APPENDIX I
2 AUGUST 2001 MEMORANDUM – RIT CHARTER

OFFICE OF THE SECRETARY OF DEFENSE

1000 DEFENSE PENTAGON
WASHINGTON, DC 20301-1000

AUG 2 2001

MEMORANDUM FOR UNDER SECRETARY OF DEFENSE (COMPTROLLER)
SERVICE ACQUISITION EXECUTIVES
SERVICE CHIEF INFORMATION OFFICERS
DIRECTOR, OPERATIONAL TEST & EVALUATION
DIRECTOR FOR COMMAND AND CONTROL (J-6)
DIRECTOR FOR FORCE STRUCTURE, RESOURCES & ASSESSMENT (J-8)
DIRECTOR, ACQUISITION RESOURCES & ANALYSIS
DIRECTOR, ACQUISITION INITIATIVES
DIRECTOR, DEFENSE INFORMATION SYSTEMS AGENCY
DIRECTOR, PROGRAM ANALYSIS & EVALUATION

SUBJECT: Rapid Improvement Team (RIT) for IT Acquisition Management Transformation

Information Technology (IT) is a key enabler for transforming military, business, and administrative processes to meet the challenges of the 21st Century. Information and Decision Superiority will allow us to exploit the revolutions in military and business affairs and enable success in conflict. To achieve these objectives, we must strive to reduce the cycle time to deliver mission effective IT capabilities to 18 months or less.

As you may know, the DoD CIO, USD(AT&L), USD(C), and VCJCS are co-sponsoring a Rapid Improvement Team (RIT) to address this reduction in the time to deliver IT mission capabilities and improve mission effectiveness and efficiency. Dr. Margaret Myers, the Acting Deputy CIO, Mr. Robert Nemetz, the Principal Deputy Director of Acquisition Resources and Analysis, Office of the Under Secretary of Defense for Acquisition, Technology and Logistics, Mr. Ronald Garant, Director of Investments, DoD Comptroller, and RADM Stanley Szemborski, Deputy Director for Resources and Requirements (J-8), are co-chairing this RIT initiative. The RIT will include appropriate representation from key Department stakeholders and we solicit your strong personal support for this very important effort. Your organization's commitment is key, not only in the identification of problems and recommended improvements to the existing processes, but also in implementing such recommendations.

We have directed the co-chairs to manage this RIT initiative and report its findings and final recommendations to us not later than October 2001.

DoD CIO

USD(AT&L)

Charter for a Rapid Improvement Team (RIT) for IT Acquisition Management Transformation

Introduction and Background

Mission-effective Information Technology IT must be acquired rapidly, affordably, and in conformance with applicable laws, regulations, defense policies and architectures. DoD must take full advantage of innovations and improvements such as experimentation, commercial services, spiral development, and common infrastructure to speed the delivery of mission-focused IT capabilities to warfighters and those who support them. 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. On June 13, 2001, a group of senior leaders from across the Department met to discuss the issues and concerns relating to the processes used to acquire IT. Several areas for improvement were identified – reduction in cycle time, increased interoperability, family-of-systems management, common infrastructure, streamlined oversight, etc.

A Rapid Improvement Team (RIT) has been initiated by the DoD CIO and USD (AT&L) (Memo attached). The RIT is directed to focus on what was considered the highest priority activity - ***Reduce the cycle time to deliver mission effective IT capabilities to 18 months or less***. The AT&L Change Management Center will facilitate the execution of this RIT.

Authority and Direction

The Deputy CIO, Principal Deputy, Acquisition Resources and Analysis, Deputy Director for Resources & Requirements (J-8), and the DoD Comptroller shall jointly chair an Executive Council for this RIT. Membership of the Executive Council shall include the Service/Agency CIOs and Acquisition Executives, ASD(C3I), DOT&E, and others as appropriate. The Executive Council will be supported by a Senior Working Group made up of principal staff members from the Executive Council. The following table describes the organizational roles and responsibilities.

Organization	Role(s)
DoD CIO (ASD(C3I))	Co-Chair, Executive Sponsor, Principal, Functional PSA(s)
Dept of Army CIO	Principal
Dept of Navy CIO	Principal
Dept of Air Force CIO	Principal
Designated Acquisition Executives from A, N, AF	Principal
USD(AT&L)	Co-Chair, Principal, AMS Executive Sponsor, DAE, Functional PSA(s)
USD (Comptroller)/DPA&E	Co-Chair, Principal, PPBS, Functional PSA(s)
ODJS	Co-Chair, Principal, RGS, Operational Mission Sponsor
Director, OT&E	Principal, T&E
Other DoD Components and PSAs as Designated by Principals	Members

Outcome & Objective

The RIT will make recommendations that will improve the end-to-end process for the acquisition of IT, reduce the cycle time to 18 months or less, and improve the quality of those IT systems. The RIT will look at the "as-is" end-to-end process used for acquiring IT in the Department. This end-to-end process shall include the requirements generation, planning, programming and budgeting, acquisition management system, oversight process, and deployment/support policies. Some recommendations may fall under the charter of the OSD Business Initiatives Council (BIC) and will be forwarded to the BIC as appropriate.

Schedule

The RIT will be conducted in three basic steps:

1. An initial kickoff session of the Executive Council will be held in late July 2001 to focus the issues and provide guidance to the Senior Working Group and lower level teams who will work the specific issues.
2. The second phase will begin immediately and the Senior Working Group will identify the specific problems/opportunities and develop an approach for action on their recommendations.
3. Prior to the end of October 2001, the Senior Working Group will brief their recommendations to the Executive Council. The Executive Council will decide on a course of action and present them to the CIO, USD(AT&L), USD(C), and the VCJCS. At that time, the RIT will complete its work. (However, many of the principals and staff are likely to be involved in executing and implementing the recommended actions.)

31 July 2001
Date

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DCIO, ASD(C3I)

ROBERT NEMETZ
Principal Deputy, Acquisition Resources & Analysis (OUSD(AT&L)

RONALD GARANT
Director, Investments, USD(C)

STANLEY SZEMBORSKI, RADM
Deputy Director, Resources & Requirements (J-8)

Organization	Principals	Senior Staff Representative
DoD CIO (C3I) (Exec Sponsor)	Myers	Tamie Lyles-Santiago
GIG Architectures/CIO PSA	Osterholz	Glasser
Capital Investments/Oversight	Curtis	Mullins, Hurd, Yaphe, Leary
(C3I PSA)	Landon	Rita Lewis
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(SAE)	Uhler	Mary Ann Engelbert
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(Acq Mgt Sys)	Sylvester	Skip Hawthorne
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OUSD(AT&L)-CMC	Mary Margaret Evans	
	Diane Bray	Ric Tucci
	Bill Clougherty	Mike Dowe

APPENDIX II
RIT RECOMMENDATIONS TABLE

	RIT Recommendations	TC AIMS II	NTCSS	GCSS-AF	ILS-S	IMDS (PAMS)	SCS - INFO Not Found	GTN21	FIRST	GCSS (CINC JTF)	TMIP
1	**Establish 18 month cycle** Establish 18 month delivery of mission effective capability in the DoD IM Strategic Plan and SecDef Annual Report, along with other IT goals & measures	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No
2	**Doc X** DOC X: Establish decision to address urgency and risk of pending IT investment. This decision point will determine: A. the level of documentation for that investment B. candidates for FAST TRACK C. oversight approach	?	Yes	No	Yes. AIM portal was used but they never saw any return. SMART was used more as the project progressed.	No	Yes	Yes		No	No
3	**FAST TRACK Risk-Based Oversight Initiative for IT Programs.** Initiate IT Programs with an abbreviated information set. Operational urgency may require the Department to assume greater risk than permitted by current acquisition policy to reduce cycle time.	?	Yes		Yes	Yes	Yes	Yes	Yes	Yes	No
4	**Standardize oversight requirements for it documents and approvals** (Request Programs describe the extent of standardization accomplished and make further recommendations)	Create Self assessment report	Yes	Yes	Yes	No	Yes	Yes		Yes	No
5	**Flexible Funding** Establish a flexible process to fund emergent IT/NSS requirements	No	NO	No, funding processes not flexible enough for spiral dev/EADR	No	No	No	No	No	No	No
6	**Delegate all IT/NSS to Components to maximum extent practicable** (Request Programs describe the implementation and track the impact of the delegation on their cycle time)	No, problems with joint programs	Yes	No	No	No	No	Yes, ACAT 1AC	No	Yes	No
7	**Assess CCA etc conformance** Assess each Components oversight, management and acquisition process for conformance to acquisition, CCA and related policies and procedures, to meet 18 month goal	Yes	NO	No	No	No	Yes	Yes	No	No	No
8	**Essential oversight info in Portal** Identify the DoD CIO objectives for IT/NSS oversight at the DoD and Component CIO levels, and the essential information required by the DoD and Component CIOs through automated systems to accomplish the CIO responsibilities (e.g., see 8102 language) in conjunction with the KM Portal.	No	Yes	Yes	Yes	No	Yes	Yes	No	Yes	No
9	**Policy & training for Spiral Development** Create implementation instructions for utilizing evolutionary and spiraling development in the requirements generation and acquisition process. Provide training for understanding spiral development of IT systems.	No	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	No
10	**Develop AoA policy** Develop a department -wide IT AOA policies and processes, and a standardized manual. (Request Programs describe their approach to an analysis of alternatives aoa that meets the needs of their organization).	yes, two different AoA levels	No	No	No	No	No	No		No	No
11	**Develop IT AoA toolkit** Develop IT AOA toolkit and data sets to support AOA analysis and generation. (With reference to their aoa of #10 above)	No	No	No	No	No	No	No		No	No
12	**Restructure ADMs to address issues** Acquisition ADMs requires insight from users, the acquisition community members, analysis community, and the requirement community. Include in the ADMs, scope of the analysis needs to be done, specific critical issues to be answered, and the time frame of the response.	No	Yes	Yes	Yes	No	Yes	Yes, Used EADR minutes as ADM	Yes	No	No
13	**Adopt PBSC for services** Adopt PBSC as a preferred acquisition method for a wide range of IT services, including computer maintenance, software maintenance and support, and operation and maintenance of facilities.	No	No	No	No	No	No	No	No	No	No
14	**Adopt FSC BPA as preferred method** Adopt Federal Supply Schedule Blanket Purchase Agreement Best Practices as a preferred acquisition method for DoD IT: A. Provide for technology refreshment, on-line shopping, reduce redundant BPAs. B. Realize streamlined acquisition process and best value in IT acquisition.	Yes	No	No	No	No	No	No	No	No	No
15	**Adopt reverse auctioning for commodities** Adopt reverse auctioning as a preferred acquisition method and pricing tool for commodity-based IT competitive procurements.	No	No	No	No	No	No	No	No	No	No
16	**Establish Acquisition Community of Practice** Establish an acquisition Community of Practice (COP) responsible for recommending continual improvements to the IT acquisition process.	No	No	Yes	No	No	No	No	No	Yes	No

RIT RECOMMENDATIONS AND SUBSET APPLICABLE FOR PILOT PROJECT IMPLEMENTATION

RIT	Pilot	Recommendation title and language
1	1	**Establish 18 month cycle**
		Establish 18 month delivery of mission effective capability in the DoD IM Strategic Plan and SecDef Annual Report, along with other IT goals & measures
2		**Accelerate OA and CRDs**
		DoD CIO work with the JROC/JWCAs & PSAs to accelerate the development of operational architectures and CRDs (where appropriate) priority capabilities, and work with mission “owners” to rapidly develop systems & technical architectures at the enterprise and JMA capability levels
3		**JWCA/PSA assess architectural compliance**
		JWCAs/PSAs assess IT/NSS programs for architectural compliance and validate their compliance to the MDA -- programs that do not comply cannot pass their Milestone or be funded -- all new starts must comply; existing systems must plan for convergence
4		**MPM’s allocated as applicable**
		Ensure mission outcome-based performance measures from MNS and CRDs are allocated to those ORDs and systems that contribute to the mission area or end-to-end capability
5		**Balanced score card**
		Develop Balanced Scorecard pilots and Risk Management constructs in the JMA/JWCAs and PSA Business Areas which feeds into Enterprise QDR/DPG/JV2020 goals & objectives
6		**Synthetic battle space and SBA**
		Research & pilot the use of Synthetic Battlespace/Simulation & Modeling and Simulation Based Acquisition (SBA) approaches to ensure Spiral increments are performing and producing collectively, the desired level of capability, once fielded (e.g., through Operational and Post Implementation Testing). This technology will allow the JWCAs/Mission Area leaders to see the collective results of their capability investments
7		**Assure PIR**
		Ensure Spiral increments are performing and producing collectively, the desired level of capability, once fielded (e.g., through Operational and Post Implementation Testing).
8	2	**Doc X**

RIT RECOMMENDATIONS APPLICABLE TO PILOT PROJECT IMPLEMENTATION

		DOC X: Establish decision to address urgency and risk of pending IT investment. This decision point will determine: A. the level of documentation for that investment B. candidates for FAST TRACK C. oversight approach
9	**3**	**FAST TRACK Risk-Based Oversight Initiative for IT Programs.**
		Initiate IT Programs with an abbreviated information set. Operational urgency may require the Department to assume greater risk than permitted by current acquisition policy to reduce cycle time.
10	**4**	**Standardize oversight requirements for it documents and approvals**
		(Request Programs describe the extent of standardization accomplished and make further recommendations)
11	**5**	**Flexible Funding**
		Establish a flexible process to fund emergent IT/NSS requirements
12	**6**	**Delegate all IT/NSS to Components to maximum extent practicable**
		(Request Programs describe the implementation and track the impact of the delegation on their cycle time)
13	**7**	**Assess CCA etc conformance**
		Assess each Components oversight, management and acquisition process for conformance to acquisition, CCA and related policies and procedures, to meet 18 month goal
14	**8**	**Essential oversight info in Portal**
		Identify the DoD CIO objectives for IT/NSS oversight at the DoD and Component CIO levels, and the essential information required by the DoD and Component CIOs through automated systems to accomplish the CIO responsibilities (e.g., see 8102 language) in conjunction with the KM Portal
15		**Standard requirements development**
		Create standardized requirements development process and a single training curriculum for requirements staff throughout the DOD. Ensure that it covers all joint processes, best practices, and common tool introduction. Ensure standardized process enables the dynamic allocation of detailed requirements to specific spirals
16	**9**	**Policy & training for Spiral Development**
		Create implementation instructions for utilizing evolutionary and spiraling development in the requirements generation and acquisition process. Provide training for understanding spiral development of IT systems.

RIT RECOMMENDATIONS APPLICABLE TO PILOT PROJECT IMPLEMENTATION

17		**Create web-based requirements tracking tool**
		Create implementation instructions for utilizing evolutionary and spiraling development in the requirements generation and acquisition process. Provide training for understanding spiral development of IT systems.
18		**Consolidate MNS, ORD C4ISP**
		Create a process allowing ROCs to review documents in parallel vs. serially. Place time limit on originators and reviewers. Develop one document to take the place of the MNS, ORD, and C4ISP. This would reduce the process and save approximately five months or more.
19		**One time ROC review**
		Make the review and approval process a one time up front requirement and not require for it subsequent spirals.
20		**Exempt military IT from CCA**
		Exempt military IT systems from Clinger Cohen Act
21	**10**	**Develop AoA policy**
		Develop a department -wide IT AOA policies and processes, and a standardized manual. (Request Programs describe their approach to an analysis of alternatives aoa that meets the needs of their organization)
22	**11**	**Develop IT AoA toolkit**
		Develop IT AOA toolkit and data sets to support AOA analysis and generation. (With reference to their aoa of #10 above)
23		**Join MNS and AOA**
		Initiate study plan concurrent with MNS development
24	**12**	**Restructure ADMs to address issues**
		Acquisition ADMs requires insight from users, the acquisition community members, analysis community, and the requirement community. Include in the ADMs, scope of the analysis needs to be done, specific critical issues to be answered, and the time frame of the response.
25		**Unify training for JS, IM/IT and 5000**
		Create a single all-service, joint-service training curriculum on how to generate, review, and approve requirements (including AOA) document ion. Based on 3170.01B and 6212.01B AND DoD 5000 series
26		**Establish core requirements certification group in Components**
		Establish a core group with a certification level requirement to generate and review requirements documentation in each

		service
27		**Write requirements to capabilities vice systems**
		Develop rqmts definition at the capabilities/function level vice the systems level.
28	**13**	**Adopt PBSC for services**
		Adopt PBSC as a preferred acquisition method for a wide range of IT services, including computer maintenance, software maintenance and support, and operation and maintenance of facilities.
29	**14**	**Adopt FSC BPA as preferred method**
		Adopt Federal Supply Schedule Blanket Purchase Agreement Best Practices as a preferred acquisition method for DoD IT: A. Provide for technology refreshment, on-line shopping, reduce redundant BPAs. B. Realize streamlined acquisition process and best value in IT acquisition.
30	**15**	**Adopt reverse auctioning for commodities**
		Adopt reverse auctioning as a preferred acquisition method and pricing tool for commodity-based IT competitive procurements.
31	**16**	**Establish Acquisition Community of Practice**
		Establish an acquisition Community of Practice (COP) responsible for recommending continual improvements to the IT acquisition process.
32		**Create KM portal for visibility into IT investments**
		Create a knowledge-based portal to provide visibility into IT initiatives • Real-time access to program status information supports more informed decisions about IT programs/alternatives and reduces program risk. • Tailored view/access determined by role/responsibility. • IT program information stored in an Enterprise Data Warehouse with initial access to information via linkages to service repositories, databases.

APPENDIX III
21 DECEMBER 2001 MEMORANDUM: RIT PILOTS CHARTER

OFFICE OF THE SECRETARY OF DEFENSE

1000 Defense Pentagon
Washington, DC 20301-1000

21 DEC 2001

MEMORANDUM FOR UNDER SECRETARY OF DEFENSE (COMPTROLLER)
SERVICE ACQUISITION EXECUTIVES
SERVICE CHIEF INFORMATION OFFICERS
DIRECTOR, OPERATIONAL TEST & EVALUATION
DIRECTOR FOR COMMAND AND CONTROL (J-6)
DIRECTOR FOR FORCE STRUCTURE, RESOURCES & ASSESSMENT (J-8)
DIRECTOR, ACQUISITION RESOURCES & ANALYSIS
DIRECTOR, ACQUISITION INITIATIVES
DIRECTOR, DEFENSE INFORMATION SYSTEMS AGENCY
DIRECTOR, PROGRAM ANALYSIS & EVALUATION

SUBJECT: Designation of Pilot Programs for the Rapid Improvement Team (RIT) for IT Acquisition Management Transformation

Information technology (IT) is a key enabler for transforming military, business, and administrative processes to meet the challenges of the 21st Century. Information and decision superiority will exploit the revolutions in military and business affairs and enable success in conflict. To support these objectives, DoD must strive to reduce the cycle time to deliver mission effective IT capabilities to 18 months or less in order to acquire and field capabilities inside the IT sector's innovation cycle time.

DoD CIO, USD (AT&L), USD(C), and VCJCS are co-sponsoring a Rapid Improvement Team (RIT) to address the reduction in the acquisition cycle time required to deliver effective and mission capable IT systems to the warfighter. The output of the RIT is a series of recommendations and initiatives that impact the acquisition process for IT systems. One of these recommendations is quickly applying some of these initiatives to ongoing IT acquisitions. Therefore, we are establishing a pilot program to implement RIT initiatives in a controlled environment.

The principal output from a successful RIT pilot will be a blueprint for IT acquisition that is transferable to the acquisition of other IT systems. The pilot program will cover a 24-month period, from January 1, 2002 through December 31, 2003. The acquisition programs in the pilot will be designated as ACAT IACs if they are currently ACAT IAMs. Pilot programs that are currently in a lower than ACAT IA category will remain in that category. We direct the Pilot Team (DoD CIO, AT&L, PA&E, DOT&E, PEOs, Services, and Defense Agencies) to review all Acquisition Decision Memorandums (ADMs) that impact the pilot programs to determine if the directions provided in those ADMs remain applicable for the pilot.

The following programs will be included in the pilot, pending final approval of their business cases:

Air Force

- Global Combat Support System (GCSS-AF)
- Integrated Logistics Support – Supply (ILS-S)
- Integrated Maintenance Data System (IMDS)
- Standard Contracting System (SCS)
- Financial Information Resources System (FIRST)
- Global Transportation Network (GTN –21)

Navy

- Global Combat Support System – Maritime (GCSS-M)
- Navy Tactical Command Support System (NTCSS)
- Navy Enterprise Maintenance Automated Information System (NEMAIS)

Army

- Transportation Coordinator's Automated Information for Movement System II (TC-AIMS II)

DISA

- Global Combat Support System (GCSS-CINC/JTF)

Health Affairs

- TBD

The ground rules for the pilot programs during the next 24 months are as follows:

- The RIT Pilot Team will define the criteria for determining the extent and rigor of documentation requirements and oversight for 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

The following are the exit criteria for pilot programs:

- If a Service, Defense Agency, or an OSD Principal Staff Assistant chooses to remove a program from the RIT pilot, the request must be submitted in writing and approved by the DoD CIO, AT&L, Comptroller,

and J8. The program will return to its prior ACAT category and follow the current acquisition rules.

- The RIT Pilot Team may recommend to the IT RIT Executive Council Co-Chairs (DoD CIO, AT&L, Comptroller, and J8) that a program be removed from the RIT Pilot effort.

Within 30 days, the responsible Service or Agency shall present a business case for programs involved in the pilot. The business cases will be used to identify what will improve for the programs during the Pilot. The business cases will include the program's Capital Investment Exhibit (A11, Part 3, 300b report) from the FY 2002/2003 Budget Estimates, as well as the relationship of the program to other programs within the Pilot. Additionally, each program must describe any areas that are not in compliance with CJCSI 3170.01B. Review of the business cases, CJCSI 3170.01B compliance and final approval to proceed as a RIT pilot program will be accomplished by the co-chairs of the IT RIT Executive Council (AT&L/ARA, DDCIO, DDRR(J-8), and OSD Comptroller).

Within 60 days, the Pilot Team will provide us a detailed plan of action and milestones (POA&M) for the pilot. Every 60 days thereafter, the Pilot Team will provide an update on pilot progress to the RIT Executive Council. For questions, contact the Pilot Team lead, John Laychus 703-602-0980 x107.

John P Stenbit
DoD CIO

E. C. Aldridge
USD(AT&L)

APPENDUX IV - RIT PILOT TEAM MEMBERS

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APPENDIX V
DESCRIPTION OF THE DOD AIS ENVIRONMENT: 2002 AND 2003

NOT YET COMPLETE

APPENDIX VI

Survey of Candidate Organizational Capability Assessment and Improvement Methods and Tools for Employment in Risk-Balanced Management

Prepared by Leonard Sadauskas
For the
DoD Information Technology (IT/NSS) Acquisition Management Transformation
Rapid Improvement Team (RIT)

27 September 2002

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1 Purpose and Scope of Survey

This survey was conducted for the purpose of identifying current organizational capability assessment and improvement methods and tools, suitable for employment by DoD information technology acquisition organizations under risk-balanced oversight as described in paragraph 3 below. The survey included U.S., U.K., Canadian and the International Organization of Standards products that could be used to assess and improve the capability of IT acquisition programs participating in the DoD Information Technology (IT) Acquisition Management Transformation Rapid Improvement Team (RIT) Pilot.

The survey does not address the broader issues surrounding IT investment, such as capital investment planning and portfolio development and management. The Government Accounting Office has published a draft framework for assessing and improving IT investment management process maturity[i].

2 Background

A RIT was sponsored by the DoD CIO, USD(AT&L), USD(C) and VCJCS for the purpose of reducing the cycle time to deliver mission effective and mission capable IT systems to the warfighter. The goal was to reduce the cycle time to 18 moths or less in order to acquire and field capabilities inside the innovation cycle time of both the IT industry and the enemy. The definition of the IT cycle time addressed by the RIT is the time between the signing of the operational requirements document (ORD) and delivery of meaningful functionality to the user. The RIT formulated 32 recommendations for evaluation. Appendix A is a listing of the recommendations.

