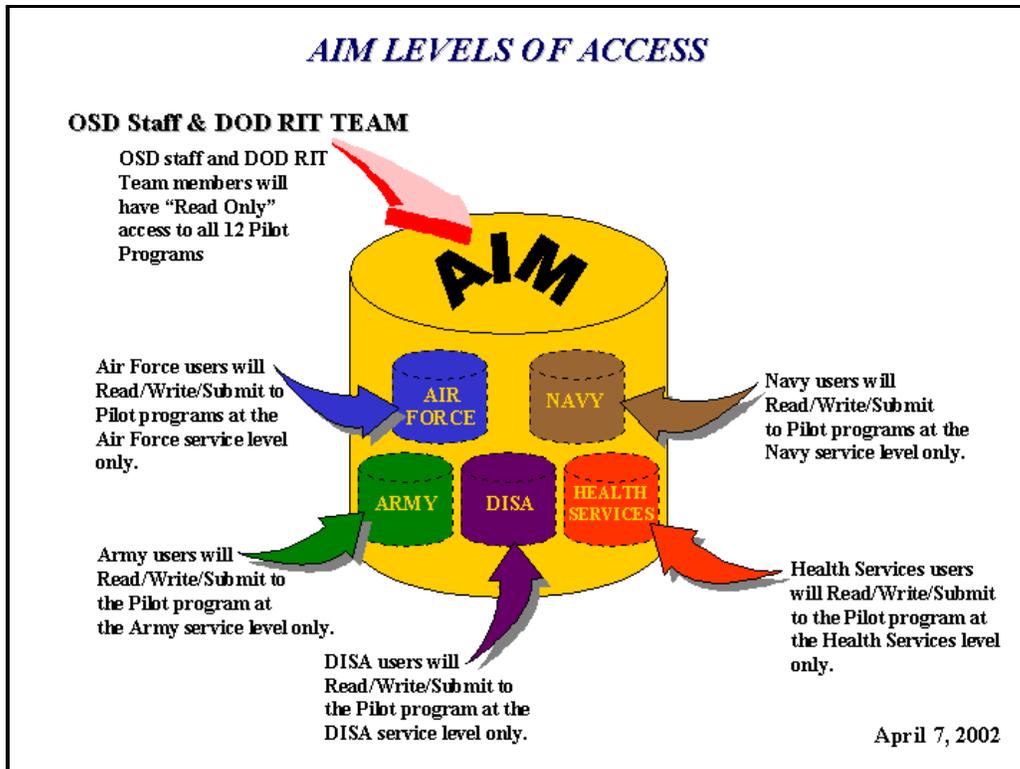


Figure 16: AIM Levels of Access

This portal allowed AMIP concepts to be tested. The DOD RIT Pilot Team worked on identifying required documents/information that must be populated in AIM to supplement report submissions. Within AIM the two areas where users could access/place documents to be available to others were the Acquisition Documents area and the Program Documents area.

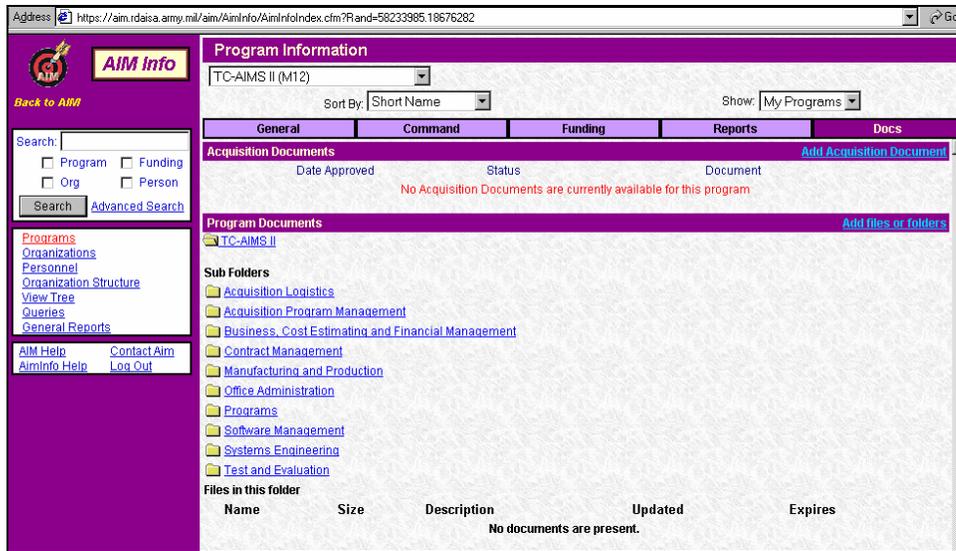


Figure 17: Program Documents Area

The users were also able to access/post Program Documents under the “AIM/Documents Tab”. See Figures 17 and 18.