The RIT Pilot was chartered by a joint DoD CIO/USD(AT&L) memorandum of 21 December 2001 that designated 12 automated information systems to employ applicable recommendations under a controlled acquisition environment. The pilot started in January 2002 and will end in December 2004. A RIT Pilot Team under the leadership of Mr. John Laychus is charged with execution of the Pilot. The RIT Pilot Team consists of representation from each sponsor and participating Components.

3 Motivation for Software Acquisition Process Assessment

One element of the RIT Pilot controlled environment is the removal of all pilots from Office of the Secretary of Defense (OSD) oversight. The working hypothesis was that OSD oversight was one of the contributors to increased cycle time. Therefore, to test this hypothesis, Milestone decision authority for all of the Pilot programs was set at the Component level. Furthermore, The level of insight and oversight to be applied to each Pilot is to be determined by assessing the level of aggregate risk associated with a given IT investment and balancing the risk against the capability of the acquisition organization to manage the risk. To the extent that a program management office (PMO) may be lacking in capability to manage the assessed risk, the Milestone Decision Authority would supplement that capability, provide additional coaching, or direct the acquisition to a fully capable PMO. This concept is referred to as risk-balanced oversight (RBO).

A general model of risk-balanced oversight is depicted in Figure 1. The level of insight or oversight is the dependent variable determined by the intersection of the PEO/PMO acquisition capability and the level of aggregated risk (probability of occurrence multiplied by its consequence) assessed to the investment. High risk matched with low capability requires close attention by the PEO and CIO. Conversely, low risks matched with a high capability require minimal supervision and oversight/insight. Hence the need for a measure of PEO/PMO acquisition capability. The "Special" risk category recognizes that models of either risk or capability are not all-inclusive and therefore need tailored handling.

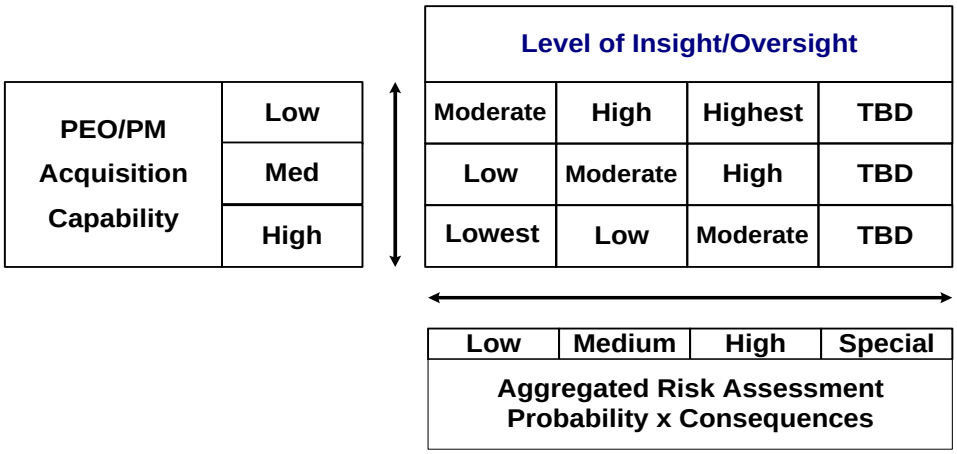

Figure 1. Generalized Risk-balanced Oversight Model

4 Motivation for Software Acquisition Process Improvement

The Department of Defense has a history of RITs, commissions and studies tasked with the improvement of the acquisition process. Their purpose varies with the environmental forcing functions of the times. Whereas now the cycle time is important because the enemy has access to the products of an IT industry that has a shorter cycle time than the DoD acquisition cycle time, twenty-five years ago, cycle time was important because of the additional cost of time due to double digit inflation.

One of the studies on the reduction of the acquisition cycle, was conducted by the Defense Science Board (DSB) Task Force on "Transition from Development to Production". This 1980's study was chaired by W.J. Willoughby, Jr. and resulted in the still active risk management templates of DoD 4245.7-M[ii]. The DSB concluded that past efforts to shorten the acquisition process were failures. They failed, according to the author because they focused on administrative procedures, e.g. changes to the 5000 series of directives, rather than the root cause of the lengthening acquisition process: **the lack of technical discipline**. Hence improving the technical discipline of an organization suggests a correlation with a reduction in acquisition cycle time.

Within a Program Management Office, the motivation is to meet the terms and conditions of the acquisition program baseline. To that end, the Department has responded to the DSB finding by mandating a minimum level of software development capability for our ACAT 1/1A contractors[iii].

The RIT Pilot interpretation of the DSB finding is that both the PMO and the contractor must achieve and maintain an adequate level of technical discipline if we are to realize the desired reduction in the time it takes to provide a needed capability to the warfighter.

5 General Overview

Methodologies and tools for assessing and improving organizational capabilities within the software industry have developed in roughly parallel paths within the United States, Canada and Europe.

Within the U.S. the current capability maturity model, CMM, based approach has its origins in Department of Defense software development standards beginning with DOD 1579 and finally DoD 2167 and the companion software quality standard, DoD 2168. In Europe the origin is ISO 9000. The Canadian Trillium model adopts the CMM architecture and adds elements of ISO 9000 and the Baldrige Award criteria.

The U.S. effort is largely focused within the DoD sponsored Software Engineering Institute that is operated by Carnegie Mellon University in Pittsburgh Pennsylvania. The European effort for standards development within the International Organization for Standards is dispersed amongst all member country standards bodies, with a Central Secretariat in Geneva, Switzerland (the American National Standards Institute (ANSI) represents the U.S.). The European focal point for implementation of software industry assessment and improvement, is the European Software Institute located in Zamudio, Spain. The Canadian Trillium focal point is within the Trillium Technical Committee at BNR Inc. part of the NORTEL/BNR Corporation.

5.1 Current Trends

The IT industry has developed a number of quality management practices, each of which offers approaches for assessing and improving their processes. These practices have been categorized in the literature[iv] into seven groups that suggest a rough pecking order of sophistication and effectiveness. These groups are:

- Quality control circles
- **Total quality management**
- **Management quality standards interpreted for software intensive systems**
- **Specific IT quality standards with process capability determination features**
- **National level quality award criteria**
- Business process reengineering
- **World-class standards**

This survey includes methods and tools that relate to the five groups of quality management practices that are in bold type above. Quality control circles approaches such as walkthroughs and peer reviews of work products are imbedded in the surveyed practices and are not separately considered as a candidate strategy. Similarly, business process reengineering (BPR) is accomplished as part of quality program implementation and also not separately addressed.

5.2 Assessment and Improvement Strategies Suitable for Piloting by the RIT Pilots

There are two fundamental assessment and improvement strategies available to an enterprise attempting to reduce IT acquisition cycle time; holistic or targeted. Examples of both are included in the survey of candidate methods found in the next section.

The holistic strategy involves the entire enterprise and is frequently seen in industry with a relatively narrow focus in which each department has a direct contribution to the "time to market" equation. Hence the marketing department's capability to assess market trends may be as critical as software development or integration and so on. With each department having a direct link to the bottom line, the decision to invest in capability assessment and improvement of IT acquisition can be made holistically by a direct link to the business plan. It is the holistic strategy that provides a means for sorting out the balance between direct and overhead resources and thus a rational that supports the resources required to make the improvements. Two methodologies representative of the holistic strategy were found. The FAA-iCMM (see paragraph 6.1.8), and the European integration of the ISO software process improvement and capability determination (SPICE) model with the European Foundation for Quality Management (EFQM) Model for Business Excellence (see paragraph 6.3.5).

The targeted strategy focuses on the IT acquisition chain and is applied by managers who do not have a mandate within other business areas, or operate in an environment that does not employ robust enterprise-wide metrics needed for a holistic approach. Methodologies representative of this strategy are those based on quality standards interpreted for software acquisition, ISO-9000 and ISO 9003, and those based on reference models such as the capability maturity models developed by the Software Engineering Institute.

In the case of the current RIT, the analysis of the cycle time problem was performed at a holistic level and the 32 recommendations span areas from finance to work force to oversight. The risk-balanced oversight is one of the recommendations. Therefore, although the RIT approach may use targeted vice holistic tools, it will be working within a holistic determination of the root cause of unacceptable IT cycle time.

6 Candidate Organizational Capability Assessment and Improvement Methods

A survey was conducted of the literature as well as Internet sources to establish the state of practice within capability assessment and improvement methodologies. The universe of organizational capability assessment and improvement methodologies was found to be a subset of the broader category of quality management systems and national level quality awards. The initial scan produced a number of IT industry specific and national award quality systems that touched on our needs, but for practical reasons were not considered likely to be selected and were not included in this survey. Examples of quality systems not included in this survey are: the Software Quality and Productivity Assessment (SQPA) developed by HP, SIX-SIGMA and BEYOND WORLD-CLASS.

A synopsis of the candidate organizational capability assessment and improvement methods and tools for use by RIT Pilots are presented in three groups: standards and guidelines, national quality excellence awards and continuous process improvement methodologies. Links to sites containing relevant information are provided in the bibliography.

6.1 Standards and Guidelines

Quality management standards have been developed on a country and international level, primarily to facilitate a buyer's source selection process. Such standards are found within both the manufacturing and service sectors. They function in the following way. Upon successful audit by a certified quality auditor, the applicant is registered to the particular standard being used and may display the mark of the registrar. Buyers, recognizing the quality management standard, are then able to rely on the level of quality management specified in the standard and can thus avoid the site survey step in a procurement transaction.

The value of quality system standards to the RIT Pilot is their architecture and detailed methodology that enables both a uniform assessment of capability and a model for improvement. The quality management standards and associated guidelines surveyed include the following:

6.1.1 ISO 9001:

International Organization for Standardization, Quality Management Standard that encompasses all aspects of the manufacturing and services sectors. ISO 9001 is a generic international standard, adopted on a country-by-country basis, and written for use by the widest possible audience. As a result, the standard provides requirements (*what* needs to be done) and does not issue specific prescriptive solutions (*how* to do it). The standard addresses twenty functions that are presented in Appendix D. For organizations that perform production only, the Design Control topic is omitted from internal and external audits.

As noted in paragraph 5.1 above, ISO 9001 is primarily a conformance assessment tool for 20 functions within an enterprise. As such however, it does highlight deficient areas, which then can be the focus of remedial action. To that extent ISO 9001 is potentially useful to DoD as an assessment and improvement tool.

6.1.2 ISO 9000-3:

Interprets ISO 9001 and provides guidance for the development, supply and maintenance of software. ISO 9000-3[v] provides "guidance" on implementing an ISO 9001 compliant set of processes (collectively referred as a "quality system" or as a "quality management system"). ISO 9000-3 is not intended to be used as an internal/external audit tool. Its intent is to *guide* software organizations with their ISO 9001 implementation and process change efforts. The guide includes a restatement of the 9001 language and cross-references to ISO/IEC 12207, Information technology – Software life cycle processes.

6.1.3 TickIT:

TickIT is a standard that interprets ISO 9000.1 for a software development and management environment. It is included in this survey for information only. TickIT is recognized in the United Kingdom and Sweden and provides a TickIT endorsed ISO 9001 certificate.

6.1.4 ESI Guide to ISO 9001: 1994 for the Software Industry

Serves the same purpose as ISO 9000-3 but is available at no charge on the ESI WEB site[vi]. While the ESI guide does not provide reference to ISO/IEC 12207, it does offer frank and adequately detailed advice about the implementation of the ISO 9001 requirements in a SW development setting.

6.1.5 ISO 12207 Software Life-cycle Process

ISO 12207 and its U.S. equivalent IEEE 12207, offers a framework for software life-cycle processes from concept through retirement[vii]. It is especially suitable for acquisitions because it recognizes the distinct roles of acquirer and supplier. In fact, the standard is intended for two-party use where an agreement or contract defines the development, maintenance, or operation of a software system. It is not applicable to the purchase of commercial-off-the-shelf (COTS) software products.

ISO 12207 describes five "primary processes"-- acquisition, supply, development, maintenance, and operation. It divides the five processes into "activities," and the activities into "tasks," while placing requirements upon their execution. It also specifies eight "supporting processes"--documentation, configuration management, quality assurance, verification, validation, joint review, audit, and problem resolution--as well as four "organizational processes"--management, infrastructure, improvement, and training.

Generally not considered to be a self-assessment and improvement model, IEEE 12207 is an outgrowth of DoD 2167 and Mil 498. It is however useful to this survey as a reference resource.

6.1.6 The Software Engineering Institute's Software Acquisition Capability Maturity Model, SA-CMM

Capability Maturity Models, CMMs, are designed to provide both verification of conformance to a standard, as well as detailed self-assessment capability that directly links to process improvement. CMMs have a common architecture consisting of five maturity levels that indicate process capability. The five maturity levels contain key process areas that are organized by common features that provide structure for and evidence of their institutionalization. The common features contain key practices that describe infrastructure and activities, and reflect achievement of organizational goals. Of the several CMMs sponsored by SEI, the Software Acquisition CMM (SA-CMM), and parts of the Integrated CMM (CMMI) described later in the survey, relate closely to functions found within a government program and acquisition office.

The SA-CMM[viii] is a model that describes the acquirer's role in the software acquisition process. It follows the CMM architecture with five maturity levels and five common features. The common features include:

- Commitment to perform
- Ability to perform
- Activities performed
- Measurement and analysis
- Verifying implementation

The key process areas are allocated into the five maturity levels. This is referred to as the staged implementation. Appendix D lists the level 2 and 3 key process areas.

To facilitate implementation of the SA-CMM, SEI has developed a SW Acquisition Risk Management Key Process Area Guidebook[ix] and a process maturity questionnaire [x].

6.1.7 ISO/IEC TR 15504-2 (SPICE) with extension for Acquirer Processes

SPICE[xi] is Europe's implementation of capability maturity modeling. SPICE is an acronym for software process improvement and capability determination. It is a joint International Organization for Standardization (IOS) and International Electrotechnical Commission (IEC) assessment framework by which an organization may establish and subsequently improve its process capabilities in the acquisition, supply, development, operation, evolution and support of software. It has not yet been given the full designation of a standard, but is already in use throughout Europe. The SEI is the United State's representative on the SPICE project, and has been integrating some of the SPICE features into the development of the CMMI. One of the key differences between SPICE and the CMM has been the portrayal of the assessment results. Whereas the CMM presents levels of maturity from 1 to 5, SPICE presents a profile of capability levels (1 to 6) in each of four process categories and within their associated processes. This is known as the continuous representation, the elements of which are shown in Appendix D.

The National Research Council Canada Institute for Information Technology is a SPICE User Group sponsor and has evaluated the assessment model[xii] and validated the measures of software requirements analysis process capability[xiii]

6.1.8 FAA Integrated CMM (FAA-iCMM)

The Federal Aviation Administration have identified three CMM models relevant to their business; the SA-CMM, Software Development CMM (SW-CMM) and the Systems Engineering CMM (SE-CMM), and integrated them into the FAA-iCMM. The FAA strategy is to conduct enterprise wide capability assessments and improvement, and also to recognize that the functions of their directorates overlapped, and could not be adequately represented by one CMM model. Additionally, because the three models have different architectures, different appraisal methods and different improvement goals, when they are applied separately, they fail to recognize the linkages and interrelationships between the respective disciplines. Finally as the FAAS adopted integrated product teams, as has DoD, an integrated reference model provided better guidance for developing the integrated processes required for a team.
Version 1.0 of the FAA-iCMM was released in 1997 and has, according to the FAA's literature, been successfully deployed as the enterprise assessment and improvement tool. Version 2.0 was completed in September 2001 to capture the changes in the three constituent CMMs, incorporate the lessons learned from applying version 1.0, and incorporate elements from national excellence programs, the President's Quality Award and Malcolm Baldrige National Quality Award criteria (described below) as a link to enterprise strategic goals. Additionally, version 2.0 also incorporated material from ISO 9001, ISO/IEC TR 15504 (SPICE), Integrated Product Development CMM (IPD-CMM), Process for Engineering a System (EIA-632), ISO/IEC 12207, and Systems Engineering Capability (EIA/IS 731 v1.0). The result appears, and is attested to by the FAA, to be a robust, understandable, useable tool that significantly simplifies the FAA's

objective of an enterprise capability assessment and improvement process. A comparison of FAA-iCMM process areas to those of the other reference models is found in Appendix D.

6.1.9 Trillium

Trillium[xiv] is a product of a joint effort between Bell Canada and NORTEL/BNG. It is not directly suitable for IT acquisition capability assessment and is included in this survey for information. Trillium is an extension of the CMU Software Development CMM architecture and includes elements of ISO 9001 and ISO 9000-3. It is used as a benchmarking tool, self-assessment and in pre-contractual negotiation. Because of its CMM architecture, Trillium is also useful for process improvement. However, the model development appears to have been frozen, with the 1994 edition. The European Software Institute (ESI) has brought Trillium into its inventory of tools and is extending it for specific applications such as the Reuse Assessment Model (R-SPICE) V 1.1. The extended Trillium models are however restricted to sponsoring members of ESI of which the United States is not a member.

6.1.10 Bootstrap

Bootstrap[xv] is a software development capability and process improvement model sponsored by the ESPRIT initiative. ESPRIT is the EU information technologies program. The principle of the Bootstrap approach is to determine by assessment the gap between the current process state and the desired process state for a particular aspect of the business, and then to develop an improvement plan from that analysis. Bootstrap is SPICE, ISO 9000 and CMM ® compliant. The model is developed and maintained by the Bootstrap Institute, based in Brussels and funded by members of the Institute.

6.2 National Quality Excellence Awards

Annual national quality excellence awards have come to be associated with countries that aspire to world-class performance in both the manufacturing and services sectors. For the purposes of this report, they are viewed as the culmination of successful implementation of one or more of the quality standards found in paragraph 3.1 above. The value of the national level awards for the RIT is the criteria of these awards, which is useful as a model for benchmarking against the winning organizations. The United States and Europe have several awards that include the IT industry and they are included in this survey.

6.2.1 The Baldrige National Quality Program (BNQP)

The BNQP has as its purpose the improvement of the nation's competitiveness. The National Institute of Standards and Technology (NIST) administers the program with the assistance of the American Society for Quality (ASQ). The criteria of the BNQP are designed to help organizations use an integrated approach to organizational performance management. Although government entities do not generally participate in the award, the BNQP criteria can serve as a broad improvement structure for the IT acquisition organizations within the Defense Department. Award recipients are required to share information on their successful performance and quality strategies with other U.S. organizations, thus enabling the benchmarking required by the Clinger-Cohen Act.

To answer the question that is raised when the magnitude of the effort to prepare for, apply and win a BNQP becomes clear, the Quality Digest Magazine reported the following:

"NIST study in 1998 showed that the MBNQA award recipients as a group significantly outperformed the Standard & Poor's (S&P's) 500 by nearly 2.5 to 1. Whole-company recipients outperformed them by nearly 3 to 1. The 52 publicly traded, site-visited companies outperformed the S&P 500 by 80 percent, achieving a 216-percent rate of return, compared with a 118.7-percent rate of return for the S&P 500."

Software intensive organizations that have been awarded the BNQP trophy include:

- Texas Instruments Inc. – Defense Systems & Electronic Group
- IBM Rochester – AS/400 Division
- Motorola Inc.

6.2.2 The President's Award

The President's Award[xvi] is the Federal Government's analog to the Baldrige National Quality Program. The 2002 award criteria have been realigned to the President's management Agenda to achieve a government that is citizen-centered, results oriented, and market-based. The Award will recognize organizations for their performance and results in any or all of the five following categories: budget and performance integration, strategic management of human capital, competitive sourcing, improved financial performance, and expanded electronic government. The evaluation and selection process relies on an endorsed nomination, a certified 10-page application, and a six-bullet set of guidelines. Unlike the BNQP, there are no trained examiners to visit the applicant and establish the level to which the criteria have been met. The criteria are nonetheless, a useful checklist for a self-evaluation, and are therefore included in this survey.

6.2.3 European Quality Award

The European Quality Award[xvii] is the EU analog to our Baldrige National Quality Program Award. A non-profit organization, The European Foundation for Quality Management (EFQM), manages the award that employs the EFQM Business Excellence model. The Europeans award an annual prize to the organizations that demonstrate excellence in the management of quality as their fundamental process for continuous improvement. The prize is awarded to the best organizations in each of four categories: Large business and business units; Operational units of companies; Public sector organizations; Small and medium-sized enterprises in two categories, independent and subsidiaries of larger organizations. Applicant organizations that do not attain the level of finalist, but do receive a high score, are offered a site visit by the Award Jury that can lead to an award of Recognized for Excellence. The Recognized for Excellence can also be awarded through separate application to EFQM. Like our BNQP, the European Quality Award is a formal process with a blue ribbon award jury.

The reason for including the European Quality Award in this survey is the publication by the European Software Institute of a model that integrates the EFQM Levels of Excellence model with the SPICE model. See the Integrated EFQM/SPICE model in the Continuous Improvement Methodologies paragraph below.

6.2.4 IEEE Computer Society Software Process Achievement Award

This award may be given to any software professional or team of software professionals responsible for a sustained, measured and significant improvement to their organization's software process. The winner is required to write a technical report describing the process improvement and results. The 1999 award was won by the Air Force Oklahoma City Air Logistics Center.

6.3 Continuous Improvement Process (CIP) Methodologies

In the pecking order of the quality systems that can be used for improving the performance of an organization, the Holy Grail is continuous improvement. The attempts to achieve continuous improvement in the 1970's failed to take root and methodologies such as total quality management, TQM, were discredited not because the methodology was ineffective, but because of ineffective implementation and a general lack of urgency. After the Japanese car- makers demonstrated the value of quality systems, there has been a reawakening and even an embrace of TQM in the United States and Europe. The CIP methodologies included in this survey are not based on reference models, they are rather methodologies that model the improvement process. Consequently CIP is not useful for capability assessment.

6.3.1 Total Quality Management (TQM)

TQM is a philosophy of perpetual improvement. It can be viewed as a process wrap around a quality standard, such as ISO 9001, which involves everyone and all activities of an organization. The literature suggests that implementation of ISO 9001 (with an interpretation for the Software Industry) accomplishes about 75 % of a TQM program[xviii]. Within the Office of the Secretary of Defense, the last TQM policy was a reissue of an expanded version of the Willoughby Templates, found in DoD 4245.7-M, under a 1989 USD(Acquisition) memoranda[xix] Total Quality Management in Acquisition (TQM) in Acquisition and the Transition from Development to Production. The 1989 memoranda presents TQM as the way-of-life approach to conducting the DoD acquisition process and includes the DoD Posture on Quality signed out by Secretary Carlucci.

Although there is no longer a DoD policy that specifically addresses TQM, tenets of TQM are found in current policy and are broadly practiced. The prime example is the Integrated Product and Process Development (IPPD) that is required by the Defense Acquisition Policy.

6.3.2 Integrated Product and Process Development (IPPD)

During the 1990s, the tenets of TQM were joined with industry practices such as Concurrent Engineering and implemented as IPPD, described as a management technique that simultaneously integrates all essential acquisition activities through the use of multidisciplinary teams to optimize the design, manufacturing and supportability processes.

A survey in 1995 by the Office of the Secretary of Defense (OSD) of government and industry organizations resulted in the DoD Guide to IPPD[xx]. In March 1996, the IPPD was brought under the DODI 5000.2 as a mandatory part of the Defense Acquisition Management Framework[xxi]. Integral to the IPPD is the use of Integrated Product Teams as described in the Rules of the Road, a Guide for Leading Successful Integrated Product Teams[xxii]. The IPPD Guide was

expanded to include suggestions and examples of specific ways to implement IPPD and published as the DoD IPPD Handbook[xxiii].

The assessment and improvement of an organization's capability to conduct IPPD is addressed in the Integrated CMM that includes the IPPD[xxiv]

6.3.3 Software Acquisition CMM (SA-CMM) Continuous Improvement Level 5

Within the SA-CMM[xxv], the fifth level is the Optimizing Level at which the acquisition organization is focused on continuous process improvement. The purpose of Continuous Process Improvement is to evolve the software acquisition processes used in the acquisition organization through managed continuous process improvement. Since it builds on a base of key process areas implemented in levels 2 through 4, targets of the improvement activity are quantitative objectives for the acquisition organization's standard software acquisition process and the projects' defined software acquisition processes.