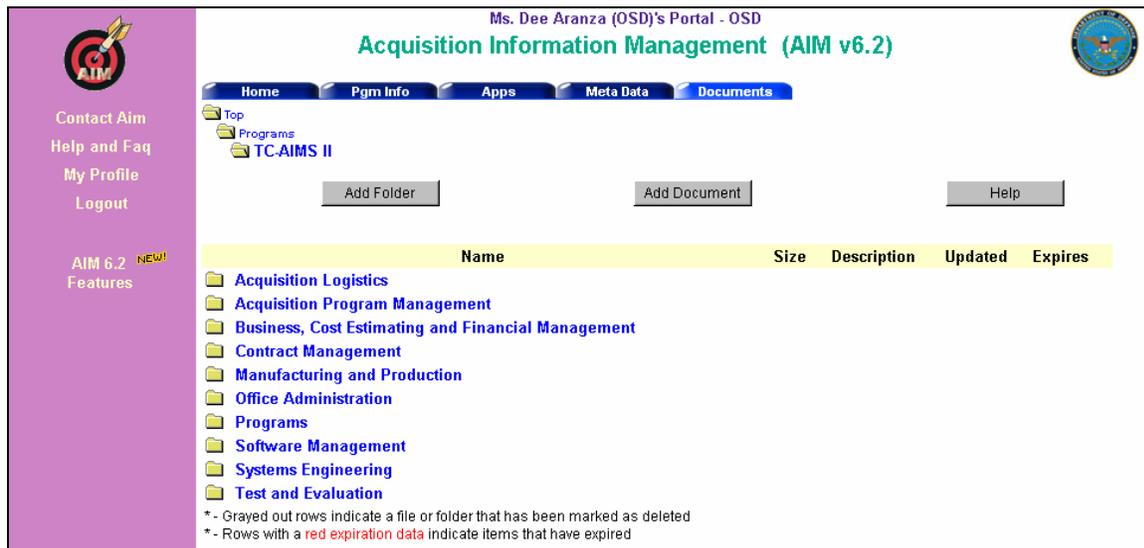


Figure 18: Acquisition Documents Area

By November 2002, a discussion started on the transition of the RIT Pilot AIM from a document paradigm to an information paradigm. The Air Force effort to construct a net-centric, efficient SAMP in which no information needs to be entered more than once was given as an example. The Air Force ILS-S program suggested that reconciling acquisition requirements to the existing documents could speed up the adoption of an AMIP.

As the Pilot effort progressed, the Air Force transitioned to using the Air Force SMART system to store their program data. While the Air Force continued to require the RIT Pilots to submit their SMART vs. the AIM reporting, in practice, the SMART system became their “real” portal as AF PEO for C2&CS was able to get all AF stakeholders to use and access the SMART system on a daily basis. Reconciliation of the two requirements had become problematic because of differences in Army/Air Force workflow.

The RIT program provided insights into the development of a net-centric environment through the use of a web-based portal for program office communication and reporting. Five RIT Recommendations were applicable in experimentation with the use of a portal for program office communications and reporting: AMIP, fast-track risk-based governance for IT programs, standardizing oversight requirements for IT documents and approvals, use of essential oversight information in the portal, and restructuring ADMs to address issues.

- **Acquisition Management Information Plan (AMIP)**: The AMIP recommendation was employed to understand the minimum necessary documentation required for an investment decision. Over the course of the pilots, it was determined that instead of developing complete, stand-alone documents that had overlapping information requirements, it was better to just develop and store (make available/accessible) the essential information necessary to make decisions. This allowed the program office to reduce the amount of time devoted to creating documents from the ground up for approval; and at the same time, provides oversight personnel with consistent, authoritative source information necessary for conducting essential oversight functions.
- **Fast track risk-based governance initiative for IT programs**: The use of risk-based governance was critical in providing a solid understanding of what was really occurring within the programs. Risks were tracked with tools like Risk Radar, and the results were made accessible thru portals for communication and reporting. This allowed PEO and OSD oversight personnel to have a higher degree of confidence and insight when conducting reviews.
- **Standardize oversight requirements for IT documents and approvals**: To make portals work for communication and reporting, it was necessary to gain agreement from all stakeholders. This means that the program office, the PEO, and oversight personnel had to use the same portal and agree upon what information would be stored and how it would be stored.
- **Use of a portal for essential oversight information**: To be effective, the portal couldn't be used for just oversight functions. For the information to stay current, the portal needed to be used for overall program office communications, which included program office personnel, industry partners, program executive office personnel, and functional oversight personnel.
- **Restructuring ADMs to address issues**: By keeping all essential information in the program office portal, it became possible to restructure ADMs by changing their

nature from a static document to a dynamic “view”. Instead of formal events, the Air Force used Evolutionary Acquisition Design Reviews (EADRs) as a method for conducting ADMs. Because the PEO oversight staff was involved on a continual basis, the need for a separate event was mitigated.