6.3.4 The IDEAL Model

Following an assessment of an organization's software acquisition capability and the identification of the delta between current and desired state, there is a need for a transition plan to span the gap. For many organizations, however, there is a paradox that planning organizations desiring to improve their processes, and hence their capability, planning is one of their weaknesses. The IDEAL Model[xxvi] was developed as a life-cycle model for software process improvement based on the software CMM. It has since been generalized for broader application to the needs of the software acquisition organization. IDEAL is composed of five stages: Initiating, Diagnosing, Establishing, Acting, and Learning. The tool comes with a User's Guide and coursework for its application.

6.3.5 EFQM/SPICE Integrated Model

The SPICE model has been integrated by the European Software Institute with the European Foundation for Quality Management (EFQM) Model for Business Excellence. This integrated model is being offered as Europe's Framework for achieving enterprise-wide excellence in software intensive organizations[xxvii]. Unfortunately, the associated tools for implementing the integrated model are available only to ESI member nations and U.S. is not a member. A search of the U.S. quality system sites produced no equivalent model; such as an integrated BNQP/CMMI product, however, the FAA-iCMM does incorporate elements of the BNQP but without the traceability to strategic plans.

7 Findings

The international IT community of acquirers and vendors has identified and acted on the need for establishing measures of capability on both sides of the contracting divide. Their motivation encompasses the following scenarios, each with published, off-the-shelf tools, methodologies and training resources.

- Third party vendor certification for source selection: ISO 9000-3, SPICE, TickIT, Trillium, Bootstrap, and CMMs such as CMMI and SW-CMM.
- Vendor IT development capability improvement: SPICE, Trillium and CMMs such as CMMI and SW-CMM.

- Vendor decision support for IT development capability expenditure through a linkage to the strategic planning process: EFQM/SPICE Integrated Model and to a lesser extent the National Quality Awards.
- Acquirer capability assessment for development of software intensive systems: FAA-iCMM, IEEE/IEC Standard 12207, and SPICE with Acquirer Extension.
- Acquirer capability assessment for COTS IT infrastructure and applications: SA-CMM, SPICE with Acquirer Extension, FAA-iCMM.
- Acquirer decision support for IT acquisition capability expenditure through a linkage to the strategic planning process: EFQM/SPICE (with acquirer extension) Integrated Model, the FAA-iCMM and to a lesser extent the National Quality Awards.

8 Conclusion

There are adequate on-the-shelf tools and methodologies for assessing and improving the organizational capability of DoD information technology acquisition organizations, whether they be undertaking development or procuring COTS systems and services. Additionally there are frameworks that link the process improvement objectives to the strategic planning process, thus providing rational for expenditures associated with process improvement.

9 Acronyms

ANSI	American National Standards institute
BMP	Best Manufacturing Practices Center of Excellence
BNQP	Baldrige National Quality Program
CIO	Chief Information Officer
CIP	Continuous Improvement Process
CMM	Capability Maturity Model
CMU	Carnegie Mellon University
COTS	Commercial-Off-The-Shelf
DoD	Department of Defense
DSB	Defense Science Board
EFQM	European Foundation for Quality Management
EIA	Electronic Industries Alliance
ESI	European Software Institute
EU	European Union
FAA	Federal Aviation Administration
IDEAL	Initiating, Diagnosing, Establishing, Acting, and Learning
IEC	International Electrotechnical Commission
IEEE	Institute of Electrical and Electronics Engineers
IPPD	Integrated Product and Process Development
ISO	"ISO" is a word, derived from the Greek isos, meaning "equal", which is the root of the prefix "iso-" that occurs in a host of terms, such as "isometric" (of equal measure or dimensions) and "isonomy" (equality of laws, or of people before the law). ISO is used around the world to denote the organization, "International Organization for Standardization", rather than translate into the different national languages of members, e.g. IOS in English, OIN in French.
PEO	Program Executive Officer
PMO	Program Management Office
RBO	Risk-balanced Oversight
RIT	Rapid Improvement Team
S&P 500	Standard & Poor's 500
SEI	Software Engineering Institute
SPICE	Software Process Improvement and Capability dEtermination
SQPA	Software Quality and Productivity Assessment
TQM	Total Quality Management
USD(AT&L)	Under Secretary of Defense for Acquisition, Technology and Logistics
USD(C)	Under Secretary of Defense, Comptroller
VCJCS	Vice Chairman, Joint Chiefs of Staff

10 APPENDIX A

RIT	Pilot	Recommendation title and language
1	**1**	**Establish 18 month cycle**
		Establish 18 month delivery of mission effective capability in the DoD IM Strategic Plan and SecDef Annual Report, along with other IT goals & measures
2		**Accelerate OA and CRDs**
		DoD CIO work with the JROC/JWCAs & PSAs to accelerate the development of operational architectures and CRDs (where appropriate) priority capabilities, and work with mission "owners" to rapidly develop systems & technical architectures at the enterprise and JMA capability levels
3		**JWCA/PSA assess architectural compliance**
		JWCAs/PSAs assess IT/NSS programs for architectural compliance and validate their compliance to the MDA -- programs that do not comply cannot pass their Milestone or be funded -- all new starts must comply; existing systems must plan for convergence
4		**MPM's allocated as applicable**
		Ensure mission outcome-based performance measures from MNS and CRDs are allocated to those ORDs and systems that contribute to the mission area or end-to-end capability
5		**Balanced score card**
		Develop Balanced Scorecard pilots and Risk Management constructs in the JMA/JWCAs and PSA Business Areas which feeds into Enterprise QDR/DPG/JV2020 goals & objectives
6		**Synthetic battle space and SBA**
		Research & pilot the use of Synthetic Battlespace/Simulation & Modeling and Simulation Based Acquisition (SBA) approaches to ensure Spiral increments are performing and producing collectively, the desired level of capability, once fielded (e.g., through Operational and Post Implementation Testing). This technology will allow the JWCAs/Mission Area leaders to see the collective results of their capability investments
7		**Assure PIR**
		Ensure Spiral increments are performing and producing collectively, the desired level of capability, once fielded (e.g., through Operational and Post Implementation Testing).
8	**2**	**Doc X**
		DOC X: Establish decision to address urgency and risk of pending IT investment. This decision point will determine: A. the level of documentation for that investment B. candidates for FAST TRACK C. oversight approach
9	**3**	**FAST TRACK Risk-Based Oversight Initiative for IT Programs.**

		Initiate IT Programs with an abbreviated information set. Operational urgency may require the Department to assume greater risk than permitted by current acquisition policy to reduce cycle time.
10	**4**	**Standardize oversight requirements for it documents and approvals**
		(Request Programs describe the extent of standardization accomplished and make further recommendations)
11	**5**	**Flexible Funding**
		Establish a flexible process to fund emergent IT/NSS requirements
12	**6**	**Delegate all IT/NSS to Components to maximum extent practicable**
		(Request Programs describe the implementation and track the impact of the delegation on their cycle time)
13	**7**	**Assess CCA etc conformance**
		Assess each Components oversight, management and acquisition process for conformance to acquisition, CCA and related policies and procedures, to meet 18 month goal
14	**8**	**Essential oversight info in Portal**
		Identify the DoD CIO objectives for IT/NSS oversight at the DoD and Component CIO levels, and the essential information required by the DoD and Component CIOs through automated systems to accomplish the CIO responsibilities (e.g., see 8102 language) in conjunction with the KM Portal
15		**Standard requirements development**
		Create standardized requirements development process and a single training curriculum for requirements staff throughout the DOD. Ensure that it covers all joint processes, best practices, and common tool introduction. Ensure standardized process enables the dynamic allocation of detailed requirements to specific spirals
16	**9**	**Policy & training for Spiral Development**
		Create implementation instructions for utilizing evolutionary and spiraling development in the requirements generation and acquisition process. Provide training for understanding spiral development of IT systems.
17		**Create web-based requirements tracking tool**
		Create implementation instructions for utilizing evolutionary and spiraling development in the requirements generation and acquisition process. Provide training for understanding spiral development of IT systems.
18		**Consolidate MNS, ORD C4ISP**
		Create a process allowing ROCs to review documents in parallel vs. serially. Place time limit on originators and reviewers. Develop one document to take the place of the MNS, ORD, and C4ISP. This would reduce the process and save approximately five months or more.
19		**One time ROC review**
		Make the review and approval process a one time up front requirement and not require for it subsequent spirals.

20		**Exempt military IT from CCA**
		Exempt military IT systems from Clinger Cohen Act
21	**10**	**Develop AoA policy**
		Develop department -wide IT AOA policies and processes, and a standardized manual. (Request Programs describe their approach to an analysis of alternatives AoA that meets the needs of their organization)
22	**11**	**Develop IT AoA toolkit**
		Develop IT AOA toolkit and data sets to support AOA analysis and generation. (With reference to their AoA of #10 above)
23		**Join MNS and AOA**
		Initiate study plan concurrent with MNS development
24	**12**	**Restructure ADMs to address issues**
		Acquisition ADMs requires insight from users, the acquisition community members, analysis community, and the requirement community. Include in the ADMs, scope of the analysis needs to be done, specific critical issues to be answered, and the time frame of the response.
25		**Unify training for JS, IM/IT and 5000**
		Create a single all-service, joint-service training curriculum on how to generate, review, and approve requirements (including AOA) document ion. Based on 3170.01B and 6212.01B AND DoD 5000 series
26		**Establish core requirements certification group in Components**
		Establish a core group with a certification level requirement to generate and review requirements documentation in each service
27		**Write requirements to capabilities vice systems**
		Develop requirements definition at the capabilities/function level vice the systems level.
28	**13**	**Adopt PBSC for services**
		Adopt PBSC as a preferred acquisition method for a wide range of IT services, including computer maintenance, software maintenance and support, and operation and maintenance of facilities.
29	**14**	**Adopt FSC BPA as preferred method**
		Adopt Federal Supply Schedule Blanket Purchase Agreement Best Practices as a preferred acquisition method for DoD IT: A. Provide for technology refreshment, on-line shopping, reduce redundant BPAs. B. Realize streamlined acquisition process and best value in IT acquisition.
30	**15**	**Adopt reverse auctioning for commodities**
		Adopt reverse auctioning as a preferred acquisition method and pricing tool for commodity-based IT competitive procurements.
31	**16**	**Establish Acquisition Community of Practice**

		Establish an acquisition Community of Practice (COP) responsible for recommending continual improvements to the IT acquisition process.
32		**Create KM portal for visibility into IT investments**
		Create a knowledge-based portal to provide visibility into IT initiatives Real-time access to program status information supports more informed decisions about IT programs/alternatives and reduces program risk. Tailored view/access determined by role/responsibility. IT program information stored in an Enterprise Data Warehouse with initial access to information via linkages to service repositories, databases.

11 APPENDIX B

Listing of process areas addressed by the several quality and maturity standards

ISO 9000-3	FAA-iCMM v2.0	SA-CMM v1.03	SPICE Acquirer	CMMI-SE/SW/IPPD
Management Responsibility	Integrated Enterprise Management	SW Acquisition Planning	Acquisition Needs	Org Process Focus
Quality Systems	Project Management	Solicitation	Requirements Definition	Org Process Def
Contract Review	Supplier Agreement Management	Requirements Development and Management	Contract Award	Org Training
Design Control	Risk Management	Project Management	Contract Perform	Org Process Performance
Document & Data Control	Integrated Teaming	Contract Tracking and Oversight	Documentation	Org Innovation & Deployment
Purchasing	Needs	Evaluation	CM	Project Planning
Customer Supplied Product	Requirements	Transition to Support	QA	Project Monitor &Control
Identification / Traceability	Design	Process Definition and Maintenance	Verification	Supplier Agreement Management
Process Control	Design Implementation	User Requirements	Validation	Integrated PM
Test Equipment	Integration	Project Performance Management	Joint Review	Risk Management
Inspection / Test Status	Evaluation	Contract Performance Management	Audit	Integrated Teaming
Nonconforming Products	Deployment, Transition and Disposal	Acquisition Risk Management	Problem Resolution	Quantitative PM
Corrective & Preventive Action	Operation and Support	Training Program Management	Management	Requirements Management
Handling and Delivery	Alternatives Analysis	Quantitative Process Management	Project Management	Requirements Development
Quality Records	Outsourcing	Quantitative Acquisition Management	Quality Management	Technical Solution
Internal Quality Records	Quality Assurance and Management	Continuous Process Improvement	Risk Management	Product Integration
Training	CM	Acquisition Innovation Management	Organizational Alignment	Verification
Servicing	Information Management		Improvement	Validation
Statistical Techniques	Measurement and Analysis		Human Resource Management	CM
	Process Definition		Infrastructure	Process & Product QA
	Process Improvement		Measurement	Measure & Analysis
	Training		Reuse	Decision Analysis & Resolution
	Innovation		Financial Management	Organization Environment for Integration
			Manage Supplier Relationship	Causal Analysis & Resolution
			Manage User Relationship	

12 APPENDIX C

End Notes with links where available

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APPENDIX 7
RIT Pilot Component Oversight Process

Overview
There were a number of common approaches to oversight applied by each of the Components. All of the Components got their RIT Pilot programs to switch to an 18-month delivery cycle of mission effective capability to better align it with the information technology cycle. All attempted to engage in continuous insight (vice oversight) via tailored access to an information-based portal that hosted real-time program execution information. All advocated risk-based management principles to allow exception-based oversight of the programs. Finally, all Components employed some degree of portal-based metrics to gauge progress.

Department of the Army's Oversight Approach
The Army's RIT Pilot oversight experiment maintained 1AM status for their RIT Pilot program, TC AIMS II, while looking for ways to reduce time and improve innovation without negatively impacting program cost, performance, and schedule. The Army made extensive use of both a common portal (Army's Acquisition Information Management (AIM) system, located at https://aim.rdaisa.army.mil/) and a community of practice approach.

The goal in streamlining the acquisition process was to eliminate all documentation that does not directly support the day-to-day acquisition management of TC AIMS II or provide necessary insight to decision makers outside the program office. This process involved working with PEO EIS, ASA (ALT), and ASD C3I in determining the information set necessary to provide effective program oversight. The minimal necessary set of oversight information included:

1. Monthly Acquisition Program Report (MAPR)
2. SMART charts
3. Clinger-Cohen Compliance Checklist
4. Approved program acquisition documentation
5. Minutes of official meetings, WIPTS, etc
6. Program Risks

Department of the Navy's Oversight Approach
Based upon inclusion in the RIT Pilot, and the subsequent status change of the Navy's NTCSS program from 1AM to 1AC, the Navy was able to rethink its oversight approach with the goal to reduce time-to-fielding. The Navy fundamentally changed their oversight approach to a management-by-exception model. Versus engaging in continual oversight, the Navy MDA only conducted periodic reviews and additional reviews on an as-needed basis. This required their RIT Pilot program (NTCSS) both to have a robust risk management process. Additionally, all key program data and metrics were stored in a common portal that was continuously accessible to oversight personnel. Instead of the

common event-based milestone reviews that require significant resources on the part of the program to complete, all milestone reviews for NTCSS were conducted via the portal in the course of normal business.

The Navy stated that Risk Based Review, dissemination of program data and metrics via a common portal, and management by exception greatly reduced the administrative time required to manage a program. The primary impact of these recommendations on program led to avoidance of effort for milestone reviews and its associated tasks such as preparation of supporting documentation and collection of data. Avoidance of these tasks has ultimately resulted in deployment of OOMA approximately two months earlier than would have been experienced using a traditional process.

Department of the Air Force's Oversight Approach

The Air Force oversight strategy included the use of a common oversight portal for both PA&E Metrics and all program documentation, a risk-based management approach for all RIT Pilot programs, streamlined documentation requirements, and the use of Evolutionary Acquisition Design Reviews (EADRs) instead of set milestone decisions.

- *Use of a Common Portal for Information Sharing*: The AF PEO employed a common portal for information sharing to enable all oversight staff to maintain continuous insight with the program, its risks and its documents. This allowed oversight personnel to offer guidance and feedback throughout the development life cycle. It was anticipated that the portal would hasten the document review and approval cycle. The AF PEO primarily used AF SMART tool to provide monthly status of program and metrics information. At the beginning of the RIT Pilot, the AF also used the Army AIM tool to dock information for the rest of the oversight staff to use. Once the SMART tool gained the functionality to store program documents for oversight use, AIM was mostly abandoned.

- *Use of PA&E Metrics:* The AF PEO used the PA&E metrics set to conduct program oversight. In addition, the AF 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 SMM, 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.

- *Risk-based Management Principles:* The AF PEO instituted risk-based management principles to allow management based on "exception processing." All key risks and their mitigation strategies were highlighted in the portal and briefed out on a monthly basis.

- *Evolutionary Acquisition Decision Reviews (EADRs):* The centerpiece of the Air Force's RIT Pilot approach involved the use of EADRs to replace formal reporting processes. All program assessments were conducted through accessing program data via the common access portal. For all the AF RIT Pilot programs, there were no formal milestone decisions. All program feedback was provided through web enabled EADRs. This allowed oversight team to employ a "continuous insight" model to assess progress.

- *Streamlined Documentation Requirements*: The Air Force experimented with the use of streamlined virtual documents to capture program information. Instead of requiring the programs to develop the documents developed in the standard acquisition process, the AF PEO worked with each program to tailor the program's documentation requirements to only produce the minimal necessary information for required for that particular program. This approach, referred to as "Document X," led to the development of tailored oversight information while producing less documents to generate, review and approve.

DISA's Oversight Approach

DISA used the RIT Pilot delegation of oversight authority to the Component for GCSS (CC/JTF) as an opportunity to develop and implement new oversight processes and to streamline the approach to fulfilling documentation requirements. Oversight included having all program data captured in a common portal, including reports on a comprehensive risk management strategy and detailed metrics and measurements. Integrated teams involving oversight personnel were dedicated to support the program. Additionally, program documentation was tailored at program initiation to capture only the necessary information. Document reviews were conducted in parallel instead of sequentially to reduce cycle times.

Overall, DISA strongly believes that the results of their participation in the RIT Pilot has proven that the delegation of oversight authority to the Component, the opportunity to implement new internal DISA oversight processes and the flexibility to define documentation requirements have saved the program time and money, which ultimately has allowed timely delivery of capability to the warfighter.

APPENDIX VIII
RIT Pilot Program Best Practices

Approach to Collecting RIT Pilot Best Practices.

Site visits were made to most of the RIT Pilots to provide a platform for risk-based governance, and to identify best practices and opportunities for knowledge sharing. The RIT Pilot Assessment team employed the Federal Aviation Administration Integrated Capabilty Maturity Model (FAA-iCMM) approach to rate the RIT Pilots. Additional best practices were uncovered during the course of the RIT Pilot Effort.

Background on the FAA Integrated CMM (FAA-iCMM)

The Federal Aviation Administration have identified three CMM models relevant to their business; the SA-CMM, Software Development CMM (SW-CMM) and the Systems Engineering CMM (SE-CMM), and integrated them into the FAA-iCMM. The FAA strategy is to conduct enterprise wide capability assessments and improvement, and also to recognize that the functions of their directorates overlapped, and could not be adequately represented by one CMM model. Additionally, because the three models have different architectures, different appraisal methods and different improvement goals, when they are applied separately, they fail to recognize the linkages and interrelationships between the respective disciplines. Finally as the FAAS adopted integrated product teams, as has DoD, an integrated reference model provided better guidance for developing the integrated processes required for a team.
Version 1.0 of the FAA-iCMM was released in 1997 and has, according to the FAA's literature, been successfully deployed as the enterprise assessment and improvement tool. Version 2.0 was completed in September 2001 to capture the changes in the three constituent CMMs, incorporate the lessons learned from applying version 1.0, and incorporate elements from national excellence programs, the President's Quality Award and Malcolm Baldrige National Quality Award criteria (described below) as a link to enterprise strategic goals. Additionally, version 2.0 also incorporated material from ISO 9001, ISO/IEC TR 15504 (SPICE), Integrated Product Development CMM (IPD-CMM), Process for Engineering a System (EIA-632), ISO/IEC 12207, and Systems Engineering Capability (EIA/IS 731 v1.0). The result appears, and is attested to by the FAA, to be a robust, understandable, useable tool that significantly simplifies the FAA's objective of an enterprise capability assessment and improvement process.

RIT Pilot Best Practices in the FAA-iCMM Process Areas

Needs

IMDS

- Early involvement of field subject matter experts (SMEs) as part of the Extreme Programming process appears to have resulted in fewer defects in defined requirements than would otherwise have been expected.

- The use of a web-based scheme to achieve concurrence on requirements in the IMDS functional baseline appears to have established realistic expectations among users.

Requirements

GTN 21

- The team found evidence that the GTN-21 team understands the need to minimize changes to COTS and aggressively manages COTS changes.

- The team found evidence that customer, USTRANSCOM J3, participation on all IPTs contributes significantly to expectations management.

- It appears that the existence of well-defined measures of effectiveness provides bridges among the strategic plan, the ORD, and test documents.

FIRST

- The team found evidence that the CTF charter documented test processes and defined roles and responsibilities for the RTO, JTIC, SPO, prime and integration contractors, and customer.

- It appears that the SPO followed an AF Best Practice in determining an RTO through an effective selection process.

- It appears that an analysis of quality metrics resulted in earlier government participation in testing of spirals by the prime contractor, resulting in early identification of problems.

IMDS

- Early involvement of field subject matter experts (SMEs) as part of the Extreme Programming process appears to have resulted in fewer defects in defined requirements than would otherwise have been expected.

- The use of a web-based scheme to achieve concurrence on requirements in the IMDS functional baseline appears to have established realistic expectations among users.

Evaluation

GTN 21

- The team observed that the contractor prepared OT&E website enhanced the project team's understanding of test objectives by providing a centralized location for T&E documents and future test results.

IMDS

- The team found evidence of early and continuing involvement of test & evaluation personnel in the program.

GCSS-AF

- The use of Document Execution principles led to less documentation to generate, review and approve. More importantly, it allowed tailored oversight information.

Project Management

GTN 21

- It appears that the practice of maintaining the government estimate of the program will be of great value to the program

- Use of the portal by all GTN-21 team members, government and contractor, enables a high level of collaboration

- Use of the action item (AI) database by all GTN-21 team members enables strong central control of AIs from all IPTs.

GCSS-AF

- The team found that although GCSS-AF had no milestones or formal reporting, the use of EADRs for senior level reviews provided a more streamlined approach for project management. This allowed them to surface key issues while better maintaining schedule
- Through the use of a portal, the day to day program management information became accessible continuously. Data entry by all stakeholders were part of the expected daily activities.

Supplier Agreement Management

GTN 21

- The team observed that the use of the government/contractor shared portal facilitates enhanced Supplier Agreement Management

Risk Management

GTN 21

- The team observed that early involvement of all contractor and government independent test organizations into the Combined Test Force is an effective risk mitigator

IMDS

- The team found evidence that the extended “Risk Radar” tool in use by the program office provides a unique capability

GCSS (CC/JTF)

- A Risk Management Program was established, of which the top 10 risks are reviewed monthly and all risks are reviewed on a quarterly basis. The Risks Management Strategy affords the Program an opportunity to proactively manage both technical and non-technical critical areas and risks before they become problems, causing serious cost, schedule, or performance impacts to the program.

NTCSS

- The institution of risk based review, management by exception and dissemination of real-time program data and metrics via a common portal provided more streamlined method of problem identification and resolution than using hard copy reports, briefs, and making personal appearances to report the status of the program. Given the organizational and technical challenges associated with development and manufacturing of any new product, risk based reviews and timely accurate information are key to adequate insight into program progress and timely programmatic decisions.

Integrated Teaming

GTN 21

- It appears that PMO-Contractor teaming is exemplary

- The team found evidence of shared training between the Gov’t and the Contractor. The team found evidence that customer, USTRANSCOM J3, participation on all IPTs contributes significantly to expectations

GCSS-AF

- The team found an unprecedented level of communication with the customer. Weekly meetings expose challenges and areas where senior leadership must intervene quickly to sustain the pace.

- Flexibility derived from partnership with LMSI and DISA: put the technical experts in charge of deployment and production of capabilities rather than sloth-like and under-know ledged government SPO.

- The program conducted semi-annual Industry Days to ensure Industry knows program direction and to solicit their advice and guidance in moderating that direction.