Issues arising from using the Portal: While the RIT Pilots gained significant knowledge and performance enhancements, there were problems in the use of the portals. ACAT IAC programs were more successful in the use of the portal than ACAT IAM programs. The challenge was to get OSD and the functional proponents to use the portals on a regular and ongoing basis. We believe the reason for sparse OSD use of the portals to be both practical and cultural. Training, access, additional passwords and a lack of semantic consistency were the practical factors. The cultural impediments were the need to proactively look for the data rather than having a document arrive at the desk for review, and the reality that we are still an email-centric organization, with our portals serving as information sources rather than workplaces.

Additionally, while there was an early agreement to use the AIM portal for oversight, this did not work out in many cases. In the Air Force, the programs started using the SMART system for daily communication. In doing this, it became a burden to continually update the AIM system solely for oversight and reporting purposes. Over time, many Air Force Programs stopped using AIM and kept all information available only on the SMART system.

B.3.4. Areas for Improvement

We asked each of the participating Components and programs to identify the areas of improvement that arose from the application of RIT recommendations. They are summarized here:

- Many programs obtained accounts on AIM portal and placed all applicable acquisition information there for review by higher authority, but never received any feedback on the documentation placed there. Over time, many in the Air Force stopped using AIM.
- To maximize time savings in a net-centric environment, a more concerted effort must be applied for a more extended period to gain all stakeholders’ commitment to a new way of doing business
- DoD and Air Force had different perspectives on C4ISP requirements
- SCS states that the C4ISP process requires a well-documented process, and is not conducive with agile software methodologies such as Extreme Programming
- Funding processes not always conducive to spiral development/EADR processes. Financial processes need to enable real-time spiral development and effective exploitation of commercial IT in a timely fashion (Yet no program approached the comptroller for flexible funding offered to the RIT Pilot programs).

Dept of the Army – TC-AIMS II, Remaining rocks in the road

Major program risks, even though known, were sometimes not dealt with until an MS decision point. The acquisition community appears to be pushing the envelope to streamline its processes, but there is reluctance on the part of some gatekeepers to propose innovative and flexible solutions to non-standard problems. For the most part, the formal document staffing process remains too long.

In order for RIT ideals such as AMIP and virtual oversight environments to be effective, AOs must adjust to be able to take advantage of real-time information and act on it. If the community is serious about 18 month cycle times, requirements and processes are going to have to change. Turning around a CDD, AoA, and BPR every 18 months is a resource intensive task, if not impossible to do. Current staffing models do not support programs that are trying to meet the direction of the Clinger-Cohen Act.

For programs adhering to an 18 month development cycle, the foundation and credibility built from a past block should be leveraged as much as possible, with the intention of reducing oversight to deal with aberrations as they occur, versus requiring de facto reviews and justifications. This gets back to establishing a level of trust between a program and its oversight organizations based on its ability to effectively manage risk and to produce.

NTCSS – Remaining rocks in the road

The most significant recommendation is for DOD to develop a common Web portal for acquisition information and reporting. As an example, the Army's AIM portal provides a significant capability for monitoring its programs. A single portal would avoid the current situation of multiple acquisition web sites that require entry of the same data and information twice or sometimes three times. With multiple, competing sites, the number of those sites reduces efficiency exponentially. Though no study was performed to assess the cost of multiple web portals, it is a safe assumption that the cost of multiple sites is significantly greater than one master portal. Beyond time and dollars, just as a common portal focused members of the program office, a common portal will bring the diverse organizations and commands of program stakeholders together with a focus on a common set of information.

AMIP - Acceptance by OSD Gatekeepers

Although **AMIP** was discussed extensively, the RIT Pilot programs were unable to experiment with **AMIP** in the way it was originally described. One of the reasons this did not get fully embraced was the problem in gaining agreement among all stakeholders. The difficulty was in broadening it to include all the stakeholders, including J8 and the OSD Functional Proponents. In practice, the Air Force Programs and GCSS (CC/JTF) were more successful in using **AMIP** principles to streamline processes between the programs and direct Component oversight personnel.

B.3.5. Summarization of the RIT Pilots

B.3.5.1. Recommendations Received from Participating Organizations

The after action recommendations received from the RIT Pilots and their Components can be summarized as follows:

- Do not force a program to post their data in multiple portals.
- Find a better solution to having oversight engineers second-guess all architecture decisions. This impacts COTS solutions adoption.
- Use quality metrics to make the spiral development process work.
- Allow delegation to the Component for more streamlined processes, but require communication between all stakeholders. This includes OSD Functionals – DISA stated that the processes that were implemented by the GCSS CC/JTF Program are now being used as the model for all other DISA Programs.

B.3.5.2. Air Force PEO Perspective on Rapid Improvement Team

The AF PEO for C2 & CS has actively supported the RIT initiative from the start and welcomes the opportunity to apply lessons learned from the experience to improve the acquisition process to make it more agile and responsive to the Warfighter. The PEO offers comments in the following areas: Warfighter Capability, Rapid Software Cycling, Risk Management, Team Maturity, Metrics, Portal Information Sharing, and Documentation Review.

Warfighter Capability

It is all too easy for the acquisition community to get so focused on the acquisition process that they can lose sight of the Warfighter need. The AF's Global Combat Support System, , called GCSS-AF, countered this tendency by focusing on the JCS need to provide appropriate information on combat support. The GCSS-AF program office worked hard to answer the number one Warfighter set of requirements: the CINC 57 list of needs. By doing so, the GCSS-AF program office has kept their eye on the CINC list and has a path laid out to meet the needs by FY 04.

This focus demonstrated the need to focus on the Warfighter capability that requires information from a system of systems. RECOMMEND that OSD oversight be focused on these joint Service capability requirements while the SAEs use the RIT tools and best practices to conduct individual program oversight.

Rapid Software Cycling

Most of the AF pilots created software cycles within the 18-month window. They all met their advertised deliveries. After two years of closely monitoring deliveries within the entire PEO portfolio, the PEO challenged the PMs to plan for a more aggressive software release schedule, called the stretch schedule, to constantly push the teams toward faster software production.

One pilot, the GTN 21 program, pushed for 30% schedule acceleration than what was originally put on contract. While during the RIT Pilot period, it appears as if they were on target, there were some complications to the program after the RIT Pilot period ended that indicated that this acceleration was not achieved. The theory is that if the team pushes for the stretch schedule goal, there is a higher probability of meeting the original user schedule expectation. RECOMMEND that this technique, coupled with the RIT concept of creating manageable 18-month cycles, should effectively achieve the DOD's schedule initiative.

Another pilot, GCSS-AF, successfully fielded 140 software releases in FY 03. A highly mature contractor and government team closely coupled with frequent user and PEO interchanges could only do such rapid fielding. The RIT allowed this program to accelerate to this blinding speed by allowing the documents to be a framework for the program and not require documenting each release months into the future. RECOMMEND that the lessons learned by this program office be applied to other similar programs.

Risk Management

During the past few years, the PEO has required each program to conduct a risk management program and report monthly on those risks with the greatest expected detriment to the program. While the PEO did not dictate the risk tool to be used, most program offices tended to use the Risk Radar tool as their "weapon of choice." Those programs that internally assessed and managed risk as a team and met at least monthly to review status tended to come up with fewer surprises.

Monthly risk status reporting to the PEO kept the PEO and staff informed and lessened the need for formal oversight meetings. Those program offices with the mature acquisition processes also had robust risk management programs. The two biggest lessons learned on risk management were: those risks in one part of a program could cause ripples throughout other parts of the program; and the ability to show the impact of a risk on cost, schedule and performance tends to escape many program managers.

Team Maturity

Going on the premise that mature acquisition teams require less oversight, the Air Force agreed to conduct mini-assessments of the AF RIT pilots (as of December 30, 2003, four of the six pilots had finished their assessments). Each assessment team consisted of the following personnel: a trained lead assessor from the PEO office, the PEO staff director responsible for the pilot program, an acquisition support specialist from the PEO office, an

ASD/NII representative and a program office representative that could facilitate the implementation of the team's findings and recommendations. All AF assessments were performed against the FAA's Integrated Capability Maturity Model.

Strengths, Improvement Areas and potential [RIT best practices](#) were identified for use by the other RIT pilot teams. Based on the results, the PEO found varying degrees of program office knowledge and maturity on how to run a program successfully. For those program offices that are not as mature, the PEO will stay more closely engaged. For other, more mature program offices, the PEO relies on the staff director to continue oversight. The potential best practices are also shared among the RIT pilot program teams. RECOMMEND the mini-assessment be used as an MDA tool for baselining program office maturity, motivating program offices to steadily improve, and lessen the degree of senior oversight.

Metrics

The AF PEO used the PA&E metrics set to conduct program oversight. In addition, the PEO required a software maturity matrix (SMM) metric to show how software requirements would be met throughout the development cycle in much the same way that systems engineering maturity metrics are used. The SMM proved to be quite difficult to develop. However, the PEO is continuing education and metrics development with PMs through the Software Engineering Council in order to produce a meaningful SMM metric. The PEO staff directors have found the metrics program to be of great use in identifying problems early.

In addition to the five software metrics, the GCSS-AF pilot program decided to develop many system performance metrics to stay on top of new release impacts on the enterprise's performance. Each application that rides the GCSS-AF Infrastructure has access to the performance metrics to understand the dynamics of the network. Both sets of metrics have enabled the PEO to apply the right amount of oversight of the pilot programs.

Portal Information Sharing

The AF PEO totally supports the concept of information sharing on common portal sites to enable all oversight staffers to keep up with the program, its risks and its documents and offer guidance and feedback throughout the development life cycle. This should hasten the document review and approval cycle. The AF PEO primarily used the AF SMART tool to gain monthly status but needed to also use the Army AIM tool to dock information for the rest of the oversight staff to use. Since then, the SMART tool can store program documents for oversight use. We understand that OSD is analyzing what information is needed for oversight and the best way to provide it. RECOMMEND that AF acquisition domain functionals within the Deputy Assistant Secretary Management Policy and Program Integration(SAF/AQX) be allowed to participate in these discussions.