- Rather than fighting particular functional communities, the team found the program typically establishes partnerships to field capabilities: GCSS-AF’s Enterprise Application Integration (EAI) approach was pioneered in partnership

with the C2 Community, specifically the ESC/AC SPO to ensure both communities were using the same technology

GCSS (CC/JTF)

- The team found that the GCSS (CC/JTF) program's use of integrated teams were integral to streamlining the acquisition process. A dedicated GCSS (CC/JTF) Cost Working Integrated Project Team (WIPT) comprised of cost analysts, DISA oversight personnel, and independent assessor, was able to successfully complete an Economic Alternatives Analysis (EAA) in a very short period of time. The team was comprised of members that included the independent assessor, to develop, approve and assess the EAA, resolving discrepancies early in the process, to deliver a document in a timely manner. The GCSS Program found that participation by all stakeholders, and constant communication and sharing of information, resulted in the successful delivery of value-added capabilities

Information Management

GTN 21

- The team observed that the structure and organization of the portal is useful in the sharing of information needed to support management of the project

IMDS

- It appears that the Program Managers' Forum and the Maintenance Information Technology Working Group provide opportunities to keep stakeholders in the maintenance functional area up to date on developments in maintenance IT.

- The use of a web-based scheme to achieve concurrence on requirements in the IMDS functional baseline appears to have established realistic expectations among users.

SCS

- SMART was used to report status and generate MARs. EADRs and Monthly IPRs held with customer and upper management.

Quality Assurance Management

IMDS

- The team found evidence of exceptional executive management support and oversight of conformance with the organization's defined processes.

GCSS-AF

- The program operated at least two baselines in the operational environment with a third target configuration to minimize the integration turmoil that IT systems often face when exploiting a high number of COTS products

SCS

- The SCS SPO concluded that not only was spiral development successful, but spiral deployment was equally as successful. Decomposing a large increment into smaller, more manageable spirals, together with deploying at the conclusion of each spiral significantly mitigated requirements growth, cost, schedule, and quality issues inherent in large, complex software development efforts. Furthermore, users/warfighters can reap the benefits of receiving added or enhanced capabilities sooner than was ever accomplished before. The SCS SPO has subsequently adopted spiral development and deployment as it's software development concept of choice.

TMIP

- TMIP has been working towards a Level 2 within the Capability Maturity Model; this best practice is a Military Health System (MHS) policy. TMIP has accomplished an internal self-assessment with positive results in preparation for its Program Executive Office assessment scheduled for February 2004. The 15 months of process development and documentation for Level 2 have resulted in the TMIP staff becoming more efficient and effective in cost, schedule, and performance management due to having repeatable processes.

Configuration Management

GTN 21

- The team found evidence that the mechanism established for USTRANSCOM enterprise configuration management will facilitate management of GTN-21 external interfaces.

Process Definition

IMDS

- The IMDS process for canceling, decommissioning, and archiving obsolescent or superceded systems may constitute a candidate RIT Best Practice.

- The IMDS program office process for personnel transformation may constitute a RIT Best Practice.

Process Improvement

FIRST

- It appears the the "IPT Pricing" technique has reduced the cycle time for contract changes.

GCSS-AF

- The team found that velocity was achieved through pilot projects. Increased communication and emphasis of program funding on world class commercial talent enabled the rapid rollout of applications and services

Deployment, Transition & Disposal

GTN 21

- The team found evidence that vendor support has been arranged for up to 17 years. This arrangement is unprecedented

- The team found evidence of a significant effort to understand business rules and capture them in data structure for ease of sustainment and Improvement Opportunity: The effort to define business rules is a major undertaking, and it appears that this effort may constitute a significant schedule risk.

FIRST

- It appears that the use of the AFAST tool enhances the incentivization of the prime contractor through early identification of issues.

Measurement and Analysis

FIRST

- It appears that an analysis of quality metrics resulted in earlier government participation in testing of spirals by the prime contractor, resulting in early identification of problems.

GCSS-AF

- Extensive metrics program that spans process, user experience, and infrastructure utilization. Over 160 measures were reviewed each week in their program management portal.

GCSS (CC/JTF)

- GCSS (CC/JTF) established a Metrics and Measurement Program, allowing the Program Manager to measure progress against established goals. As a result, the Program has the means to measure success, both quantitatively and qualitatively. Metrics are now collected and analyzed to assess the program's cost, schedule and performance; the program's workforce; the operational performance of the system and most importantly, user satisfaction.

Appendix IX

Toward Net-Centric Acquisition Oversight

A Proposal for an Acquisition Community of Interest (COI)

MID 905 Streamlined Acquisition Working Group
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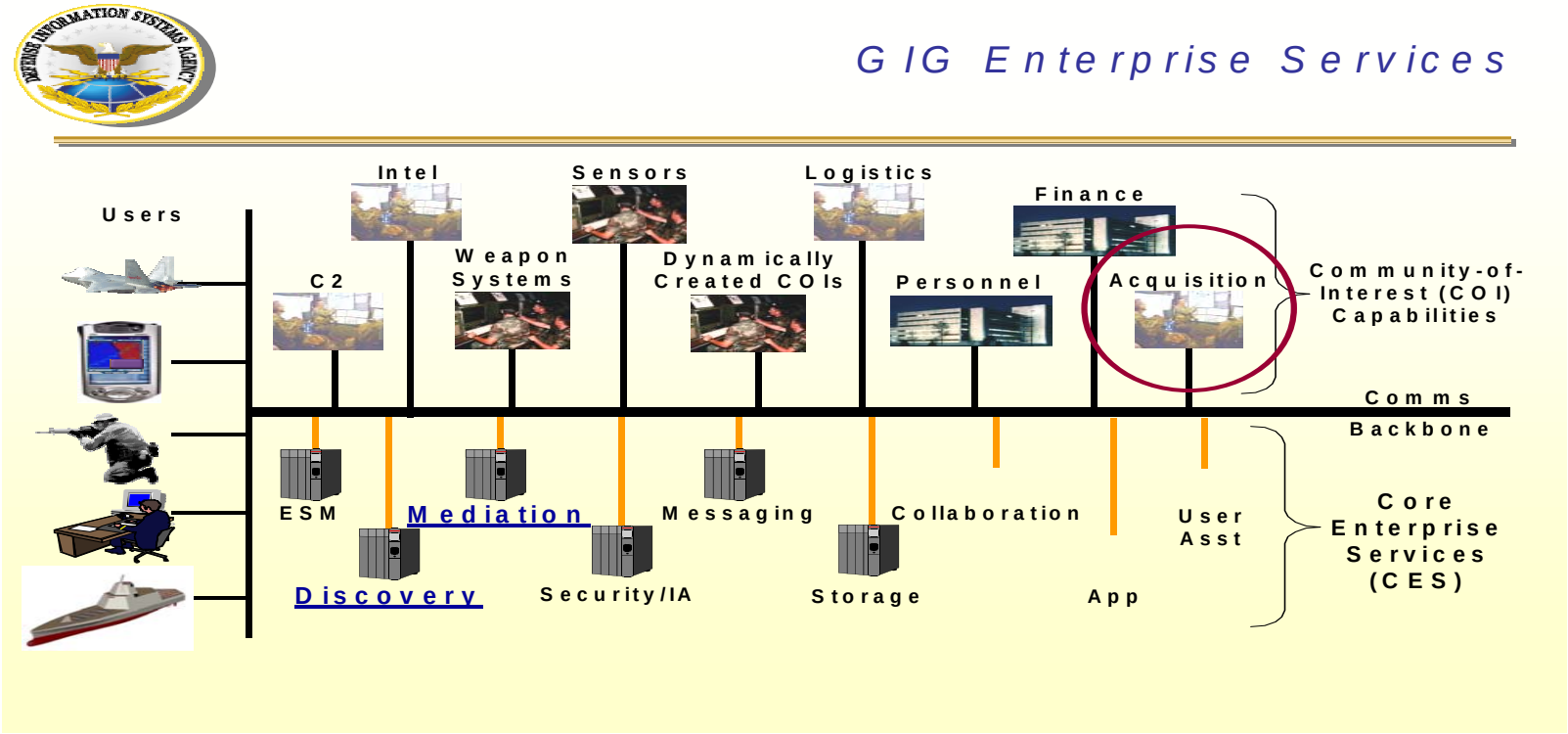
Content

- Purpose
- Vision
- MID 905 Tasking
- Key tenets for MID 905 implementation
- Applying the tenets to enterprise acquisition management
- COI for governing acquisition management information
- Roles of the COI
- Notional plan for implementation
- Remaining Issues

PURPOSE

To open a dialog for the establishment of an Acquisition Community of Interest that will govern the net-centric data and resources required to manage the Department's acquisitions



Vision of Net-centric Acquisition Oversight

- Oversight of an investment is delegated to the lowest echelon consistent with the risk of the program and the ability of the acquisition team to manage the risk
- Oversight requirements are prescribed at program initiation
  - Delegation level
  - Acquisition Program Baseline (APB)
  - Acquisition information data set
- Oversight subsequent to initiation is accomplished through insight into and analysis of the acquisition information set, unless the APB is breached; other information required
- The acquisition information set is in a “portal” and available in real time to all designated stakeholders

MID 905 Streamlined IT Acquisition Process Language

The Rapid Improvement Team (RIT) Information Technology (IT)
Portal and Community of Practice (COP) initiatives provide a forum for posting Program Manager and Program Execution Office
data and making it available to be pulled by the rest of the acquisition community across the Department. The alternative
recommends the approach become the standard for all IT acquisition information.

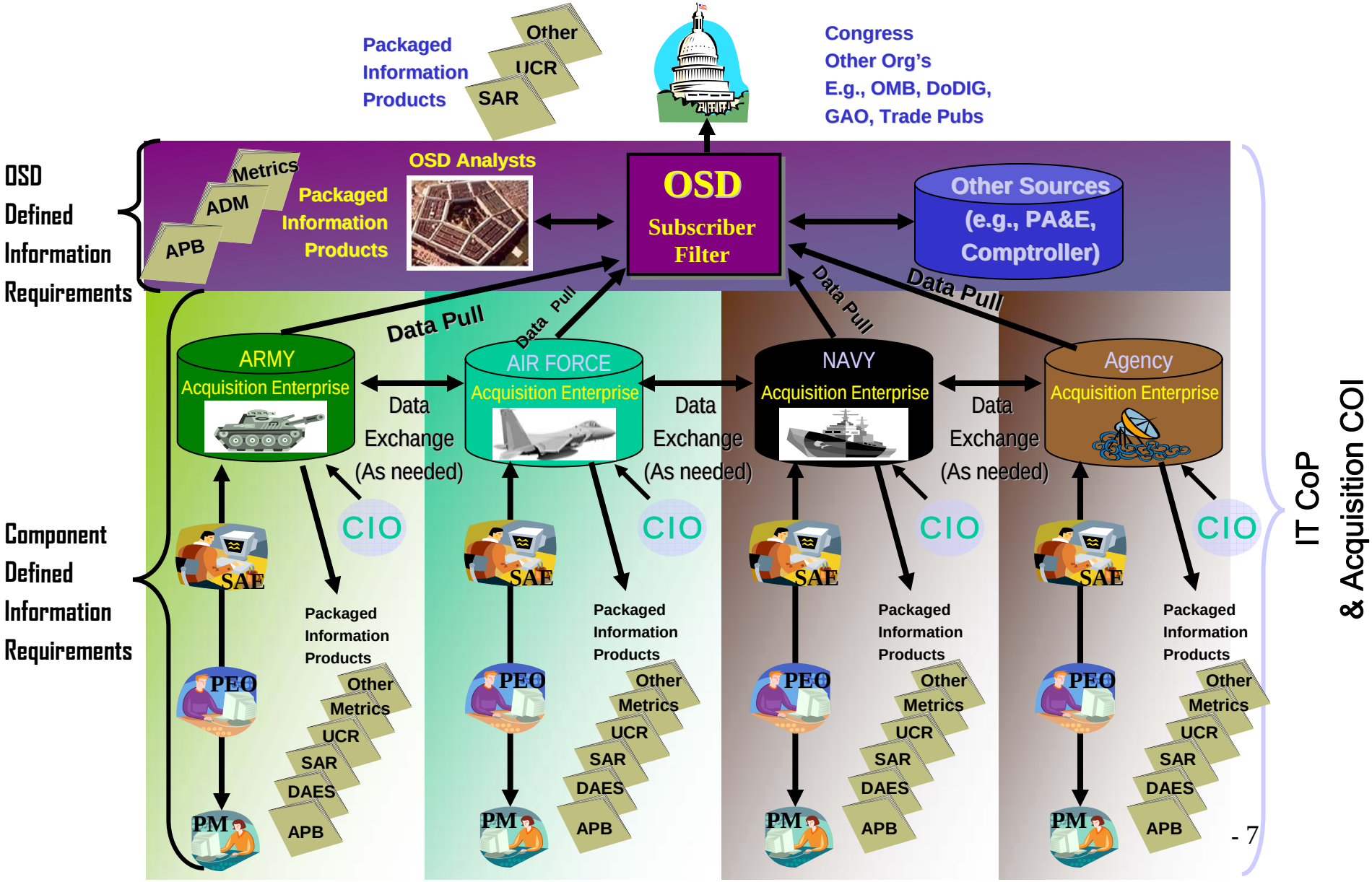
The DoD CIO and the Under Secretary of
Defense (Acquisition, Technology and Logistics) will jointly develop a plan to identify resource requirements and savings that can be expected to accrue from use of the portal, by May
2003, for inclusion in the FY 2005 Budget Estimate Submission.

MID 905 Key IT Architectural Tenets

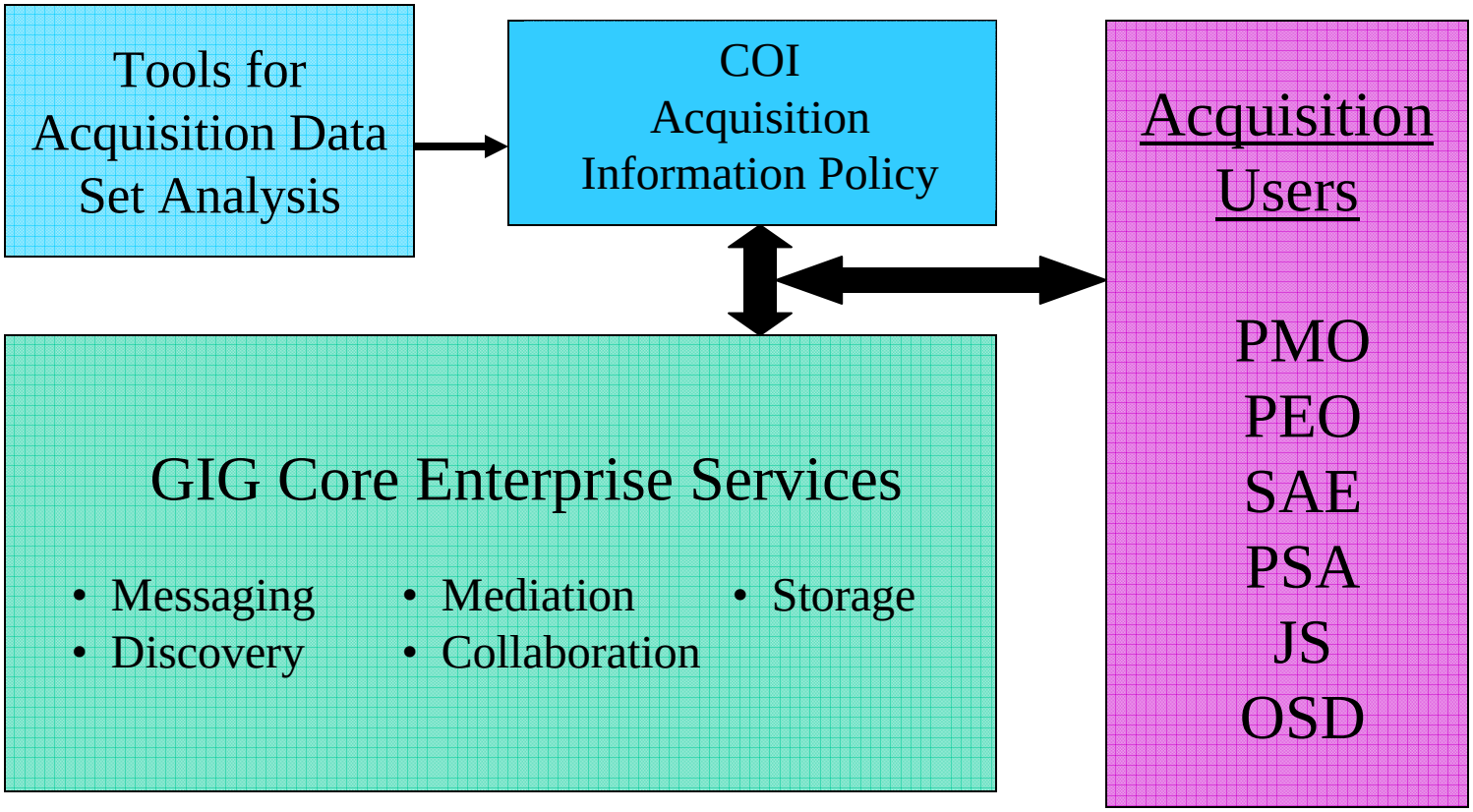
- Only handle information once
  - Requires that technology and processes be reengineered and integrated to minimize time and effort dedicated to data collection and entry
- Post before processing
  - Provides users immediate access to data and eliminates delays normally caused by processing or analyzing information before it is disseminated
- System users must have the technical capability to access data when it is needed
  - The ability to ***pull*** data when it is needed, in the ***form*** that it is needed, is a vital component of net-centricity
- Collaboration technologies must be utilized to assist users in making sense of the data that is pulled
  - Enables use of subject matter experts, at a different location , even outside DoD, to maximize benefits of the information that has been gathered
- Diverse network paths must provide users with the capability to operate freely in an environment that is reliable and secure
  - When operational, the net-centric environment will eliminate current interoperability concerns and strengthen information assurance

Near Term Concept for Achieving Net Centric Acquisition Information Management

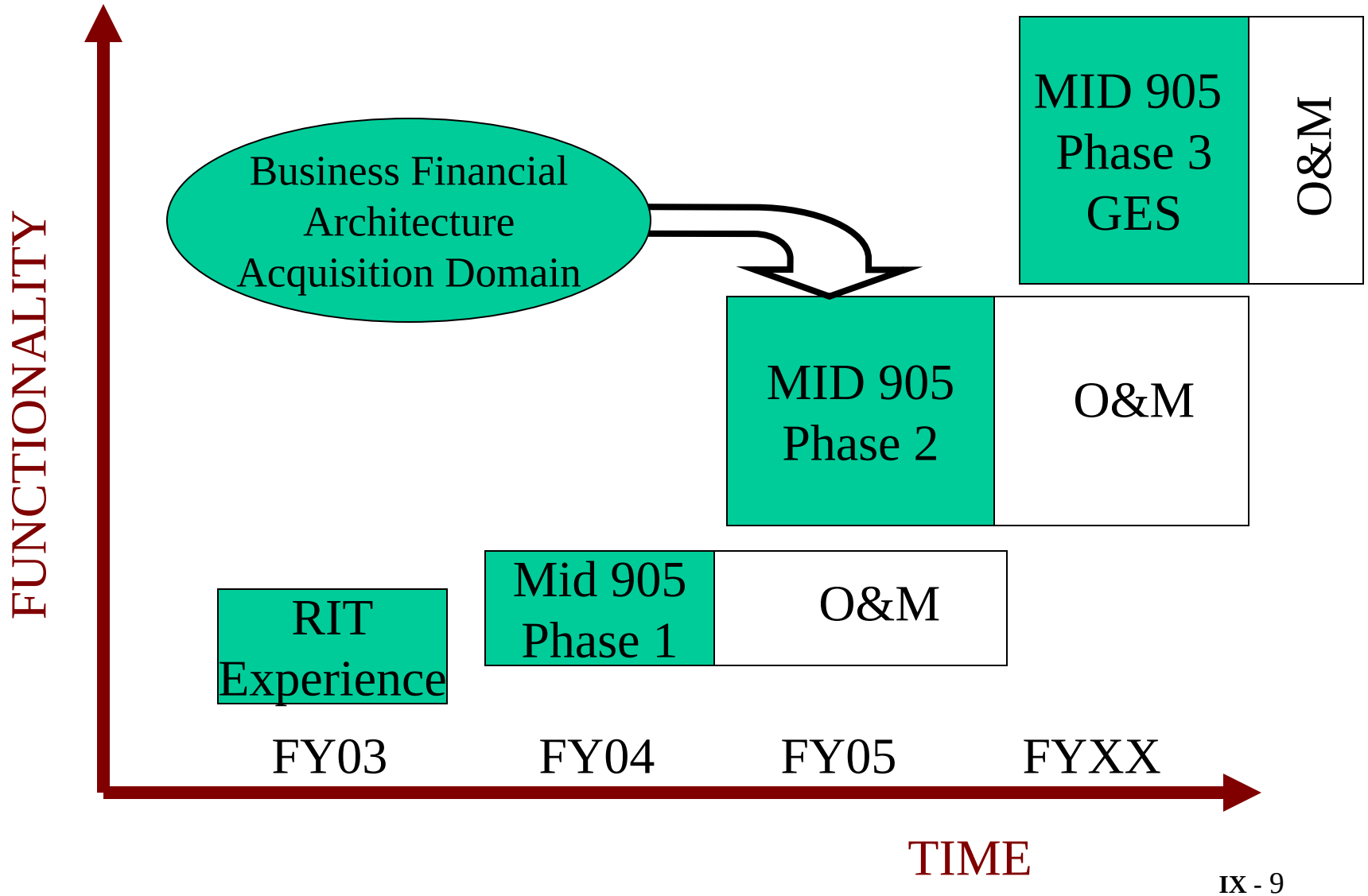
OSD leverages Component Enterprise Systems



Satisfying the MID 905 tenets for acquisition management information with GIG Enterprise Services



Notional Plan to Achieve Net-Centric Acquisition Decision Support



Roles of the COI

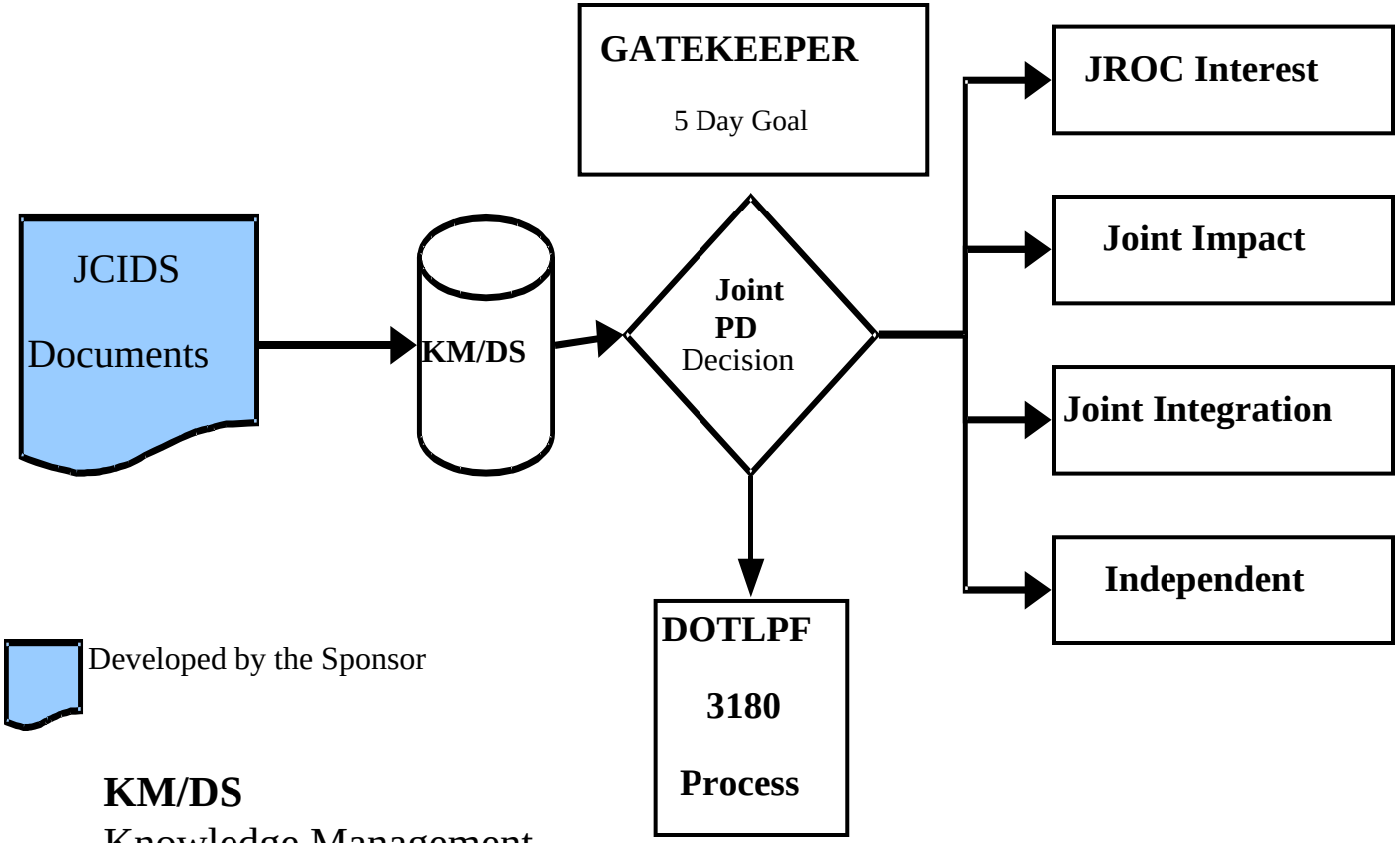
- Set acquisition data policy
  - Solicit and integrate acquisition information set requirements
- Establish and maintain the acquisition information architecture
- Develop and defend acquisition data processing and communications resource requirements
  - Unique acquisition data analysis requirements
  - Gig Enterprise Services infrastructure requirements
- Oversee the implementation of net-centric acquisition oversight
- Establish, collect and analyze metrics