Documentation Review

The AF PEO had two pilots that experimented with the review and approval process for two onerous documents: CCA compliance and C4ISP. For CCA compliance, the GTN 21

program addressed all CCA requirements, but did not have all items ready for approval for CCA approval at Milestone B. Instead, GTN 21 had a plan for achieving all open items, which was satisfactory for the AF CIO.

For C4ISPs, the FIRST program explored ways to achieve approval with working drafts at various stages of the life cycle and worked with AF coordination and approval chain to streamline the process.

DoD 5000 Changes

The PEO provides the following recommended policy changes:

DODD 5000.1, Enclosure E1.20: Program Information. Complete and current program information is essential to the acquisition process. Consistent with the tables of required regulatory and statutory information appearing in reference (b), decision authorities shall require PMs and other participants in the defense acquisition process to present only the minimum information necessary to establish the program baseline, describe program plans, understand program status, and make informed decisions. The MDA shall “tailor” program information commensurate with program risk IPTs shall facilitate the management and exchange of program information by identifying the minimum information set for each acquisition function and establishing the single instance of each piece of information in a single repository

Rationale: The same information is required multiple times in multiple documents. Also, each oversight acquisition functional organization needs to decide on the minimum set of information needed.

DoDD 5000.1, Enclosure E1.25: Software Intensive Systems. Acquisition of software intensive systems shall use process improvement and performance measures. Selection of sources shall include consideration of product and organizational maturity and past performance.

Rationale: Successful programs depend on mature organizations, both government and contractor. The better ones jointly use the same integrated Capability Maturity Models.

DODD 5000.1, Enclosure E1.27: Systems Engineering. Acquisition programs shall be managed through the application of a systems engineering approach that optimizes total system performance and minimizes total ownership costs. A modular, open-systems approach using common components and infrastructure shall be employed, where feasible.

Rationale: Efficiencies can be achieved thru the use of common components in GCSS and GCCS.

B.3.5.3. Department of the Navy (DON) Summary Assessment

RECOMMENDATIONS: Upon analyzing the efforts and recommendation of the RIT Pilots over the last 18 months, the most significant are:

- The development of AMIP, which though not defined very well during the pilot implementation, initiated the requirement for early discussions and tailoring of the oversight process, not just the documents;
- Risk-based governance, which included the use of the Software Assessment (SA) Capability Maturity Model (CMM) as a learning tool as well as an assessment tool;
- Portals and the Community of Practice, which are necessary tools for instituting the change management issues that are basic in moving to an information driven vice document driven oversight process; and
- Delegation.

SUMMARY ASSESSMENT: The requirement for top level support and training can not be emphasized enough. Movement to a portal and information based oversight paradigm required both technical and cultural changes in oversight professionals daily jobs. For those motivated to do so, the RIT provided an excellent opportunity to try out the new world, for those less inclined the RIT was less successful and in fact may have seemed to be a detriment.

The RIT pilot gave the Services and agencies a chance to try new things, to assess the value of concepts not normally widely accepted and to gain experience in managing processes somewhat differently than usual. The fact that lessons were learned makes the RIT Pilots successful, but to be more successful yet, those lessons need to be applied in a meaningful way to the overall defense acquisition process and more importantly to the implementation of those processes by oversight offices.

POLICY CHANGES:

1. Eliminate mandatory documents. The most significant policy change resulting from the RIT should be the elimination of mandatory (except where statute requires it) documents. The policy requiring specific documents allows the development of documents to take on a life of its own requiring multiple reviews and comments, many of which are not on the substance of the information, but on the “form” of its presentation and its grammar/correspondence rules compliance. This policy change would affect, at least, DOD Directives 5000.1 and 4630.5, DOD Instructions 5000.2 and 4630.8, the DOD 8500 series instructions and directives, Chairman Joint Chiefs of Staff Instructions 3170 and 6212, and others.

2. Change Acquisition Category Designation Criteria. Delegation of programs for oversight was an important part of a number of the RIT Pilots and that action was a catalyst for developing more focused, robust, and energized processes in the Services and defense agencies, (for example the Air Forces’ EADR process and the DISA creation of a Component Acquisition Executive and subsequent oversight procedures). Designation of Acquisition Category and related Milestone Decision Authority is currently, for the most

part, based upon the estimated amount of money to be spent. In order to support delegation of MDA, the criteria for designation should be revised to address risk and the “maturity” of the acquisition process being used by the Service or agency.

B.3.5.4. Summary of DASD(NII) Acquisition Assessments

An independent in-process review (IPR) was conducted by DASD(NII) Acquisition on the six ACAT IA programs that completed the Pilot phase. In summary, DASD(NII) reported that the programs’ health was sound, and that milestone responsibility should remain with their respective Components.

The DASD(NII) Acquisition post-RIT assessments of the ACAT IA pilot programs are found in [Appendix D.15](#).

B.3.5.5. DOT&E Post-RIT Findings

The OSD, Operational Test and Evaluation Directorate (DOT&E), in looking at some of the RIT Pilot programs well after the RIT Pilot period was concluded that a number of the RIT Pilot programs had still not delivered meaningful functionality. Specifically, DOT&E stated,

“DOT&E is unaware of any fielding of GTN 21 or TC-AIMS Block 2 during the period. GTN 21 has not yet completed developmental test...The contractor only delivered the increment to the program manager; it has not been delivered to the warfighters. The GTN 21 program is now approximately nine months behind schedule and Increment 1 has yet to undergo OT or to be fielded...TC-AIMS Block 2 underwent OT several times during the period, but unsatisfactory results precluded any fielding. Furthermore, we are not aware of any “meaningful functionality” fielded by ILS-S and IMDS.”

While many of the pilots appeared to be on course during the pilot period that ended in December, 2003, DOT&E cautions that although a program may appear on target, our impressions may change a year later.

B.4. Lessons Learned and Unresolved Issues

There are a number of lessons learned and unresolved issues that arose in the course of the RIT Pilot project.

B.4.1. Principles for use of a portal for communication and reporting:

We had a lot of opportunity to observe the portal experiment and have drawn a number of lessons. From an OSD perspective, the major finding is that we are not yet portal-centric; we are still email-centric. Therefore, efforts to find and log on to a portal are more difficult than opening a PowerPoint, spreadsheet or Word file. With the advent of NCES, there is a transition coming and the following lessons learned may be of value.

While the use of a portal for program office communications and reporting can have significant benefits, the movement toward a net-centric environment requires discipline from

all stakeholders. Additionally, the process is significantly easier to implement when the portal is perceived as providing more value than traditional information distribution methods. Based on the experience of the RIT, the following principles should be considered in developing a net-centric environment that facilitates and encourages program office portal usage:

B.4.2. Principles for Program Office Operations:

There a number of principles for program office operations that make sense to for others to apply, including:

- **Develop information, not documents:** In managing a program, there is a significant set of information that needs to be developed. The acquisition process has codified these into various acquisition documents. Unfortunately, often the information required for one document will overlap with other acquisition documents. This significantly increases information “configuration control” efforts for the program, as the same information needs to be continually updated across multiple documents. Additionally, the documents themselves often become an intricate production that both delays progress and obfuscates clear thinking.

The use of a program office portal in a net-centric environment allows a change in focus from documents to information. This is the logical extension of the AMIP recommendation. The essential information must be kept and maintained in an accessible manner for all stakeholders to access. This significantly reduces the information burden on the program office while facilitating the oversight process by those outside the program office: increasing precision, solid oversight via a non-disruptive access approach.

- **The information owner is the keeper of information:** When moving from documents toward information, it is essential that the information stays updated and current. If someone other than the information owner is responsible for its management, over time, the information becomes out-of-date. The solution is to ensure that the owner of the information is the keeper of it, and is responsible for all updates.
- **Access Replaces Reporting:** When portals are not used for daily work, but are only used for updates, over time the information stops being updated. The solution is to provide access to the working files. This not only ensures clear updates, it significantly reduces the work associated with building larger reports. This recommendation requires the re-establishing of trust relationships and the development of a process for releasing information to ever-wider audiences as it becomes finalized.
- **Risk management, not crisis management:** Effective risk management is essential to ensure that PEOs and other oversight staff have all the information necessary to

make informed investment decisions. If risk management is not effectively conducted, then a higher degree of oversight is inevitable.

- **Early communication with all stakeholders:** Effective portal usage requires early communication with all stakeholders. This includes all functionals and other oversight personnel such as the test community who can impact later program decisions.
- **Track metrics over time in the portal:** Effective trend data builds trust among all participants. By including metrics and tracking data in the portal, all stakeholders can have indicators of program performance. This allows the right questions to be asked at the right time. Additionally, metrics on the use of the portal is just as critical: this will identify the stakeholders who are not taking part in the information sharing environment, thereby allowing the programs and oversight personnel to take corrective action.

B.4.3. Principles for oversight in a net-centric environment:

The RIT Pilots provided opportunities to experiment with various principles necessary to operate in a net centric environment. These include:

- **Insight, not oversight:** In a net-centric environment, it is now possible for oversight personnel to gain ongoing insight into a program. Instead of being positioned “outside” of the program and forced to engage in an audit role, oversight personnel have the capability to maintain ongoing insight into the program.
- **Ongoing participation, not point-in-time overloads:** In a net-centric environment, acquisition streamlining is possible in the oversight process. Because the program information is instantly, constantly accessible, it is possible for oversight personnel to have an ongoing role in the program. Oversight personnel can move away from an adversarial oversight role toward ongoing participation in evaluating the program – this reduces the need for “events.”
- **Delegate responsibility downward if possible:** Effective oversight should be delegated to the lowest possible capable level. To determine this, a risk-based assessment methodology should be developed that allows OSD to assess the capability of the PEOs to effectively manage programs. This methodology should be such that OSD still has insight into the process, and can get indicators of whether or not the PEO is effectively handing the oversight responsibilities. The advantage of this recommendation is two fold: it allows OSD oversight personnel to focus on the “problem” programs and provides time to focus more on portfolios and capabilities instead of on individual programs.