Remaining Issues

- How will the Acquisition COI map to the:
  - Acquisition Domain structure within Business Modernization and Systems Integration (BMSI)
  - Functional Capability Boards within the Joint Capabilities Integration and Development System (JCIDS)
  - JCIDS Knowledge Management Decision Support Gatekeeping Process
- How should the Acquisition COI be organized?
  - Core group with senior level (AT&L, NI2 and I) steering group
  - Additional duty working group reporting to steering group
  - Included under an existing structure that includes

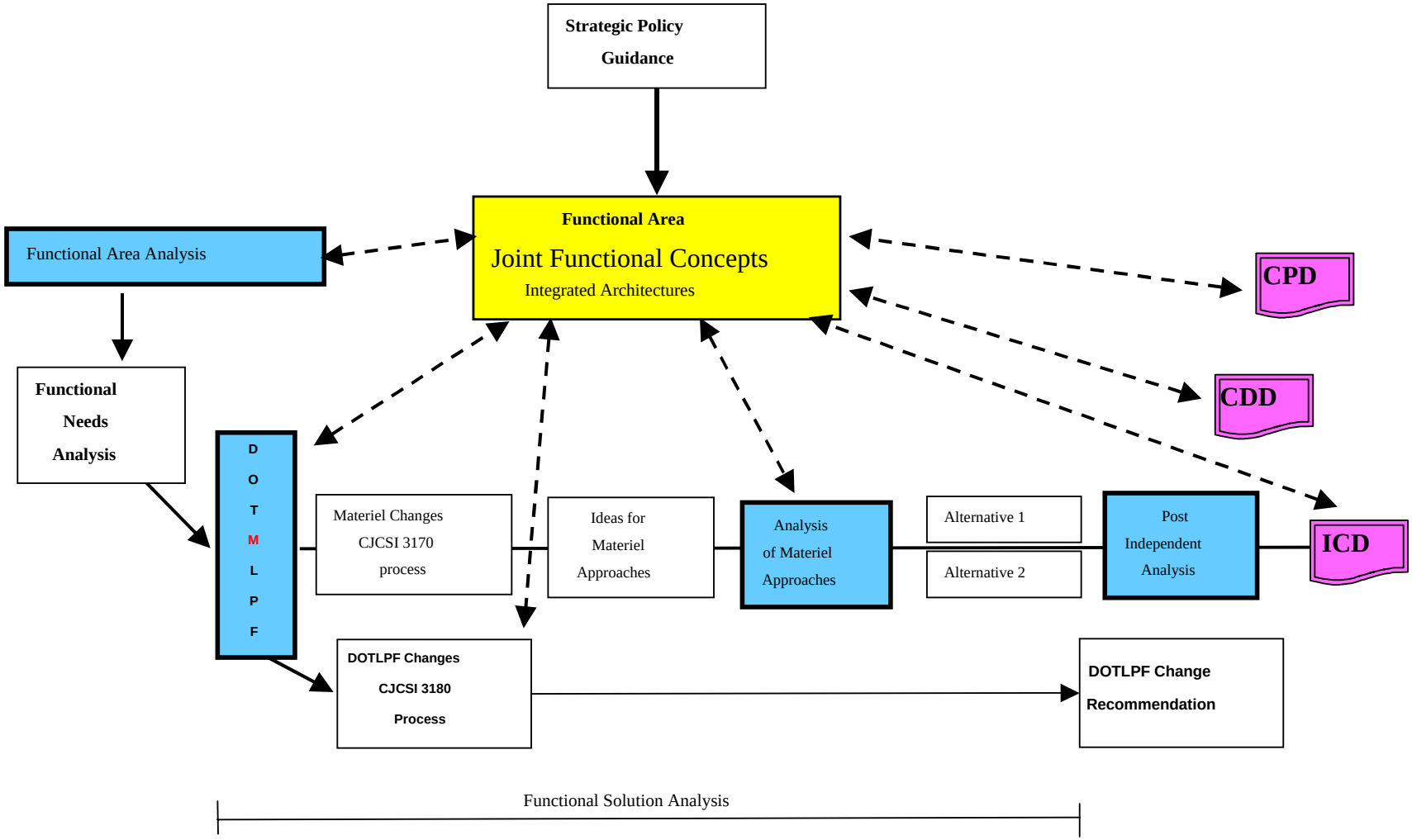
Back Up Slides

JCIDS Knowledge Management Decision Support Gatekeeping Process



KM/DS
Knowledge Management
Decision Support tool
https://siprweb1.js.smil.mil/pls/jrcz.

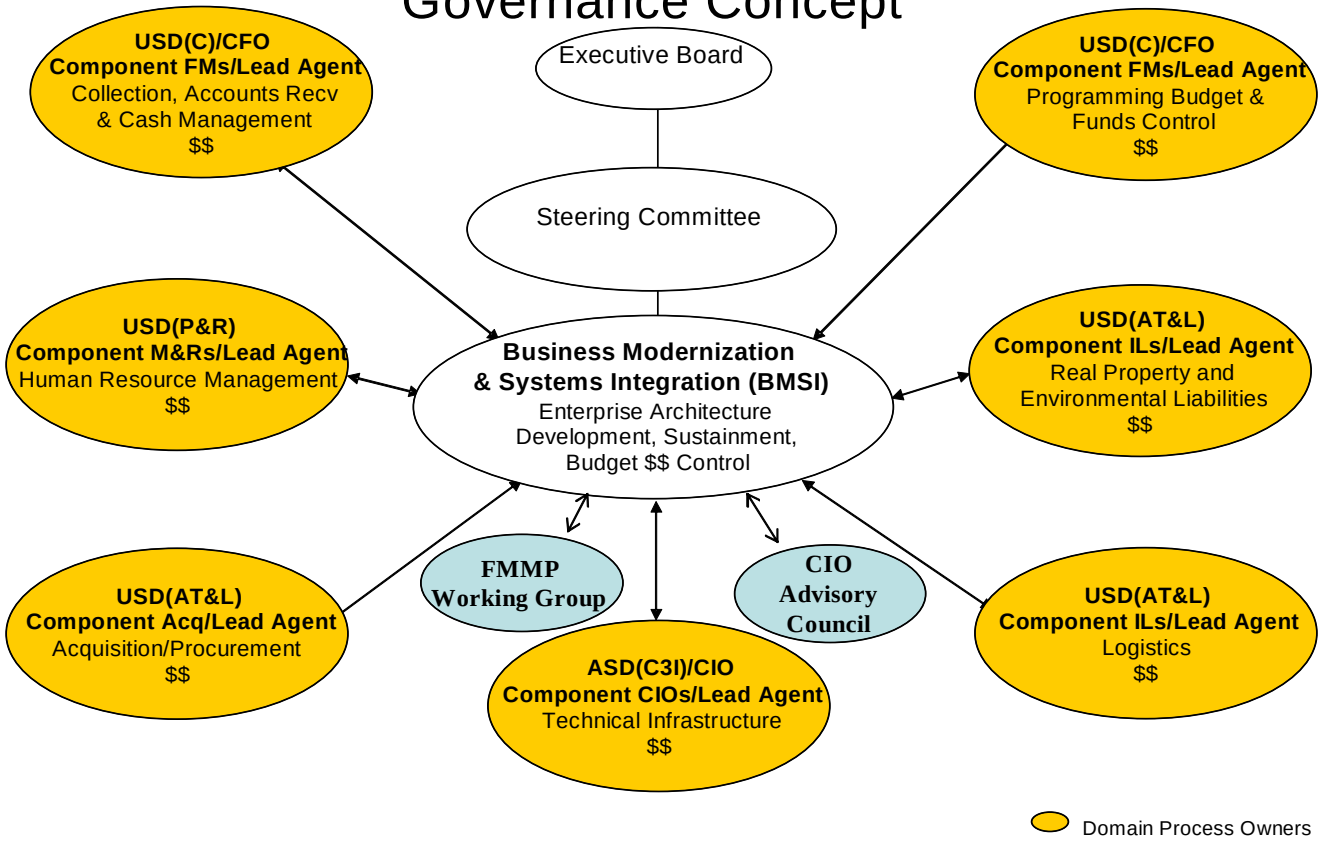
Joint Capabilities Integration and Development System Analysis



FMMP Governance Concept

DRAFT

Governance Concept



APPENDIX X
PROGRAM PILOT SUMMARIES

APPENDIX X - A
Transportation Coordinators' Automated Information for Movement System II (TC-AIMS II)

1. Program objectives

TC-AIMS II was selected as the Army pilot program, in part, because its acquisition strategy aligned with several RIT pilot objectives. The program had already adopted the 18 month incremental development cycle, with the challenge being to maintain that schedule while satisfying the disparate Service requirements inherent in a Joint program. Other objectives common to the program and the pilot were: reducing the burden of oversight requirements, changing from a serial document review process to a concurrent one, relying on the IIPT process to function as intended, and reducing the overhead and program delays associated with formal milestone decision reviews.

2. Summary of program internal and external environment

TC-AIMS II is currently composed of five blocks. Block 1 received fielding approval for the Army and Navy in Nov 02. After an Army ASARC in Dec 03, the program went to an OIPT in Feb 04 to request Block 2 fielding approval conditional upon verification that required fixes had been made, and to request permission to begin development of Block 3. Upon receipt of MS C approval, Block 2 fielding will begin to the Army and Navy. The USMC is participating in an extended development test to ensure the software is adequate for their needs. It is expected that they will accept the Block 2 system after successful operational test, late FY04.

While Block 2 enhanced the capability of the Block 1 Unit Move increment, the major addition was the re-hosting of the application to a web-centric architecture. Block 3 will enable COCOMs to perform initial movement management functions in theater.

The program provides a joint capability to perform joint deployments to the Services. Services are responsible for procuring only their own hardware. The system can work in stand alone mode, in a network and as a web-based application. It provides tactical information in a tactical environment down to the battalion/separate company level. TC-AIMS II is the source data system for deployment and associated asset management operations, feeding multiple Joint and Service unique deployment and transportation systems.

At FOC the program will consist of 5 Blocks. Estimated number of users per Service is: Army 6700, Navy 468, USMC 2019, and USAF 1404. Block 1 contained 50% of the system functionality and contained approximately 9000 function points. Block 2 contained 1784 function points, translating to approximately 91K source lines of code. Block 3 is estimated to have 1604 function points or 79K source lines of code. The PMO has 16 Government positions and approximately 150 contractors support the development, training and fielding of the system.

3. Recommendations adopted

TC-AIMS II already conformed to or adopted many of the proposed RIT recommendations. Its acquisition strategy called for an 18 month incremental development cycle, per the 1996 Clinger-Cohen Act. The JPMO created an information portal, making all program documentation available on the JPMO web site to facilitate access and enable concurrent review. The PM Community of Practice portal was also used as a means to post documents in a collaborative environment. As a joint program, it remained at the 1AM oversight level. The program required their prime developer to be CMM Level 3 certified. Program office support was acquired through a BPA, and the to be awarded maintenance and development contract will move the program to a performance based approach. The Army's Automated Information Management (AIM) system served as an automated conduit used to provide critical and current program information to Army and OSD leadership. AIM reports also identified, tracked and elevated program risks.

4. Program progress during pilot phase

TC-AIMS II was successful in maintaining the schedule documented in its Acquisition Program Baseline. Major challenges were providing the necessary program information to OIPT members as well as supporting operational test requirements during a global conflict.

5. What have you learned

Processes of OIPT members need to be assessed for their value to the acquisition process and need to be flexible to react to and effectively handle "abnormal" conditions and scenarios. Information requirements are not always stable from one MDR to the next. Levels of trust between the PMO and oversight organizations are hard to build without consistent involvement on the part of the oversight organizations. IIPTs have lost effectiveness as they have strayed from the initial concept of empowerment and serving as a decision making forum.

6. Candidate best practices

This program continues to be very proactive in building a family of systems in the deployment mission area. This portfolio management approach has enabled the program to collapse legacy systems, begin to standardize and integrate data and host multiple application on a single platform. This model has resulted in enhanced capabilities at a reduced cost, with savings in license costs, hardware platforms and training across multiple systems.

The net-centric enterprise approach, introduced in Block 2, will relieve the user of DBA responsibilities.

The use of prototype sites to refine requirements, and serve as beta test sites should improve the overall quality of the product and the user interface, as well as improve operational test results.

While following a well defined requirements generation process, the PMO has exhibited the ability to react to new requirements, such as supporting OIF activities as well as adapting to accommodate an austere communications technology. The incremental,

spiral development approach is enabling the materiel developer to incorporate emerging technologies. This helps to keep the system relevant and competitive with home grown, non standard systems that are not held to the acquisition regulations and scrutiny that an ACAT 1AM system is.
Senior leadership support as needed can get things done. The CG of the Army Operational Test Command was instrumental in establishing a TEMP signature date and driving the signatories to that date.

7. Remaining rocks on the road

Major program risks, even though known, were sometimes not dealt with until a 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 DOC X 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 dev 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.

APPENDIX X-B

RAPID IMPROVEMENT TEAM (RIT) PILOT TEAM
NAVY TACTICAL COMMAND SUPPORT SYSTEM (NTCSS)
FINAL REPORT

1. Program objectives. Reduce cycle time for IT Program Acquisition to 18 months or less through a "management by exception" approach to milestone decisions and monthly review of program schedule, cost and performance metrics.

2. Summary of program internal and external environment. The NTCSS program is managed by PMW-151, which is currently part of the newly identified Program Executive Office (PEO) for Command, Control, Communications, Computers and Intelligence and Space (C4I and Space). At the inception of the Pilot PMW 151 belonged organizationally to the Space and Naval Warfare Systems Command (SPAWAR). NTCSS software's Central Design Agency is SPAWAR Systems Center Charleston, St. Julian's Creek Detachment. The specific NTCSS system managed under the RIT Pilot is Optimized Organizational Maintenance Activity (OOMA). This system provides automated logistics information support for all Naval Air commands, both ashore and in the fleet. It is a mature system of moderate complexity that has been in limited initial operation for nearly four years. As such, there are no major risk factors beyond program wide budget cuts and afloat unit availability that could delay installation and deployment of new revisions of the product.

3. Recommendations adopted. Program recommendations agreed upon at Pilot outset by the Milestone Decision Authority (MDA) and NTCSS Program Office included: monthly update and review of all program data in the Army's Acquisition Information Management (AIM) portal; MDA management by exception with virtual reviews and replacement of the quarterly Defense Acquisition Executive Summary (DAES) with the Monthly Acquisition Program Record (MAPR) within the AIM portal. Approximately two man-months of work were eliminated as a result of implementation of these streamlined procedures. Direct personal support from the MDA (the Deputy Assistant Secretary of the Navy for Space and Command, Control, Communications, Computers and Intelligence (DASN (Space & C4I)), and the NTCSS Program Manager ensured implementation of RIT procedures. In the program office, monthly AIM Portal pre-review meetings were scheduled where the program management team reviewed AIM Portal information and updated program status information as required. At all times, the MDA and his staff supported this abbreviated reporting through the AIM portal. In all cases, RIT Pilot recommendations and implementation eliminated time –consuming formal reporting procedures. The MDA devoted significant resources to initiating the use of AIM and ensured that he (the DASN (Space & C4I)) and three members of his staff were trained in its use. Training was provided on-site to the NTCSS Program Office by the Army AIM team. Initially, training was also provided to many members of the Navy oversight community including the cost community and the DON Chief Information Officer (CIO) staff.

4. Program Progress during pilot phase. Many factors affected program progress in addition to the requirements of the RIT pilot. They include system technical problems, and scheduling problems. Since the focus of the RIT recommendations was improving oversight processes to allow for speedier deployment, the use of the RIT pilot recommendations was marginal in mitigating the impact of technical and schedule problems on program progress. The primary impact of these recommendations on program progress is related to time related to avoidance of effort for milestone reviews and its associated tasks such as preparation of supporting documentation and collection of data. Avoidance of these tasks has ultimately resulted in deployment of OOMA approximately two months earlier than would have been experienced using a traditional process.

5. What have you learned? The speed to market of any IT system is dependent on multiple agencies and organizations working gin concert; among them the manufacturer, Program Office, MDA: Commander Operational Test and Evaluation; Program Executive Office and the Program Sponsor. To derive the full benefit of an on-line, real time system of acquisition program monitoring and review, all stakeholders should be thoroughly committed to suing the web-based portal. This is perhaps the most paramount lesson learned. While a program office and MDA may be committed, if all are not, then program management must duplicate efforts to disseminate information via other means to satisfy individual stakeholders unaccustomed, or not committed to obtaining information form the common portal. We have learned that Risk Based Review, dissemination of program data and metrics via a common portal, and management by exception can greatly reduce the administrative time required to manage a program. This speeds the required milestone decisions, which, to some degree, shortens the product's time to market that in this case is the fleet. To maximize these timesavings however, a more concerted effort must be applied for a more extended period to gain all stakeholders' commitment to a new way of doing business. As always, breaking the established paradigms of written reports, documents and briefs, and moving to reliance on more real-time, soft copy information is the most daunting obstacle to success.

6. Candidate best practices. From the program office perspective, the RIT Pilot saved considerable time. Even if the principle goal of the program is not achieved, that is delivery time of an IT system from concept to fleet in 18 months, there are other significant time and dollar savings that justifying retaining best practices contained in this pilot. Risk-based review, management by exception, and common portal of more real time information is simply a more efficient and effective way of managing an acquisition program than using hard copy reports, briefs, and making personal appearances to report the status of the program. As a result, they should be retained as best practices. Given the organizational and technical challenges associated with development and manufacturing of any new product, risk based reviews and timely accurate information are key to adequate insight into program progress and timely programmatic decisions.

7. Remaining rocks on the road. The most significant recommendation is for DOD to develop a common Web portal for acquisition information and reporting. As an example, 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 t 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.

APPENDIX X - C
Point Paper
On
GCSS-AF's Rapid Improvement Team Activities and Accomplishments

Program Objectives:

- To provide agile combat support information to the warfighter that is timely, accurate, and secure:
  - -- Scalable to allow use by all AF personnel involved in the execution of the AF mission
  - -- Deploy Combat Support systems and services on common software and hardware infrastructure to achieve scale efficiencies across the enterprise in the provisioning and operation of the systems
  - -- Allows Single Sign-on to alleviate the need for users to remember multiple passwords to various applications and services
  - -- PKI-enabled to provide additional security rigor
  - -- Provide additional communication venues through the use of collaboration tools such as instant messaging, chat rooms and information sharing for Communities Of Interest (COIs)
  - -- An architecture that accommodates easy and rapid technology insertion to allow for seamless upgrades of components on an asynchronous timeline
  - -- Provide a facility to correlate information across functional communities to answer the CINC 59/129 information requirements
  - -- An architecture that allows shared use of common resources (enterprise services) and eliminates point to point interfaces between applications
  - -- A single presentation mechanism – AF Portal
  - -- Provides multiple production sites to deliver 99.99 percent availability for Portal and Security services
  - -- Provides ability to measure and monitor end-to-end performance of the enterprise
  - -- Provides Total Asset Visibility of Air Force resources

Pilot Objectives

- Accelerate delivery of capability to the end users

- Transform oversite of AF Information Technology (IT) systems

- Foster environment in which military IT systems can embrace real spiral development
  - -- Evolutionary Acquisition Decision Reviews (EADRs)
  - -- Annual Execution Plans (X-Plans)

- Embrace Doc-X approach using SMART
  - -- Provides AF and OSD Senior leadership and staff with near real time visibility into program execution

- Pioneer meaningful metrics

Summary of Program internal and external environment

- Internal
  -- Using a small SPO to execute program: Transformed SPO at RIT initiation to place contractor in charge of initial deployment and program's technical performance
  -- Eliminated large non-value-added government oversight team

- External
  -- Vast number of functional, stove-piped communities that are highly resistant to warfighter integration and embracing and working with GCSS-AF

Recommendations Adopted

- Accelerated delivery:
  -- Deployed first two GCSS-AF services within 30 days of RIT inception
  -- Grew daily GCSS-AF page demand from approximately 10,000 at inception to more than 1,000,000 today
  -- Deployed more than 40 systems and capabilities in the first year
  -- Slated to deploy 20 more systems and 50 Single Sign On applications in FY04

- Embraced Doc-X through SMART and enabled leadership to have near-real-time visibility into GCSS-AF execution

- Embraced EADR approach with joint development of X-plans with customer and then customer approval of X-plan before FY start
  -- Complemented with weekly updates to AF-CIO customer to ensure real-time understanding of execution and provide assistance tackling SPO hurdles, primarily cultural issues with other IT programs resisting GCSS-AF implementation

- GCSS-AF has pioneered a sophisticated metrics program, tracking more than 200 measures of the program's processes, user experiences, and system utilization
  -- Presently working with DISA to upgrade metrics program from a weekly publication to one that is real-time via streaming of page demand traffic into a COTS OLAP/Visualization tool and providing that visibility to key AF leaders and network managers

Program Process During Pilot Phase

- Program executed through a series of spiral and micro-spiral releases
  -- Spirals reserved for major capabilities/services delivered
  -- Micro-spirals reserved chiefly for incremental AF Portal releases that occur literally daily, with the typical week having multiple releases, either for security, performance, or content

- During FY03 more than 150 content releases were deployed into the operational environment

What have you learned?