B.4.4. Work Culture Transformation Required for Net-centricity:

While the RIT Pilots have had successes as well as challenges, they have clearly shown that technology by itself will not move the IT and acquisition workforce into a net-centric environment. The technology can be in place, but unless a number of organizational and social factors are aligned, the use of an online portal for program office operations and communications will not take hold. The tenets of net-centricity, including only handling information once, posting before processing, making data accessible, and use of collaboration technologies will only transform the way we do business if we align the culture to adopt net-centricity as a way of organizing work.

A net-centric environment is an environment in which there is immediate access in digital format to the information needed to conduct business. Such an environment requires digital connectivity and collaboration tools, an information-sharing work culture, and the ability to improve overall performance by disseminating best practices and lessons learned to the rest of the workforce. The use of program office portals, ubiquitous connectivity and collaboration tools are only effective if the underlying work culture is ready to accept this change.

The DoD IT and acquisition workplace has frequently been characterized as an information-hoarding environment. In an information-hoarding environment, information at each management level is protected; hidden from those above and below. In the program office environment, usually this means that only during clearly-defined instances and events are reports released to provide details to the upper levels of management. Due to the “win-loss” possibility involved, the time and stress required to build the reports and get them accepted significantly impact program office progress toward completion of the system.

This information-hoarding environment is built on mistrust at all levels. Oversight personnel are constantly attempting to determine if the program is giving accurate data, and the program is constantly working to protect potentially harmful data. It is often not in the program’s interest to reveal potentially harmful information. This situation negatively impacts good communication, and often contributes to cost over-runs, poor design decisions, and schedule slippage.

B.4.5. Inadequate RIT Pilot Selection Process

One lesson learned in conducting the RIT Pilots is that more care should have been given in the RIT Pilot Selection phase. Some of the Pilots entering the RIT already had significant programmatic issues. Others were scheduled to be terminated based on a change of component direction towards ERPs. The RIT Pilot was able to conduct experiments with transformational ideas with the programs that were made available, however, had better care been given to pilot program selection, the blueprint might have been better supported by the success of the RIT pilots.

B.4.6. Unresolved Issues and Ideas that Require Further Study

A number of issues that arose during the course of the RIT Pilot were, for various reasons, not resolved. There were also good ideas brought to the RIT Pilot Team table that were not able to be incorporated by the pilots during the pilot phase. We list them here for record purposes and for consideration by reviewers and readers of this report:

B.4.6.1 Risk-based Governance for IPT Members

A frequently discussed unresolved issue was the relationship between headquarters and subordinate agency counterparts. See the discussion during the November, 2003 Principals' Meeting in [Appendix D.6](#). As depicted in Figure 19, with few exceptions, there is a one-to-one alignment of major oversight actors between the Office of the Secretary of Defense (OSD) and Components. As the RIT Pilots adopted risk based governance, the oversight counterparts were expected to assume a similar relationship. This relationship did not however materialize for all of the actors. Specifically, DOT&E was bound by their mandated oversight list and did not delegate OT&E to the Components. The unresolved issue is this:

Remaining Issue:

For RIT programs under OSD T&E oversight, should the TEMP be approved at the OSD level in accordance with DoDI 5000.2, or at the component level as with programs that are not on oversight?

Discussion:

By not delegating T&E oversight, the RIT pilot retained a level of OSD control that allowed experimentation within the acquisition process but assured that the resulting product was effective and suitable. Under RBG, T&E would not be delegated unless DOT&E was confident in the capability of the Component's independent testers to oversee the planning and conduct of a T&E program that would assure the fielding of an effective and suitable product

Potential Resolution:

Adoption of Recommendation 3 would redefine acquisition categories and the resulting changes to DoDI 5000.2 would redefine the organizational level of OT&E oversight.

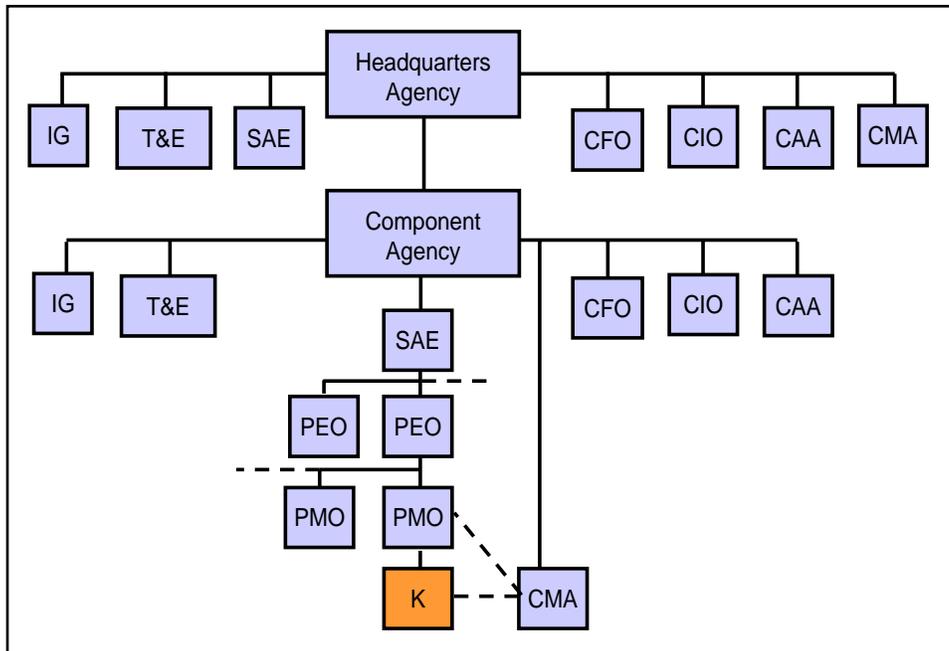


Figure 19: Alignments of Oversight Actors

B.4.6.2. Other Incomplete and Ongoing Initiatives

A) The RIT Pilot Team considered ways of exploiting the organizational synergy found in the PEO structure. The thinking was that since the PEO portfolio consists of similar programs, there may be an opportunity to create capstone characterizations of various elements of their architecture. Two ideas were proposed:

- Information Assurance (IA)
 - Developing a Capstone IA strategy for the systems in a PEO portfolio
 - The publication of the IA section of the Defense Acquisition Guidance to address a number of RIT Pilot IA issues (Completed after the RIT Pilot ended)
- C4ISP (Now ISP)
 - Developing a Capstone C4ISP for the PEO portfolio in order to reduce the time for completion of individual system C4ISPs. The time required for completion defeated the 18-month delivery goal.

B) Economic Analysis (EA). The RIT Pilot concluded that guidance for development of an EA would shorten the EA approval process. The publication of an EA section in the Defense Acquisition Guidance was completed after the RIT Pilot phase ended.

C) Software Development Metrics.

- The effort to employ PA&E contractor QSM to collect and track SW development metrics was completed for only one Pilot program

D) Mr. Stenbit's concern registered at the Sponsor's briefing that although the GCSS programs can be developed in accordance with specifications, they may still not function as needed

- Joint Staff J4 commitment to conduct an end-to-end post implementation review of GCSS will provide the long term feedback. The PIR would answer the question, "did we get what we needed?"
- Maintaining the dialog among GCSS program PMs after the RIT Pilot would continue the exchange of information and increase the likelihood that the programs would function as needed.

C. Disposition of Comments to Draft RIT Report

Disposition of comments received during the review of version 0.7 have been provided separately to RIT Team members.

D. Appendices (Hyperlinked to On-line Report)

http://acc.dau.mil/simplify/ev_en.php?ID=16223_201&ID2=DO_TOPIC

- D.1 2 August 2001 Memo – RIT Charter**
- D.2 RIT Recommendations; Table of RIT Recommendations Adopted by Pilot Programs**
- D.3 21 December 2001 Memo – RIT Pilot Charter**
- D.4 RIT Pilot Piloted Practices for Reducing Cycle Time**
- D.5 RIT Pilot Team Members**
- D.6 Final RIT Report to Principals: 18 November, 2003**
- D.7 Guidelines for Conducting Operational Test and Evaluation for Software-Intensive System Increments**
- D.8 Survey of Organizational Capability Assessment and Improvement Methods and Tools for Employment in Risk-Balanced Management**
- D.9 RIT Pilot Component Oversight Process**
- D.10 RIT Pilot Program Best Practices**
- D.11 Proposal for an Acquisition Community of Interest**
- D.12 Program Pilot Summaries**
 - [TC-AIMS II](#)
 - [NTCSS](#)
 - [GCSS-AF](#)
 - [ILS-S](#)
 - [IMDS \(PAMS\)](#)
 - [SCS](#)
 - [GTN 21](#)
 - [FIRST](#)
 - [GCSS \(CC/JTF\)](#)
 - [TMIP](#)
- D.13 Program Pilot Portal Screen Shots**
- D.14 Defense Acquisition Management Information Retrieval (DAMIR) – Business Case**
- D.15 DASD (NII) Acquisition Post Pilot Phase Review of Pilot Programs**
- D.16 Report of GTN 21 SW Acquisition Capability Mini-Assessment**