- Functional stove-pipe or tribal recalcitrance to change is primary impediment to integration and achieving a net-centric AF warfighting team

- Real-time and frequent access to AF senior leadership is essential to progress—they continuously removed hurdles that would have killed this program a long time ago
  -- Vast layers of middle management view integration/GCSS-AF as a threat to system and functional autonomy

- DoD SPO model in the IT sector, with its HUGE reliance on oversight engineers within SPOs and Acquisition Centers is deeply flawed
  -- Creates continuous turmoil, second guessing, and "Not Invented Here" problems that sap productivity
  -- SPO engineers believe it is their "God-given right" to divine their architecture and then pick their pet products to embody that architecture one program at a time
  -- Makes it nearly impossible to field enterprise solutions and reap benefits from scale efficiencies in buying COTS hardware and software
  -- Acquisition center engineering leadership/management perpetuate this paradigm because that's the way things use to be, before COTS infrastructure commodities existed

- C2 and CS SPOs that rely chiefly on COTS IT products should be ISSUED their architecture and products by their service's chief architect or CIO

Candidate best practices

- Extensive metrics program that spans process, user experience, and infrastructure utilization

- Unprecedented level of communication with the customer: weekly meetings expose challenges and areas where senior leadership must intervene quickly to sustain the pace

- Flexibility derived from partnership with LMSI and DISA: put the technical experts in charge of deployment and production of capabilities rather than sloth-like and under-knowledged government SPO

- Velocity achieved through pilot projects: increased communication and emphasis of program funding on world class commercial talent enabled the rapid rollout of applications and services

- Conduct semi-annual Industry Days to ensure Industry knows our direction and to solicit their advice and guidance in moderating that direction

- Operate at least two baselines in the operational environment with a third target configuration to minimize the integration turmoil that IT systems often face when exploiting a high number of COTS products

- Rather than fight particular functional communities, we typically establish Partnerships to field capabilities: GCSS-AF's Enterprise Application Integration (EAI) approach was pioneered in partnership with the C2 Community, specifically the ESC/AC SPO to ensure both communities were using the same technology

Remaining rocks on the road

- Effecting policy updates at pace consistent with the rollout of capabilities: policy nearly always lags our ability to rollout a service/application

- Balancing between velocity of delivered capabilities versus degree of engineering rigor: customer's appetite is insatiable and wants everything yesterday, but neither do we want to deliver those capabilities in a dysfunctional or inoperative state

- Balancing our resources operating the GCSS-AF technology with the migration of new capabilities and the concomitant new work required to sustain/operate those new capabilities

- Working with other acquisition functional communities such as Test that are not either cognizant or supportive of the RIT program

- Funding processes not conducive to spiral development/EADR processes: desperately need transformation in our financial processes to enable real spiral development and effective exploitation of commercial IT in a timely fashion

- Present CIR process a stand-alone appendage cobbled onto the acquisition process: needs to be folded into the SMART system so that SPOs have to keep their program information in one location and produce it only once

APPENDIX X - D
Integrated Logistics Support – Supply (ILS-S) Rapid Improvement Team (RIT) Pilot Program Summary

1. Program Objectives

The RIT Pilot project for ILS-S is the Visible Inventory Position (VIP) project. At the time the RIT Pilot began, ILS-S was to use an incremental, spiral development approach to build a system to replace the Standard Base Supply System (SBSS). The SBSS is the standard retail supply system used by over 300 sites within the Air Force to support our fly and fight mission. The existing system was written in COBOL and has been in production for over 30 years. It has become exceedingly difficult to maintain the SBSS, especially when attempting to add new functionality to the system. The original objective of ILS-S was to incrementally replace the SBSS using spiral development of specific components which would gradually assume more and more of the SBSS functionality until the entire SBSS had been replaced. The spirals were each to take approximately 18 months for development, test and fielding. Overlapping the spirals would deliver new capability to the warfighter every 12 months.

The VIP project seemed like an ideal fit for the RIT Prototype effort. It was to be a well-defined capability that could be developed and deployed within the 18 month window of the RIT Pilot. The VIP component (which was designed to be fully compliant with the GCSS-AF IF) could then be utilized by future components to access inventory position data from the legacy SBSS.

ILS-S program objectives:

- Provide visibility of all supply assets to Joint and AF Commanders
- Ensure accurate and timely supply data for decision makers
- Improve sustainability
- Incremental acquisition strategy—capability to the warfighter sooner
- Develop components using the Rational Unified Process (RUP).
- Enable VIP to provide information to other ILS-S (or external) components.

RIT objectives:

- Design and code a GCSS-AF compliant component within 18 months.
- Institute Risk Balanced Oversight. Use Risk Radar to record and monitor program risks.
- Post program documentation on Document X (the Army Acquisition Information Management (AIM) web site) to facilitate review by decision maker.
- Utilize SMART as an information-based portal to provide real-time visibility of our program in a secure shared environment.

- Utilize Evolutionary Acquisition Decision Review (EADR) as the overview mechanism for PEO / Decision Authority.
- Collect five metrics established during QSM visit (size, aggregate staffing rate, total cumulative effort, open defect rate, defect discover rate).

2. Summary of Program internal and external environment

Please provide details of your program, including program size (government and contractor personnel), IT system description and use, technical complexity issues, and risk factors, along with descriptions of the internal and external issues that affected your pilot and program. Include the QSM metric information.

Task Size:

4 government and 4 contractor personnel worked full time on VIP

System Description and Use:

See Program Objectives (above)

Technical Complexity Issues:

Devising a method for accessing legacy system data was a challenge since only a very few vendors support direct access to the Unisys database. An access tool was successfully demonstrated. However, due to performance and scalability issues, this product will be replaced by a more robust fieldable solution.

Risk Factors:

Risks for VIP were related to technical complexity as noted above.

Other Issues:

-- Overall program direction has changed twice since 3rd Qtr FY02. The reworking of the program to accommodate these changes has not significantly affected the development of VIP. Greatest impact was on scheduling a formal EADR (see comments in para 5 below).

-- Institution of Execution Year Plan Reviews (X-Plan reviews) by the PEO reduced the need for EADRs since the X-Plans (which were updated monthly and reviewed quarterly) contained the bulk of the information needed for oversight by the MDA.

QSM Metrics:

Original plan called for collecting metrics for size, aggregate staffing rate, total cumulative effort, open defect rate, and defect discover rate. Metrics were eventually included in the ILS-S X-Plan and consisted of values for size/complexity, Quality, Manpower & Qualifications, Earned Value and Software Maturity.

3. RIT Recommendations adopted

Provide a description and rational for the recommendations adopted, and a description of how they were implemented.

We obtained accounts on the AIM portal and placed all applicable acquisition information there for review by higher authority. We never received any feedback on any documentation placed there.

We began to use SMART to post information on program status, schedule, funding and Earned Value metrics. This information is reviewed at least monthly by the SPD and the PEO. The SPD provides feedback during monthly reviews.

All program risks are documented via the PRAM (Project Risk Assessment Method) which is maintained jointly by the SPO and our prime contractor. However, we are also using Risk Radar to track program risks and monitor mitigating actions and their results. The risk radar product provides a uniform method for monitoring the top risks across the entire portfolio of the SPD. In addition, the risk radar results are included in the X-Plan for review by higher level authorities.

4. Program progress during pilot phase

Please provide a statement of the progress you made relative to the 18 month schedules we put together at the beginning of the RIT Pilot.

The original goals for the VIP initiative were to deliver Initial Operational Capability (IOC) within one year of inception (by Jul 03), and to be full fielded within 18 months. IOC was attained within one year, however, VIP will not be fully fielded until Jun 04 due to a decision to replace the COTS component used to provide legacy system (SBSS) access. However, the VIP deliverable as constructed did complete successful functional and system testing.

5. What have you learned?

Please state what you have learned based on your pilot experiences, and more importantly, what would you do differently if posed with the same circumstances in the future.

Continuous monitoring through periodic "virtual" reviews (the X-Plan reviews) works well and is far easier to implement than traditional milestone reviews. In fact, we were never able to conduct a formal EADR for the VIP program. The ILS-S program has undergone at least two major changes in direction since the beginning of the RIT pilot. One effect of these changes was to disrupt the planned review schedule. For example, we did not wish to conduct an EADR until a Service Cost Position had been approved by the Air Force Cost Agency, so the EADR was repeatedly delayed while the Life Cycle Cost Estimate was revised…twice. On the other hand, the requirement to brief higher authorities on these changes had the effect of providing almost continuous program oversight to, and feedback from, these authorities.

The selection of a single location for entry of program information necessary to support higher level reviews would ensure a more consistent view to all interested parties and would reduce the current requirement to enter virtually identical information in multiple "management tools". SMART, the X-Plan and

the CIR all consist of the same data viewed from slightly different perspectives and at varying levels of detail. A single tool, such as SMART, that allowed for entry and/or review of information at various levels of granularity should be capable of meeting most if not all oversight requirements.

6. Candidate best practices

Army, Navy, HA and DISA programs, please contribute those practices that work well for your program. The Air Force programs will have their best practices recorded by the mini-assessment team.

The ILS-S program and VIP have not yet been audited by the mini-assessment team.

7. Remaining rocks on the road

What further recommendations do you have for streamlining the requirements/acquisition process?

APPENDIX X – E

Pilot Program Summary

Integrated Maintenance Data System (IMDS)/

Precision Measurement Equipment Laboratory (PMEL)

Automated Management System (PAMS)

1. Program Objectives

Program – Re-Host system onto GCSS-AF with capability improvements.
RIT – Improve delivery time (through use of Extreme Programming and reducing phases from three to two).

2. Summary of Program internal and external environment

Legacy PAMS

Legacy PAMS (version 5.7) is an UNISYS B25/XE500 series client/server system utilizing the Burroughs Terminal Operating System (BTOS) network operating system. The application software, programmed in BASIC, makes extensive use of the built-in OS networking features that significantly improve speed and efficiency. There are currently 39 modules and 66,000 lines of code. The hardware is no longer supportable and the system availability is severely limited at many of the locations. PAMS was an ACAT III program, which gained IOC on 1 Aug 1988, FOC 1 Sep 1991, and is currently in Phase III of the acquisition life cycle. The current level of the operating system is now out of date. PAMS is currently operating on version 5.7 as of March 2001. There are no further releases are planned or being worked for the BTOS platform.

PAMS Re-Host Technical Architecture

PAMS Version 6.0 will be hosted on a common Web-based/Graphical User Interface (GUI) platform within the Global Combat Support System Air Force (GCSS-AF). User access to the PAMS application is via the Air Force Portal. PAMS v6.0 is a complete software re-write/re-design and not a “code-roll”. A centralized database using Oracle 9i supports all PMEL locations. The application code is Java and the user interface utilizes Java Server Pages (JSP) and Oracle 9i Application Server software. The JSPs provide the user interface while Enterprise Java Beans handle database connections and business logic in the middle tier.

Figure 1-1, Legacy vs. Re-host Lines of Code

Language Type	Legacy PAMS SLOC	PAMS Re-Host SLOC
Basic	66,000	NA
CSS	NA	300
HTML	NA	81,000
Java	NA	55,000
JSP	NA	25,000
XML	NA	33,000
Total:	66,000	194,300

3. RIT Recommendations adopted

Initial PAMS Re-Host Strategy

The initial PAMS Re-host strategy as identified in Mar 02 consisted of three phases:

Phase I – Direct re-host from existing Burroughs platform to a SSG network server, using AFMETCAL PCs as client workstations. No changes to existing functionality were defined in Phase I with the exception of migrating "green screens" to GUI screens. A centralized database would support all 72 PMEL sites.

Phase II – Web-base the application using the Air Force Portal as the access entry point. Add various Air Force Precision Standards Laboratory (AFPSL) requirements, and roll-up reporting capability to AFMETCAL and Air Logistics Centers.

Phase III – Migrate application to the Global Combat Support System – Air Force (GCSS-AF) Integrated Framework (IF). Add automated interface capability to CMOS, and integrate capability with Supply. Meet other technical mandates (i.e. CFO), and incorporate additional requirements, such as, depot PMEL.

Current PAMS Re-Host Strategy

In Aug 02, SSG held a Program Manager's Review (PMR) with Air Staff (AF/ILM), the PEO and AFMETCAL representatives. Discussions centered on requirements as defined in each of the three phases. A decision was made to migrate PAMS directly to the GCSS AF Infrastructure vice the two-phased approach proposed: develop on a GCSS AF like platform and migrate as a follow-on spiral. Schedule impacts as estimated by the GCSS AF Program Office totaled three weeks. The decision drove the

inclusion of requirements from Phase II to Phase III. The following major requirements were added to the existing Phase I effort:

- Web-base the application using the Air Force Portal as the access entry point
- Migrate to the GCSS-AF Integrated Framework
- Convert screens to improve web performance
- Add instrument code to identify performance drivers

4. Program progress during pilot phase

Major Milestone	Start	End	Status
• SW Development	30 Mar 03	13 Jul 03	Completed
• QT&E I	14 Jul 03	22 Aug 03	Completed
• CT&E/Bandwidth	25 Aug 03	29 Aug 03	Completed
• Ind. Test/Network Risk Assess	1 Sep 03	12 Sep 03	Completed
• GCSS-AF IF Staging	16 Sep 03	30 Sep 03	Completed
• IATO Received	2 Oct 03	2 Oct 03	Completed
• IOC (RIT Target: 30 Sep 03)	2 Oct 03	2 Oct 03	Completed

5. What have you learned?

Resources:

Ensure adequate staffing with required qualifications is in place prior to starting a project. Train functional staff in Requirements/User Story development. An experienced and trained staff is especially important when using the Extreme Programming methodology.

SME Support:

Use SMEs to augment shortages in organic functional staff. This provides the project manager the flexibility to ramp the staff up and down when required. The only drawback is each new SME will have a different perspective on how the application should work, and if left unchecked, requirements creep can result

Requirement Changes:

A Change Configuration Board (CCB) should review and approve/disapprove all requirement change requests. If the changes require extensive re-work and/or impacts the schedule, additional funding must accompany the change request. The CCB must weigh the schedule and cost impact against the need for the change. The CCB findings, along with options, should be coordinated with the customer for their review and approval.

XP Development Methodology:

The XP development process requires user acceptance testing at the end of each iteration to ensure functionality is met. Additionally, testing should be automated to allow testing to be quickly/easily re-accomplished during the iteration as changes are made and for testing with subsequent iterations. This is critical to the underlying principals of build a little/get feedback to ensure accuracy and thoroughness of design and implementation. Due to limited resources, the majority of this type of testing

happened towards the end of the project resulting in numerous changes with little time to incorporate.

Security:
The CT&E test team should conduct pre-reviews of source code multiple times before the start of the actual CT&E test. Pre-reviews will identify security defects early in the development process, and will allow more time to fix them before the CT&E test begins. The pre-reviews will greatly enhance the probability of a smooth and successful CT&E test. Additionally, always have the design validated by security reviewers prior to development. DoDI 8500.2 clearly defines the security requirements.

GCSS Integration Support:
Dedicated Global Combat Support System (GCSS) integration support is vital for all applications hosted or planning to be on the GCSS Integrated Framework (IF). The Integrator should provide technical support, assist in resolving technical issues, documentation review, and serve as lead on all other GCSS-related issues. Integrator should also serve as liaison with Lockheed Martin - Owego, GCSS Outreach, SSG/ENEE, and DISA.

Risk Management:
Use Risk Radar to identify, track, mitigate, and report project-related risks. Identify all risks and enter specific mitigation steps. Review and update database as required. Risk Radar is can be extremely effective if used as a management tool and not just a reporting tool.

Internal Communication:
Close coordination with all project stakeholders was key to the successful implementation of PAMS 6.0. A draft of the project schedule must be coordinated with all organizations identified as a resource. Agreement by all parties on their projected tasks and scheduled dates are required before the schedule is baselined. Hold recurring project status meetings to ensure a good line of communication is open throughout the project. Meetings should always include the core team members. Invite other stakeholders prior to when their tasks are scheduled to open and ensure they will be available throughout their task period.

THINGS WE DID WELL

Use of Extreme Programming (XP):
The Extreme Programming (XP) methodology offered several advantages that benefited the PAMS Re-host project. The most notable advantage is the flexibility it provided with regard to Requirements and Design. Several major design and requirements changes throughout the project significantly enhanced the quality of the PAMS application. The result is a “Version 1” product that has “Version 2” maturity. If we contrast the PAMS project to a traditional waterfall model, the customer would have received “Version 1” and would have had to pay for additional modifications to the code to get it where it is today.

XP also allowed the software development to begin sooner than using the more traditional waterfall model. Using the waterfall model would have caused a 4 to 6-month delay as the requirements were written for the PAMS system. Further delays would have been inevitable as those requirements continued to change throughout development phase of the life cycle.

Customer Representation
Active involvement by the customer or customer representative in all phases of the project's life cycle is a basic tenet of XP. In the case of the PAMS Re-Host project, Standard Systems Group (SSG) organic PMEL functional staff and Subject Matter Experts (SME) from PMEL sites around the world represented the customers. The on-site PMEL users provided early and continuous feedback directly to the developers. Continuous functional testing and feedback reduced the usual amount of time required for functional testing at the end of coding and development.

Paired Programming:
Another basic tenet of XP is the practice of "Paired Programming." Paired Programming combines two programmers who share the same computer and develop on the same coding modules. SSG utilized this practice where/when practical and realized positive results. Paired Programming enabled the developed team to conduct real-time peer reviews on all of our code. The development team was able to fix all the defects and some of the requirement changes, even during Function and System testing.

Security:
Several code reviews were conducted prior to the Certification Test and Evaluation (CT&E). All security issues discovered during these code reviews were fixed prior to the CT&E. As a result, the CT&E uncovered only four low risks, two of which were attributed to the GCSS-AF IF.

GCSS Integration Support:
Lockheed Martin (LM) was contracted early in the development process to provide GCSS-AF integration support throughout the project. The LM integrator solved some significant technical problems and helped keep the lines of communication open between the PAMS team and the GCSS-AF support team. LM also reviewed our GCSS-AF-related documentation and ensured each documentation milestone was met.

Risk Management:
The extended Risk Radar tool was used throughout the project and was instrumental in identifying, documenting, tracking, and reporting project-related risks.

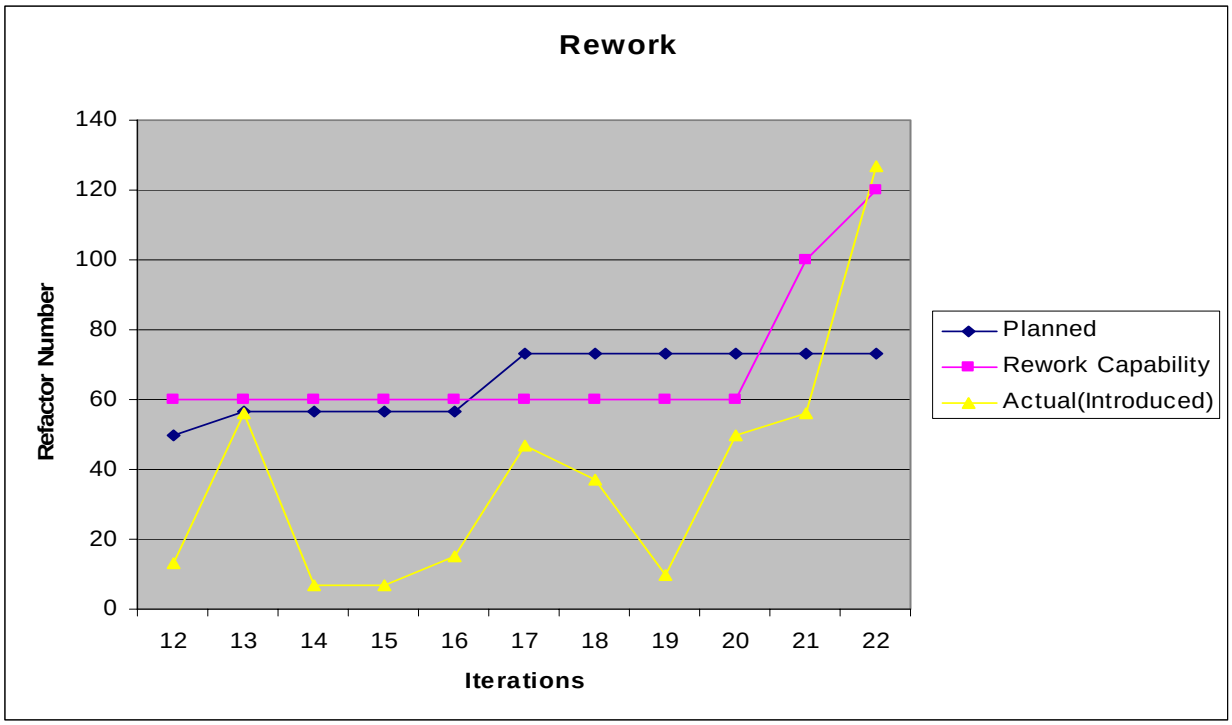
Combined Test Force (CTF):
The PAMS Re-host project utilized the Combined Test Force (CTF) to manage all phases of testing. The primary mission of the CTF is to perform test planning, execution, and reporting. The CTF also increased the quality and decreased the time

for discrete testing phases by coordinating test events and data requirements between test agents (for developmental test, interface test, interoperability, system security, network risk assessment, etc.). In addition, the CTF focused test events using risk-based testing approaches. Risk-based testing concentrates on the aspects of the system, which provide the most critical functionality and performance.

THINGS WE COULD HAVE DONE BETTER

Personnel Resources:
At the start of the project, the development staff had limited JAVA and J2EE programming experience. Additional skilled programmers, funded by SSG, were added to augment the development staff in November 2002, driving schedule impacts. Additionally, the organic functional staff was limited in numbers due to funding constraints. The limited functional support hampered the ability to test software increments as they were developed. The results were a significant spike at the end of development effort that taxed the development team (reference figure 1-3 below). Subject Matter Experts (SME) from various PMEL locations supplemented the functional staff to correct this problem. The project was slow in ramping up with SME support, thus schedule was impacted.

Figure 1-3, PAMS Re-host Rework Graph



Personnel Resources – Cross-Utilization:
One the PAMS functional staff had to be re-assigned to augment the Database Administrator (DBA) staff. This was required to compensate for the lack of a DBA with

enough knowledge of the PAMS legacy data to support the design and development effort. This severely limited the individual's time for requirements definition and testing.

Requirements Definition:
An internal XP Assessment conducted in Sep 02 identified that the user stories, did not have enough detail, and were not documented properly. User story training conducted for all functional personnel in Sep 02 greatly improved the detail of the user stories. Additionally, the initial lack of functional resources delayed the development of the Requirements Specification. As a result, the Requirements Specification was developed towards the end of the testing period, thereby, causing a 30-day schedule slip.

Requirements Changes/Creep:
Because TDY SME support rotated every 2-3 months, each new SME brought a new and in many times different perspective in regards to PAMS business rules. In many instances, the differences in perspective resulted in some significant requirement changes.

Design:
The initial PAMS v6.0 design did not meet audit requirements and required major re-engineering and code/database modifications. If the design were validated prior to coding, several issues would have been identified up front – such as the need to protect java server pages, as well as the need for auditing, password encryption, etc.

XP and C4ISP:
Both SSG developers and the SPO personnel had not previously used XP and the extensive C4ISP process. The XP philosophy is to develop a system rapidly for quick release of a product. The effort is small and well defined; the first spiral is a prototype. The building of PAMS under the C4ISP process and on the GCSS-AF IF requires a well-documented process. All documentation must be developed and reviewed prior to SSAA certification and completion of the C4ISP package. The two processes: XP and C4ISP are conflictive in the area of documentation. A modified process for XP development became necessary.

6. Candidate best practices

- **Early involvement of field subject matter experts as part of the Extreme Programming process appears to have resulted in fewer defects in defined requirements than would otherwise have been expected**
- **The use of a web-based scheme to achieve concurrence on requirements in the IMDS functional baseline appears to have established realistic expectations among users**
- **Early and continuous involvement of test & evaluation personnel in the program**
- **The IMDS process for canceling, decommissioning, and archiving obsolescent or superceded systems**
- **The extended "Risk Radar" tool provides a unique capability**
- **The team found evidence of exceptional executive management support and oversight of conformance with the organization's defined processes**

- **The Program Managers' Forum and the Maintenance Information Technology Working Group provide opportunities to keep stakeholders in the maintenance functional area up to date on developments in maintenance IT**
- **The IMDS program office process for personnel transformation using a database of skills, background/experience, and training**

7. Remaining rocks on the road: None

APPENDIX X - F
RAPID IMPROVEMENT TEAM (RIT) PILOT
FINAL REPORT
ON THE
STOCK CONTROL SYSTEM (SCS)
ACAT IAC
11 Dec 03 (updated Mar 24, 2004)

PROGRAM OBJECTIVES: SCS is an on-line, real-time wholesale supply data system undergoing a modernization effort. The SCS modernization program objective is to move from a mainframe to a mid-tier, web-based system that is compliant with the Global Information Grid (GIG), Defense Information Infrastructure -Common Operating Environment (DII-COE), and Global Combat Support System – Air Force (GCSS-AF.) The primary SCS RIT Pilot objective was to reduce the time to field or deploy additional warfighter capabilities.

SUMMARY OF PROGRAM INTERNAL AND EXTERNAL ENVIRONMENT: Prior to the RIT, the SCS was experiencing significant schedule delays and cost overruns on nearly every modernization increment being executed. Using this historical data, the System Program Office (SPO) initiated a Program Office Estimate (POE), requested an Independent Cost Estimate (ICE), and after validating, accomplished an Economic Analysis (EA). These estimates revealed that the major causal factor to the greater than expected schedule durations being realized were a result of the large work scope being developed. Additionally, the magnitude of this work scope also increased the complexity of integration and acceptance testing, and decreased software quality. The synergistic effect of a large effort to design, code, and test, coupled with additional time required to fix an inordinate number of software discrepancies resulted in the numerous schedule delays being encountered.

RECOMMENDATIONS ADOPTED: The SCS SPO immediately adopted one of the RIT objectives of reducing the time to field or deploy additional warfighter capabilities. The SPO and the prime contractor decomposed a large increment, typical of previous increments into four spirals. The SPO's plan further included a deployment or incremental IOC upon completion of each spiral. The first spiral was planned in detail and the resulting time-phased schedule, cost, staffing, and metric baseline data was submitted to the Program Executive Officer (PEO) staff as a RIT pilot.

SPO risk management approach employed the ESC/IL mandated risk management process and "Risk Radar" tool. The SPO aggressively employed this risk management process early in the development cycle for this increment. The team identifies risks, prioritizes, assigns responsibility, prepares mitigation plans; prepare contingency plans and track the risk until exit criteria is reached.

PROGRAM PROGRESS DURING PILOT PHASE: The SCS RIT Pilot, Spiral one entailed a baseline of 16 technical requirements, 4.5 month duration, 2,630 labor hours,

and 22 planned Priority 1 & 2 software defects. The performance for Spiral one was determined to be outstanding. Spiral one actuals resulted in accomplishing 16 technical requirements (no growth), deploying in 4.5 months (on-schedule), receiving only 15 Priority 1 & 2 software defects (7 fewer than baselined), and incurring 3,371 labor hours ($5K cost overrun.) Spirals two, three, and four were equally successful in that each incurred a cost under run, had less Priority 1 & 2 software defects than planned, and resulted in less labor hours than planned. In regards to schedule, Spiral two deployed on time and spirals three and four had a 1 month schedule delay, which was caused by an external DISA delay due to a software upgrade.

SPO utilized SMART as an information portal to provide program status. SMART provides single location of program information that supports consistent higher-level reviews. Also reduces the requirement to enter similar information in multiple program status/management databases.

LESSONS LEARNED: The SCS SPO concluded that not only was spiral development successful, but spiral deployment was equally as successful. Decomposing a large increment into smaller, more manageable spirals, together with deploying at the conclusion of each spiral significantly mitigated requirements growth, cost, schedule, and quality issues inherent in large, complex software development efforts. Furthermore, users/warfighters can reap the benefits of receiving added or enhanced capabilities sooner than was ever accomplished before. The SCS SPO has subsequently adopted spiral development and deployment as its software development concept of choice.

APPENDIX X - G

Pilot Program Summary

Global Transportation Network 21 (GTN 21)

1. Program Objectives

The GTN 21 Program vision is "To gather the family of transportation customers and providers of lift into an integrated Defense Transportation System (DTS) data infrastructure that will provide the In Transit Visibility (ITV) and the C2 decision support information necessary to meet customer requirements." The mission is to provide near-real time visibility of global, multi-model movement of passengers, cargo and patients in peacetime, war, and contingencies. GTN 21 will also provide the warfighter with C2 decision support capability.

The Rapid Information Team (RIT) pilot is an attempt to reduce the acquisition life cycle by moving from 'oversight' to 'insight' through reduced formal reporting and milestones to informal information posting of information with periodic Evolutionary Acquisition Decision Reviews (EADRs).

GTN 21 participated in the RIT pilot by:

Establishing 18-month cycles	Yes; fielded increments are no longer than 18-months
Document X	Yes; AIM (DOC X) is the central point to post high-level documents. SMART and system created Management Portal also used for posting of daily, weekly and monthly work products and status.
FAST TRACK risk-based oversight	Yes; We use Risk Radar dbase to record and track risks. Risks are evaluated constantly in individual IPT meetings, the weekly Program Management IPT, and at a monthly Risk Management Review.
Standardized oversight requirements	Yes; We use SMART, AIM and the iCMM model to input standardization. We have also been developing processes in accordance with the iCMM model to standardize.
Delegate to Component	Yes; we are ACAT 1AC
Assess Clinger-Cohen Act (and other) compliance	Yes; AFCIO assures that we are 'in good shape" using CCA compliance matrix
Oversight Information via portal	Yes; We use the SMART tool via the AF Portal. We also have created a Management Portal for sharing information between the government and contractor.
Policy and Training for spiral development	Yes; This was explained and back-briefed at the Post Option Conference (POC) and is implemented and monitored within the IPTs.
Develop AoA policy	Yes; AoA is submitted and approved as part of CCA Compliance Report.
Restructure ADM's to address issues	Yes; Use EADR Minutes as ADM. Note: We've had 1 EADR to award the contract and will have another on 30 January, 2004 to start FOC and provide status.

2. Summary of Program internal and external environment

This program currently has 156 contractor personnel from Northrop Grumman and their sub-contractors. The PMO staff specific to GTN 21 is 12 with 26 more government and government-contracted personnel working in a matrixed capacity to support GTN 21 development and management.

This system has a robust capability, is simple, user friendly and intuitive. Queries are Standard or User Designed. GTN 21 will provide better C2 decision support with summarized reports and In-depth analysis capabilities using years vs. months of data that is exportable to other existing software. The system architecture is adaptable to changing user requirements. It is a true portal product vs. web page. Highlights of the system are:

- Hardware: COTS
- Software: COTS & Developed
- Active Data warehouse
- User Interface
    - i. Web-Based
    - ii. No Deployed (Client/User) Software
- Primary Site: Scott AFB, IL
- Alternate Site: DECC STL, MO

The program used metrics created by the AF PEO for Command, Control and Combat Support. They included: Size, Earned Value, Manning and Qualifications, Quality, and Software Maturity Matrix.

3. RIT Recommendations adopted

GTN 21 has successfully implemented those areas listed in the table above. The PMO also had a mini-assessment that provided several Candidate Best Practices and Areas for Improvement. The PMO has addressed each of the Areas for Improvement and is currently working to complete the tailoring and implementation of the iCMM model (the FAA iCMM model was used as a basis for the mini-assessment.

4. Program progress during pilot phase

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.

5. What have you learned?

- Throughout Source Selection and the Initial Phases of our Program Development, we have learned several lessons.
- The mini-assessment is a valuable tool to quickly evaluate the repeatability of positive practices of our people. A team can quickly evaluate the documentation and personnel to ensure that the program personnel are performing the processes and implementing the principles required for successful programs.
- Designation from an ACAT 1AM to 1AC positively affected the MDA day-to-day knowledge of the program and streamlined AF CCA confirmation. The OSD Gray

Beards remain on-board and a team with key stakeholders is available throughout the acquisition process.

- The use of Integrated Process Teams is essential to rapid development. For example, our Combined Test Force and Test IPT are critical to constant communication and critical to a successful test strategy.
- A CCA IPT resolved a GTN 21 unique situation.
- The C4ISP was not affected by RIT. It still is an 18-month process.
- The EADR minutes used as the Acquisition Decision Memorandum streamlines approval.
- User involvement is still critical to success.
- Integration of our program and engineering staff into the contractor workspaces has enhanced communications between the Government and contractor. In most cases we created a tri-lead situation for our IPTs in which the Government, user and contractor chair the IPTs. The result is awareness of the issues and a quicker resolution of those issues. A few examples of this 'cooperation' are the author CCA compliance items (i.e. BPR, MPMs), authored and coordinated MNS, AoA, ORD, and participation in the development of the SAMP, TRD, RFP, and C4ISP.
- The change from Oversight to Insight with expert help was another key to RIT implementation.
- The decision for 'Initiative Sharing' using common portals and sites was useful to create an information-sharing environment to pull vs. push a document.
- A pre-brief to EADR Co-chairs and information flow prior to the EADR helped set expectations. Numerous pre-briefs occur in reality to ensure that there is time for feedback prior to the EADR.
- Finally, the Integrated IPT was the first step into insight and now the RIT will take the integration the rest of the way from document-based to information-based management.

6. Candidate best practices based on mini-assessment

- The GTN-21 team understands the need to minimize changes to COTS and aggressively manages COTS changes.
- Customer, USTRANSCOM J3, participation on all IPTs contributes significantly to expectations' management.
- The existence of well-defined measures of effectiveness provides bridges among the strategic plan, the ORD, and test documents.
- Early involvement of all contractor and government independent test organizations into the Combined Test Force is an effective risk mitigator.
- The practice of maintaining the government estimate of the program will be of great value to the program.
- Use of the portal by all GTN-21 team members, government and contractor, enables a high level of collaboration**.**
- The mechanism established for USTRANSCOM enterprise configuration management will facilitate management of GTN-21 external interfaces**.**
- Vendor support has been arranged for up to 17 years.
- The PMO made a significant effort to understand business rules and capture them in data structure for ease of sustainment.

- The use of the government/contractor-shared portal facilitates enhanced Supplier Agreement Management.
- PMO-Contractor teaming is exemplary**.**
- Shared training between the Government and the Contractor.
- The structure and organization of the portal is useful in the sharing of information needed to support management of the project.

7. Remaining rocks on the road

The following bullets reflect our recommendations to continue using the tenants of the RIT initiative:

a. Delegate MDA to the lowest appropriate level
b. Continue to foster the culture
    i. from Oversight to Insight
    ii. from document push to information pull
    iii. from formal briefs to the EADR Approval Process
c. Insist on IPTs that are facilitated by Document X Tool (AIM), SMART and a Management Portal for local information dissemination
d. Align C4ISP Process With RIT Principles
    i. 18 months is too long
e. Align Financial Management Process (AFCAIG) With RIT Principles - Streamline

APPENDIX X - H

Pilot Program Summary: Financial Information Resource System (FIRST)

1. Program Objectives

FIRST is program within the Global Combat Support System - Air Force (GCSS-AF) Family of Systems (FoS). FIRST will result in a single Air Force-wide standard budget system incorporating electronic funds transfer and data sharing capabilities within budget and related functional areas. It will result in a paperless business environment and will combine functional process improvements, a well designed data environment, dynamic report writer, and standardized data elements. FIRST will provide AF budget personnel, worldwide, with a flexible standard system capable of meeting new requirements with emerging technology.

As a pilot program under RIT, FIRST had two objectives:

–Explore streamlining the C4ISP process
–Share FIRST best practices with RIT programs

2. Summary of Program internal and external environment

FIRST is a software development effort ultimately envisioned to be the foundation for the Air Force's Planning, Programming, Budgeting, and Execution (PPBE) system. FIRST will be developed using the Spiral Development approach and maximize use of Commercial and Government Off The Shelf (COTS & GOTS) products. FIRST will be compliant with the Clinger-Cohen Act, Business Management Modernization Program (BMMP), the Joint Technical Architecture (JTA), Global Combat Support System-Air Force (GCSS-AF) Integration Framework, Command, Control, Communications, Computer, Intelligence, Surveillance and Reconnaissance (C4ISR) guidelines, and incorporate Public Key Infrastructure (PKI) initiatives (such as electronic signature capability).

The FIRST Program Management team consists of six government and eight A&AS contractor personnel. The Prime contractor for FIRST development is Accenture and Lockheed Martin Mission Systems (LMMS) is the GCSS-AF integration contractor. FIRST will support 6,000 users worldwide (75,000 users when Web-based Automated Business Services System is implemented).

Metrics included Software Growth (i.e., # of Interface Files, # of Application, Interface, Report, Architecture Classes, and # of Report Templates) and Quality (i.e., Defects per System Requirements Tested) measurements. In addition, achievement of schedule milestones (i.e., Requirements Reviews, Deployment Decision Points, Certifications, etc.) provided key metric information.

3. **RIT Recommendations adopted**

During the course of the RIT Pilot, AFPEO/C2&CS requested the SPO share best practices with RIT members and stakeholders within the AFPEO portfolio. These best practices included :

- Streamlining the Award Fee process through use of the Award Fee Automated Support Tool (AFAST). AFAST is an Aeronautical Systems Center (ASC) developed tool for managing the award fee process. This tool Facilitates contractor/SPO communications and Enables SPO/contractor to view comments and provide feedback. In addition, AFAST automatically generates briefings and reports for the Fee Determining Official. Result: 'No Surprises".

- IPT Pricing approach is a process where all stakeholders concurrently develop an Engineering Change Proposal (ECP). Stakeholders include Contractor, Defense Contract Audit Agency (DCAA) and SPO representatives. The IPT jointly works contract modification proposals which result in "No surprises" … Statement of Work = SPO expectations. Result: Typically process modification from SPO CCB approval to contract award in under 50 days.

- SPO risk management approach employs the ASC developed "Risk Radar" tool. The SPO risk management Process begins early in development. Where the team compiles risks, prioritizes, assigns responsibility, prepares mitigation plans, and follows through until completion. Risk Radar is an automated tool to manage program risks. The tool Ensures all risks are tracked, addressed, and closed. In addition, Risk Radar Automatically generates reports and risk status.

In addition, the OSD RIT mini-assessment conducted 28-31 Jul 03 in identified additional FIRST best practices. These included:

- Establishment of Combined Test Force (CTF) charter to document test processes and define roles/responsibilities.

- Use of an AF Best Practice in determining a Responsible Test Organization (RTO) through an effective selection process.

- Implementation of process for analyzing quality related metrics during spiral testing enables earlier identification of problems.

4. Program progress during pilot phase

Not Applicable. FIRST development schedule not affected by RIT.

5. What have you learned?

SPO objective to help explore streamlining the C4ISP Process was a slow and complicated process…no “quick fix”.

- DoD & AF had different perspectives on C4ISP requirements.
    - SPO engaged with SAF/AQ in crafting C4ISP guide and AFIs.
- AFCIO assigned AF/XIW responsibility for AF C4ISP process.
- AF/XIW began eliminating duplicative certification requirements/documents.
- RESULT: RIT Process instrumental in changing C4ISP deployment requirement. Draft C4ISP document (vice APPROVED C4ISP) and initial AFCA review is all that is required to deploy.

6. Candidate best practices

(See Paragraph 3). The Air Force programs will have their best practices recorded by the mini-assessment team.

7. Remaining rocks on the road

None.

APPENDIX X - I
Global Combat Support System (GCSS)
Combatant Commands/Joint Task Force (CC/JTF)

Rapid Improvement Team (RIT) Pilot Summary

January 2004

Department of Defense
Defense Information Systems Agency
701 South Courthouse Road
Arlington, VA 22204-2199

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PROGRAM OVERVIEW

The GCSS (CC/JTF) is an initiative that provides end-to-end information interoperability across and between combat support functions and command and control functions. A network centric Information Technology (IT) service, GCSS (CC/JTF) is capable of taking advantage of the flexible and expandable underlying Global Information Grid (GIG) network. GCSS (CC/JTF) provides improved situational awareness by integrating CS information into the Command and Control (C2) environment and improves communications between the forward deployed elements and the sustaining bases, ultimately resulting in significant enhancement of combat support to the joint warfighter.

On 30 September 1995, Program Decision Memorandum (PDM) II approved the GCSS initiative to provide the warfighter a fused, real-time picture of the battlespace and the ability to order, respond, and coordinate vertically and horizontally across the combat support domain. A September 1997 Joint Staff validated Mission Needs Statement (MNS) established the military need for GCSS (CC/JTF). The combat support requirements for the GCSS FOS are identified in a Joint Requirements Oversight Council (JROC) approved Capstone Requirements Document, dated 5 June 2000. The GCSS (CC/JTF) Operational Requirements Document was approved by the JROC in May 2003. Per Chairman of the Joint Chiefs of Staff Instruction (CJCSI) 6723.01, DISA is responsible for two main efforts within the GCSS Family of Systems (FOS): 1) The System Architecture and Engineering for the GCSS FOS; and 2) Development, fielding, integration, and operation and maintenance of the GCSS (CC/JTF).

GCSS (CC/JTF) is an application with both web and client/server user interfaces that provide authorized users the ability to access combat support information via the SIPRNET across the DoD enterprise. GCSS (CC/JTF) is a Global Command & Control System (GCCS) mission application and adheres to the GCCS management structure, its policies (i.e. configuration management, certification/accreditation, and training), and in certain circumstances the GCCS release schedule. The GCSS (CC/JTF) accesses other systems' data and applications to achieve the full capability for satisfying end user requirements. It is dependant on existing and emerging GCSS Family of System (FOS) members meeting scheduled milestones as authoritative sources for data providers. In addition, GCSS (CC/JTF) must interface with existing Joint and Service databases in order to perform required data collection and presentation functions.

GCSS (CC/JTF) is available to the Combatant Commanders and their Components, and the JTF Commanders and their staffs. GCSS (CC/JTF) is a distributed system operating solely on the SIPRNET, with strategic servers at locations around the world. There are currently four strategic server sites: Washington DC, Montgomery, Alabama, Germany, and Hawaii. The Systems Management Center (SMC) in Montgomery provides global management of GCSS (CC/JTF) throughout the Enterprise. GCSS (CC/JTF) is fielded as a GCCS mission application to support decision makers with command and control information on a single workstation.

*The GCSS (CC/JTF) was formerly known as the GCSS (CINC/JTF). On 24 October 2002, the name of the Program was changed to reflect SECDEF direction to reserve use of the title of "CINC" for reference the to President of the United States only.

RIT PILOT

In December 2001 the GCSS (CC/JTF) was nominated as a pilot project under the Rapid Improvement Team (RIT) as per the 21 December 2001 OSD Memorandum "Designation of Pilot Programs for the Rapid Improvement Team for IT Acquisition Management Transformation." As part of the RIT pilot, the GCSS (CC/JTF) program management office (PMO) was instructed to implement a new oversight process as outlined in "Managing the Delivery of IT Capabilities: The Defense Information Systems Agency's (DISA) Strategic Approach." In addition, the RIT provided the PMO with a list of recommendations that impacts the acquisition process for IT systems. The Component Acquisition Executive reviewed the aforementioned recommendations, and together with the PMO, developed a plan for implementing each recommendation. Prior to being designated a RIT pilot program, GCSS (CC/JTF) was working with ASD (C3I) and USD (AT&L) to transition to a Major Defense Acquisition Program (MDAP). Upon designation as a RIT Pilot Program, GCSS (CC/JTF) assumed the status of ACAT IAC, per guidance set forth in the 21 December 2001 OSD memorandum.

OBJECTIVES

DISA established the following RIT Pilot objectives for the GCSS (CC/JTF) PMO:

- Apply a streamlined acquisition process based on the RIT recommendations to focus resources on rapidly delivering capability to the warfighter;
- Shorten the acquisition process to align with the information technology lifecycle;
- Apply an evolutionary acquisition/spiral development approach to developing and fielding improved capabilities based on risk, complexity, appropriate metrics to measure progress, and product maturity versus a fixed schedule including; and
- Implement appropriate acquisition and development processes for web-based, network-centric implementation.

  - Streamline testing process based on risk to eliminate redundant testing while ensuring the system meets requirements and performs correctly
  - Apply appropriate security accreditation processes and procedures in accordance with DoD guidance
  - Make fielding process as transparent to the end-users as possible

METHODOLOGY

As a prelude to the RIT Pilot, the GCSS PMO participated in a mini Software Assessment – Capability Maturity Model (SA-CMM) from 31 October – 1 November 2002. The purpose of the assessment was to provide the RIT Pilot Program Manager (PM) and Program Executive Office with third party insight into organizational strengths and acquisition capability improvement opportunities (IO) that may prevent risk to the program. In addition, it was the intent of the assessment team to comprehend RIT recommendations that assign oversight responsibility to the lowest competent echelon.

The SA-CMM team consisted of three certified interviewers and one GCSS PMO representative. An initial pre-brief explained the objectives of the assessment and the non-attribution policy, to ensure candid information would be forthcoming. The assessment team interviewed the GCSS PM, Deputy PM, Chief Engineer, the branch chiefs and select subject matter experts from each branch. Together with their review of existing program documentation and information gathered from the interviews, the team identified program strengths, improvement activities and improvement opportunities.

The results of the assessment identified eight (8) program strengths, two (2) improvement activities and 18 improvement opportunities. The program has taken these results and identified seven (7) areas in which processes have been initiated to mitigate program risk. The 11 remaining improvement opportunities have been evaluated by the program and are constantly evaluated with the program risks to find a means to turn them into Improvement Areas. The PMO planned to conduct a follow on assessment prior to the RIT Pilot ending, but was unable to initiate the assessment to meet the deadline.

PILOT PHASE

To ensure measurable success of the RIT Pilot, the GCSS PMO established the following goals, many of which are best business practices for basic program management:

- Shorten acquisition process to align with the information technology lifecycle.
    - Establish an 18-month delivery of mission effective capability, along with other it goals & measures.
- Utilize integrated teams dedicated to support the program.
- Tailor program documentation at program start.
- Institute a metrics and measurement program.
- Implement a comprehensive Risk Management Strategy.
- Continue interactive relationship with the user community to maintain a common understanding of the end state for both the users and the PMO

IMPLEMENTATION AND LESSONS LEARNED

The GCSS Program identified the appropriate documents needed to satisfy the DOD 5000 requirements and still meet the needs of the program and its stakeholders. Documents were tailored and streamlined to reduce redundancy, thus significantly reducing the development and review cycle. Program documents such as the Economic Alternatives and Analysis (EAA), Incremental Program Baseline, Clinger-Cohen Act Table/Report, and Risk Management Strategy are several of the documents that were successfully tailored to support the acquisition streamlining efforts.

- The development and coordination of the Command, Control, Communications and Computers Integrated Support Plan (C4ISP) was the single document that proved to be cumbersome. The coordination and concurrence process did not lend itself to rapid closure; that is, the C4ISP was coordinated by all required agencies but once

recommendations were reviewed and where appropriate, included, the document would have to be sent out for coordination, once again. This became a lengthy do-loop as on many occasions, the document would be reviewed by a different person and once again, comments would be reviewed and included, but would require yet another coordination process. By the end of the phase (Oct 03), or the Pilot period (Dec 03), the Program did not have a completed C4ISP.

During the RIT Pilot period, the GCSS Program proved that integrated teams are integral to streamlining the acquisition process. A dedicated GCSS (CC/JTF) Cost Working Integrated Project Team (WIPT) comprised of cost analysts, DISA oversight personnel, and independent assessor, was able to successfully complete an Economic Alternatives Analysis (EAA) in a very short period of time. The team was comprised of members that included the independent assessor, to develop, approve and assess the EAA, resolving discrepancies early in the process, to deliver a document in a timely manner. The GCSS Program found that participation by all stakeholders, and constant communication and sharing of information, resulted in the successful delivery of value-added capabilities.

During the RIT Pilot, the GCSS (CC/JTF) proved to be a critical tool used in supporting Operation Enduring Freedom (OEF) and Operation Iraqi Freedom (OIF). During OIF, USCENTCOM, USEUCOM and USSOUTHCOM required critical operational information to support rapid decision-making. Due to the Program's existing relationship with the combatant commands, the data source owners, the Joint Staff J3, J4 and J6, and most importantly, with the Milestone Decision Authority (MDA), the GCSS Program established a Pilot Services Suite to support the war and meet the combatant commands' critical requirements. Since our stakeholders are continuously included in our life-cycle development, approval to establish this server suite was obtained within days.

- After enhancements were developed and tested, the Program installed the emergent capabilities on the Pilot Services suite, which was accessed by key personnel supporting the combatant commands.

    - USCENTCOM and USEUCOM required visibility of assets in transit (ITV) within the theater, a capability that was available only on the NIPRNet. GCSS provided an ability, which allowed for situational awareness and web mapping of intra-theater ITV on the SIPRNet.
    - USEUCOM requested a capability that would provide them with near real-time air tracking information. GCSS provided an air tracker enhancement, which reduced the time needed to develop their daily report from seven (7) hours to 15 minutes.
    - USSOUTHCOM and USCENTCOM requested a capability to produce a strategic air movement report (SAMR), a daily report identifying everything entering in-theater. GCSS provided this enhancement, which reduced the time to develop the SAMR from hours to minutes.

As a result of the SA-CMM, the GCSS PMO established a Metrics and Measurement Program, allowing the Program Manager to measure progress against established goals. The program

developed a plan to correct the deficiencies identified from the SA-CMM. As a result, the Program has the means to measure success, both quantitatively and qualitatively. Metrics are now collected and analyzed to assess the program's cost, schedule and performance; the program's workforce; the operational performance of the system and most importantly, user satisfaction.

Also as a result of the SA-CMM, the Program established a Risk Management Program, of which the top 10 risks are reviewed monthly and all risks are reviewed on a quarterly basis. The Risk Management Strategy affords the Program an opportunity to proactively manage both technical and non-technical critical areas and risks before they become problems, causing serious cost, schedule, or performance impacts to the program.

The most obvious advantage to participating in the RIT Pilot was the designation of the CAE as the MDA. The CAE challenged the Program to "think out of the box" and fostered an innovative, creative, and forward thinking environment.

Under the MDA's auspices, and implementing the streamlined acquisition process, the GCSS (CC/JTF) PMO was able to achieve successful milestone and fielding decisions for Phase 4 capability increments. Phase 4 included three capability increments, v3.1, v3.2, and v3.3 for which development, testing and fielding was accomplished within a 12-month period of time. Previously it would have taken 18-24 months. Phase 4 introduced significant advances, both for the users and the system overall. New and innovative processes were implemented, which enabled the Program to provide data updates through a more streamlined process, yet continue to meet the requirements of the DOD 5000 tenets.

SUMMARY

The GCSS (CC/JTF) Program derived numerous benefits from the RIT Pilot and will continue to utilize the processes implemented during this period. The Program strongly encourages a streamlined process be institutionalized throughout the DoD, specifically for software development programs, to be able to rapidly meet the requirements of the warfighter while keeping up with technological advances and meeting program oversight requirements. We strongly believe that the results of our participation in the RIT Pilot has proven that the delegation of oversight authority to the Component, the opportunity to implement new internal DISA oversight processes and the flexibility to define documentation requirements have saved the program time and money, which ultimately has allowed timely delivery of capability to the warfighter. As a result of the RIT Pilot, the processes that were implemented by the GCSS Program are now being used as the model for all other DISA Programs!

APPENDIX X - J
RIT Pilot Program Summary

1. **<u>Program objectives</u>:**
   The Theater Medical Information Program's (TMIP) participation in the Rapid Improvement Team (RIT) Pilot was limited to Block 2 with the following objectives:

   a. Decrease documentation requirements by determining and providing only the essential elements of information needed for milestone decisions.
   b. Decrease the cycle time of providing software deliveries to the User by decreasing the documentation requirements.

   TMIP was not able to participate in the RIT Pilot due to extenuating circumstances. The original TMIP Block 2 RFP technical evaluation resulted in no acceptable proposals. The new contract award is scheduled for April 2004, which is outside the RIT pilot timeframe. In addition, the real world event of Iraqi Freedom required Program Office resource reallocation and dedication to provide immediate support.

2. **Summary of program internal and external environment:**
   a. TMIP provides a seamless, interoperable medical information system to support theater health services, during combat or contingency operations, within and across all echelons of care. The TMIP Program Management Office (PMO) is responsible for the definition and integration of component applications comprising the software segment. The TMIP PMO develops the overall management plan that links the software and infrastructure development activities. Each Military Department (MILDEP) will provide the necessary infrastructure (e.g., networks, communications, and computing hardware) to host the TMIP system within DoD standards and according to their concepts of employment (funded out of Major Program 2 - General Purpose Forces). The TMIP application is an integration activity. Delivery of functionality is provided in an incremental approach to provide the most important functionality out to the warfighter as soon as possible. The primary goal is to provide a global capability linking theater medical information databases and integration centers that are accessible to the warfighter, anywhere at anytime, to support the mission. TMIP provides for information linking all echelons of medical care to the theater commanders in support of time-sensitive decisions critical to the success of theater operations. TMIP is a Military Heath System (MHS) initiative with collaboration from the Assistant Secretary of Defense for Health Affairs (ASD (HA)), Air Force, Army, Navy, Marine Corps, United States Transportation Command (USTRANSCOM), and Joint Staff Logistics Directorate (J4) Health Service Support Division (HSSD).

b. The program office is staffed with 5 Government (3 Military, 2 Civilians) and 20 Contractors.
c. Block 1 functionality includes: medical planning, medical reporting for inpatients and outpatients, assemblage management support, blood management support, immunization tracking, clinical data collection at theater and outpatient facilities, and interface with an electronic information carrier. Block 2, in addition to all of Block 1 functionality, will integrate Transportation Command (TRANSCOM) Regulating and Command & Control Evacuation System (TRAC2ES), Defense Medical Logistics Standard Support (DMLSS) Release 3.0, and several command and control (C^2) medical planning functionalities. The C^2 medical planning capabilities include: enhancements to the Medical Analysis Tool (MAT), integration of a common user database, medical situational awareness reporting enhancements, theater patient in-transit visibility, and enhancements to identify populations at risk in theater. Additionally, Block 2 provides the following specific capabilities or support: interface with a common access card, environmental health data collection, occupational health data collection, preventive health data collection, patient movement support, Public Key Infrastructure support, web-enabled access, and personal digital assistant support. Block 3 will include all the functionality of Blocks 1 and 2 with more robust capabilities in the following areas: medical planning, chemical/biological detection capabilities, heath care delivery and clinical data collection at theater inpatient and outpatient facilities, and medical logistics.
d. As an integration program, TMIP's most technically complex issue is integrating disparate systems that were neither designed for Theater operations nor designed with TMIP in mind.
e. Primary risk factors are:
    i. *Dependencies and Interoperability between this investment and others* – TMIP schedule is interdependent upon the development and delivery schedules of the peacetime MHS applications and the MILDEP infrastructure programs.
    ii. *Capability of Agency to Manage the Investment* – MILDEP infrastructure programs are not under management of the TMIP PM potentially causing conflicting goals.
    iii. *Feasibility* – The integration of stand-alone applications is neither a new venture nor complex; the challenge lies in modifying peacetime applications to meet the Theater requirements while maintaining the "look and feel," and the configuration management (CM) between the two.

3. Recommendations adopted:
Not applicable.

4. Program progress during pilot phase:
Not applicable.

5. **What have you learned?**
   Not applicable.

6. **Candidate best practices**
   TMIP has been working towards a Level 2 within the Capability Maturity Model; this best practice is a Military Health System (MHS) policy. TMIP has accomplished an internal self-assessment with positive results in preparation for its Program Executive Office assessment scheduled for February 2004. The 15 months of process development and documentation for Level 2 have resulted in the TMIP staff becoming more efficient and effective in cost, schedule, and performance management due to having repeatable processes.

7. **Remaining rocks on the road**
   a. Recommend essential elements of information be established for milestone decision making, rather than "regulating" pages upon pages of "shelfware" being developed which only increased the cost of an acquisition not necessarily improves.
   b. Recommend time in the acquisition training/education curriculum be dedicated solely for IT Programs, separate from weapons systems.

RIT Pilot Use of the Internet to Streamline the IT Acquisition Process

Screen Shots

Piloting Net-centric Acquisition Oversight

- **Goal Is to streamline the acquisition information process by applying net-centric data handling tenets**
  - Only handle information once
  - Post before processing
  - Demonstrate capability to pull data in the needed form
  - Collaborate during articulation of key acquisition issues
  - Provide reliable access to data
- **Simulating net-centric acquisition insight/oversight**
  - Army Acquisition Information Management (AIM)
  - Air Force System Metric & Reporting Tool (SMART)
  - Navy PM Community of Practice RIT Pilot QuickPlace site
  - IT-Community of Practice on DAU ACC site

US Army Acquisition Information Management (AIM)

Aim 6.8.1 On The Web (Private) - Microsoft Internet Explorer UNCLASSIFIED\FOUO

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Mr. Leonard Sadauskas's Portal - OSD

Acquisition Information Management (AIM v6.8.1)

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Latest News at ALTESS

- September Execution data loaded *(10/14/2003)*
- ASARC Calendar of Events *(10/09/2003)*
- SmartCharts - FY05 BES Update *(09/29/2003)*
- Acquisition Enterprise User Group *(09/29/2003)*
- AIM 6.7 Release *(07/24/2003)*
- FY2004 Congressional Marks *(05/22/2003)*
- March 2003 Special Interest Topic *(03/03/2003)*

Event Calendar

Nov-Dec 2003

Su	Mo	Tu	We	Th	Fr	Sa
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30	1	2	3	4	5	6

Upcoming Events
Nov 14
MAR due in to HQDA
Nov 18-20
Acquisition Enterprise User Group Conference
Nov 28
twp-Annual Leave

View Calendar

Acquisition Links A-Z

Acquisition
- OSD for Acquisition, Technolgy, and Logistics
- Acquisition Reform Network
- Assistant Secretary of the Army for Acquisition, Logistics, and Technology
- U.S. Army Acquisition Support Center (ASC)
- U.S. Army Acquisition Logistics and Technology Enterprise Systems and Services (ALTESS)
- Consolidated Acquisition Reporting System (CARS)

Department of Army
- Army Homepage
- U.S. Army Material Command
- Army Knowledge Online (AKO)
- Army Recapitalization Management

Army Test and Evaluation Command
- ATEC Decision Support System (ADSS)
- Army Test and Evaluation Command (ATEC) Home

Career
- Army Training Requirements and Resources System

Commander's Corner

LTC Fernando L. Torrent

ALTESS welcomes the new Commander, LTC Torrent. His previous assignment was as Acquisition Staff Officer for the HQDA Chief Information Officer (CIO)/G6 and the Assistant Secretary of the Army for Acquisition Logistics and Technology (ASA(ALT) in the Pentagon.

[continued...]

View the commander's message

Acquisition Publications

- AIM ACAT Reports
- 2004 Congressional Marks Report
- Annual Defense Report 2001
- Army AL&T Magazine
- Army Logistician
- U.S. Army Publishing Agency

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RIT Pilot Team Page in AIM

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Name	Description	Updated	Expires	
AF RIT PILOT Meeting 14 Feb 2002		03/06/2002 11:37:44	(None)	
AIM User Documentation	Documentation on how to use AIM.	05/24/2002 16:48:46	12/30/2004	
AIR FORCE	General folder for Air Force documents	07/07/2002 09:29:54	12/31/2004	Edit | Log
ARMY	General folder for ARMY documents	07/07/2002 09:53:29	12/31/2004	Edit | Log
BRIEFINGS	RIT Pilot Presentations/Briefings	07/07/2002 09:16:33	12/31/2004	Edit | Log
Clinger-Cohen	CCA related documents	07/07/2002 09:11:13	12/31/2004	Edit | Log
DISA	General folder for DISA documents.	06/25/2002 15:16:12	(None)	
Documented RIT PILOT Requirements	Document produced by Dee Aranza, RDASIA, that describes requirements for utilizing AIM for RIT PILOT	04/16/2002 11:00:45	(None)	
NAVY	General folder for NAVY documents	07/07/2002 09:36:28	12/30/2004	Edit | Log
OASD HEALTH AFFAIRS	General folder for OASD HEALTH AFFAIRS documents	07/07/2002 10:02:08	12/31/2004	Edit | Log
Pilot PM /Pilot Team Meeting		11/20/2002 13:07:19	(None)	
QSM Information	Repository of QSM briefings and materials	02/06/2002 08:36:20	12/31/2004	Edit | Log
RIT Pilot 300's		02/04/2002 10:01:35	(None)	Edit | Log
RIT Pilot Issue Papers	Draft issue papers to prompt discussion and resolution.	02/11/2002 11:06:31	12/31/2004	Edit | Log

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TC-AIMS II Program Information in AIM

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Program Information

TC-AIMS II (M12)

Sort By: Short Name Show: My Programs

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Program: **Transportation Coordinator - Automated Information for Movement Systems II (TC-AIMS II)**

TC-AIMS II (M12)

Reporting Chain: OSD > HQDA > PEO EIS > PM TIS

MAPR Report: Yes
Last Submitted: 12/25/03

CIO Assessment Report: Yes
Last Submitted: 9/5/03

SC Report: No

ACAT: IAM **Phase:** * **MDA:** DoD CIO **MDA Name:** Mr. John Stenbit

Next Milestone: MS III - Dec 2003 **System Picture:** [View]

Scenario: 54, FY05-09 Budget Estimate Submission

MDEP (BOS, PEG)	RDTE - PE/Project	PROC - APPN/SSN	OMA - PE/Project
MSB2 (P-SS, SS)	655013 / 137	OPA / BZ8900	423612 432612

Description:
Transportation Coordinators' - Automated Information for Movements System II (TC-AIMS II) is a Joint service migration system which facilitates movements management of personnel, equipment, and supplies from home station to the conflict and back. Provides source ITV data.

Technology:
TC AIMS II Block 1, which is the current approved system, is a client server architecture utilizing COTS servers, workstations, laptops and Automatic Identification Technology equipment. The Block 2 product, scheduled for fielding later this year, moves to an web enabled architecture with an enterprise management system and the capability to host multiple related logistics applications on the same platform. TC AIMS II operates on both Windows 2000 and NT and uses SYBASE and Power Builder products.

Technical Director:
Mr. Willie Jones
Comm: (703) 752-0775 DSN:
jonesw@eis.army.mil

Project Leader:
Mr. Lee DeArmond
Comm: (703) 752-0756 DSN:
dearmondl@eis.army.mil

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TC-AIMS II Monthly Acquisition Program Review in AIM

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SAL MAPR Report

December 2003
TC-AIMS II

RDAISA AIM (11/13/2003, 15:15)

Category

Performance Characteristics:	Y	21
Test and Evaluation:	GA	7
Logistics Requirements:	GA	12
Cost Performance:	G	24
Funding:	G	14
Schedule Performance:	GA	6
Contracts:	G	24
Production:	G	24
Management:	G	15
Interoperability:	G	18

Rating Worsened Rating Improved

* Numbers indicate the number of months the rating remained unchanged

PM Explanation

Performance Characteristics: USAF and USMC performance is rated Yellow because joint requirements are not yet adequately resolved by the functional community.

Test and Evaluation: The Operational Test for the Army was completed on 2 Aug 03. A continuous evaluation event will be conducted 3-21 Nov 03. Phase I of the Navy Operational

Logistics Requirements: Army fielding deviated from the AOP due to nonavailability of units supporting OIF. Fielding in Alaska is in progress; completion Sep. 03. Army fieldi

Cost Performance: FY04 Contracts in place at programmed levels.

Funding: Initial FY04 funding received.

Schedule Performance: Block 2 testing remains on schedule for the Army and Navy. Satisfying USMC rqmnts is taking longer than expected, pushing DT start to 10 Nov 03.

Contracts: FY04 contracts awarded.

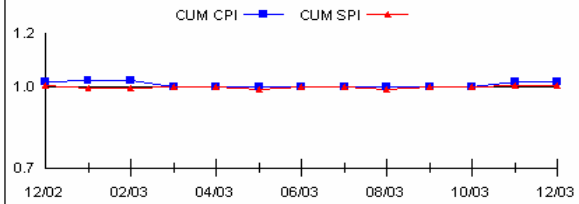
Production: There are no known issues with the production of the required COTS computers, peripherals or AIT devices.

Management: PM and developer are working aggressively to maintain Block 2 delivery schedule through daily coordination meetings and dialog.

Interoperability: Interoperability KPP was approved by JROCM 072-03 on 21 Mar 03. Service review on the Block 3 CDD was held on 26 Jun 03.

Cost Summary

Report Date: 12/09/2002



TAB: $M $6.35 **PM EAC:** $M $6.35 **Kr EAC:** $M $6.35

Overall Assessments

PEO Assessment: The purpose of the TC-AIMS II system is to support joint deployment and transportation missions. The Army funds 100% of development and sustainment and JFCOM is assuming the role of the joint functional advocate/proponent for the program. The over-arching impediments to making this an efficient, effective acquisition program are: (1) lack of standard, joint, agreed-to business processes, and (2) lack of Service and legacy system adherence to joint DoD data standards which impacts the system's interfaces with external legacy systems.

DA Staff Assessment:

December 2003 TC-AIMS II Page 1

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TC-AIMS II Trend Reporting in AIM

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TC-AIMS II (M12)

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Assessment Trend Report

Date:	09/02	11/02	12/02	01/03	02/03	03/03	04/03	05/03	06/03	07/03	08/03	10/03	12/03
Over:													
Perf:	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Test:	G	G	G	G	G	G	G	G	G	G	G	G	G
Logi:	G	G	G	G	G	G	G	G	G	G	G	G	G
Cost:	G	G	G	G	G	G	G	G	G	G	G	G	G
Fund:	Y	G	G	G	G	G	G	G	G	G	G	G	G
Sche:	G	G	G	G	G	G	G	G	G	G	G	G	G
Cont:	G	G	G	G	G	G	G	G	G	G	G	G	G
Prod:	G	G	G	G	G	G	G	G	G	G	G	G	G
Mana:	Y	G	G	G	G	G	G	G	G	G	G	G	G
Inte:	G	G	G	G	G	G	G	G	G	G	G	G	G

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System Metric & Reporting Tool (SMART)

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SMART System Metric & Reporting Tool

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Acronym

F-10A

Portfolio Summary

AFPEO/C2&CS : Command and Control/Combat Support

Owner: Brig Gen Dehnert, Robert E
Title: Command and Control/Combat Support
Comm: (703) 588-6464
DSN: 425-6464

Introduction:
By any measure, fiscal year 2001 was an exceptional one for the Program Executive Office for Command and Control & Combat Support Systems. We reached important goals in our commitments to the warfighter, and we focused the portfolio on credible execution of our 21 diverse programs. Over the past year we have been developing and executing a new vision and strategy. On January 1, 2001, AFPEO/C2, the PEO for Command and Control merged with AFPEO/LI, the PEO for Logistic Information Systems.

Mission:
To Credibly Execute the PEO Command and Control & Combat Support Programs.

Vision:
Ensure Air Force Command and Control & Combat Support Systems Meet the Challenges of Global Engagement, Joint Vision 2020, and Beyond.

Short Description:

Description:

Last Modified on 07 Aug 03 at 11:42 by Mr. Ratcliffe, Woody .

History |

Portfolio Security Administrators

Done

Start

GTN-21 in SMART

SMART - Microsoft Internet Explorer | UNCLASSIFIED\FOUO

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Address https://www.my.af.mil/smart/SMART.NET/GUI/ProgramSummary.aspx

SMART System Metric & Reporting Tool

Global Transportation Network 21 (GTN 21)

AFPEO/C2&CS > GTN/GTN21 > GTN 21 >

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Health

- Overall Health
- Cost
- Schedule
- Performance

Program Summary

GTN 21 : Global Transportation Network 21 (GTN 21)

PEO:	Brig Gen Dehnert, Robert E
SPD:	Col Tate, Stephen M
Manager:	Lt Col Eickmeier, Daniel L
System Type:	Combat Support C2
Program Type:	US
Phase:	System Development & Demonstration
Acat:	IAC
Acquisition Authority:	Command and Control/Combat Support

Intro:
On 26 Sep 02, the Northrop Grumman (NG) Information Technology team was selected to develop and deliver GTN 21 -- the Defense Transportation System (DTS) System of Record for In-Transit Visibility (ITV). An Evolutionary Acquisition Decision Review (EADR) was held on 15 Aug 02 to review statutory and regulatory compliance. Successful completion of EADR and MDA approval as documented in the EADR minutes allowed NG team to begin development.

Mission:
Provide near-real time visibility of global and multimodal military movement of passengers, cargo, and patients during peacetime, wartime, and contingencies. Provide C2 decision support information to support planning and command post exercises.

Vision:
To gather the family of transportation customers and providers of lift into an integrated Defense Transportation System (DTS) data infrastructure that will provide the Intransit Visibility (ITV) and the C2 decision support information necessary to meet customer requirements.

Short Description:
Joint program to provide Intransit visibility of global/multi-modal military cargo & passengers, C2 decision support, and Command Post & Field Training Exercise (CPX/FTX) capabilities.

Description:

Start

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IT Community of Practice

dod_cio_rit_pilot

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- MID 905 Portal CoP WG:
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- Pilot Best Practices
- RIT Pilot 19 Nov Offsite
- RIT Pilot 23 Jul Offsite
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Welcome to the IT Community of Practice (IT-CoP)

We are in transition from the IT RIT Pilot Team place to a more inclusive site that will better reflect the needs of the whole IT Community of Practice. At the same time we retain all of the rooms dedicated to the RIT Pilot.

As a dual use site, it has both public and password constrained locations.

IF YOU ARE A REGISTERED MEMBER AND YOU DO NOT SEE YOUR ROOM, YOU NOW NEED TO "SIGN IN" BY CLICKING *SIGN IN* AT THE BOTTOM OF THE TOOLS SIDEBAR

What's New:

- The MID 905 Streamlined IT Acquisition Process has been expanded to include both MAIS and MDAP acquisitions. Mr. Robert Nemetz of USD(AT&L) has formed an IPT to respond to the expanded Portal initiative with DAMIR (Defense Acquisition Management Information Retrieval)and is in the process of creating a web site to support the DAMIR effort.
- The IT-CoP portion of the MID-905 remains with the IT community and we will continue to use this web site until we transition to the DAU sponsored CoPs.
- New Room, see sidebar, for the Clinger-Cohen Act of 1996 (CCA)
- New Folder for Software Acquisition Capability Assessments
- The Pilot PMs requested that the assessment reports be shared with the RIT Pilot team members

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RIT Pilot Online Discussions

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IT Community of Practice

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- RIT Pilot 23 Jul Offsite
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- Air Force RIT Pilots:
- DISA RIT Pilot:
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Discussion

Title	Author	Modified
Information not Documentation — How many times Mary Ann Engelbert hit us with the admonition to think in terms of the information needed to support a decision rather than the Documentation most uf us are used to seeing. Well the benefits are being seen in industry. Although not for the same...	Leonard Sadauskas	08/08/2003
Data Adequacy in GCSS — During the 18 October 02 RIT Sponsors Meeting, an action was formulated for the RIT Pilot Team to facilitate data adequacy within the GCSS family of systems. I am writing to encourage a dialog amongst the Team and Pilot PMs that will exploit opportunities...	Leonard Sadauskas	10/30/2002
Re: Data Adequacy in GCSS — To put what Len has in context, the discussion in the Sponsor's meeting focused on how the RIT was ensuring that the Pilot Programs were being looked at as a GCSS family of systems. Mr. Stenbit said as close as I recall, even if you got the acquisition of each of 5 systems...	Mike Yaphe	10/30/2002
Proposed Final RIT Pilot Report Construct — Attached is the proposed final RIT Pilot Report that we discussed at the 6 August meeting. Please provide comments in this discussion thread. You can attach revised versions of the construct, but please change the file name. You can comment on comments...	Leonard Sadauskas	08/06/2002
Re: Proposed Final RIT Pilot Report Construct — The first thing that we need to agree on is the purpose of the Report. I see no requirement for a Report in the 21 December 2001 DOD CIO/USD AT&L memo establishing the Pilot Team. That being said, who is requiring a Report? (By the way, I'm not suggesting...	Mary Ann Engelbert	09/24/2002
Re: Proposed Final RIT Pilot Report Construct — Establishing a "pre-RIT" baseline and comparing that to our RIT experience could make a persuasive argument one way or the other. I know TCA2 had a MS Project schedule tracking document approvals from drafts thru the IIPT process to the BLK 1 MS III decison. Using...	Mark Fornaro	09/17/2002
Re: Proposed Final RIT Pilot Report Construct — The pre and post baseline would certainly be a persuasive exhibit, one way or the other. Perhaps we can still do it. When we started the RIT Pilots I suggested a rebaseline, see issue paper #1 on that subject with Mary Ann Engelbert's comments and my response....	Leonard Sadauskas	09/18/2002

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Army Pilot Collaboration

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Acquisition Strategy - 12 Aug 03 The final Block 2 Acquisition Strategy was delivered to ASD NII on 12 Aug 03.	Lee DeArmond	08/20/2003
Army RIT Procedures The latest draft of Army procedures for the RIT. The document is currently in staffing in SAALT	Lee DeArmond	10/22/2002
Block 3 CDD Review The Draft Block 3 CDD is attached for your review. These are the latest updates from Army G4.	Lee DeArmond	07/09/2003
Draft C4ISP - 18 Aug 03 The C4ISP was submitted to OSD on 20 Aug 03 for a Stage I review.	Lee DeArmond	08/20/2003
Final Draft EADP Final Draft Economic Analysis Development Plan dated 29 Nov 02.	Lee DeArmond	12/04/2002

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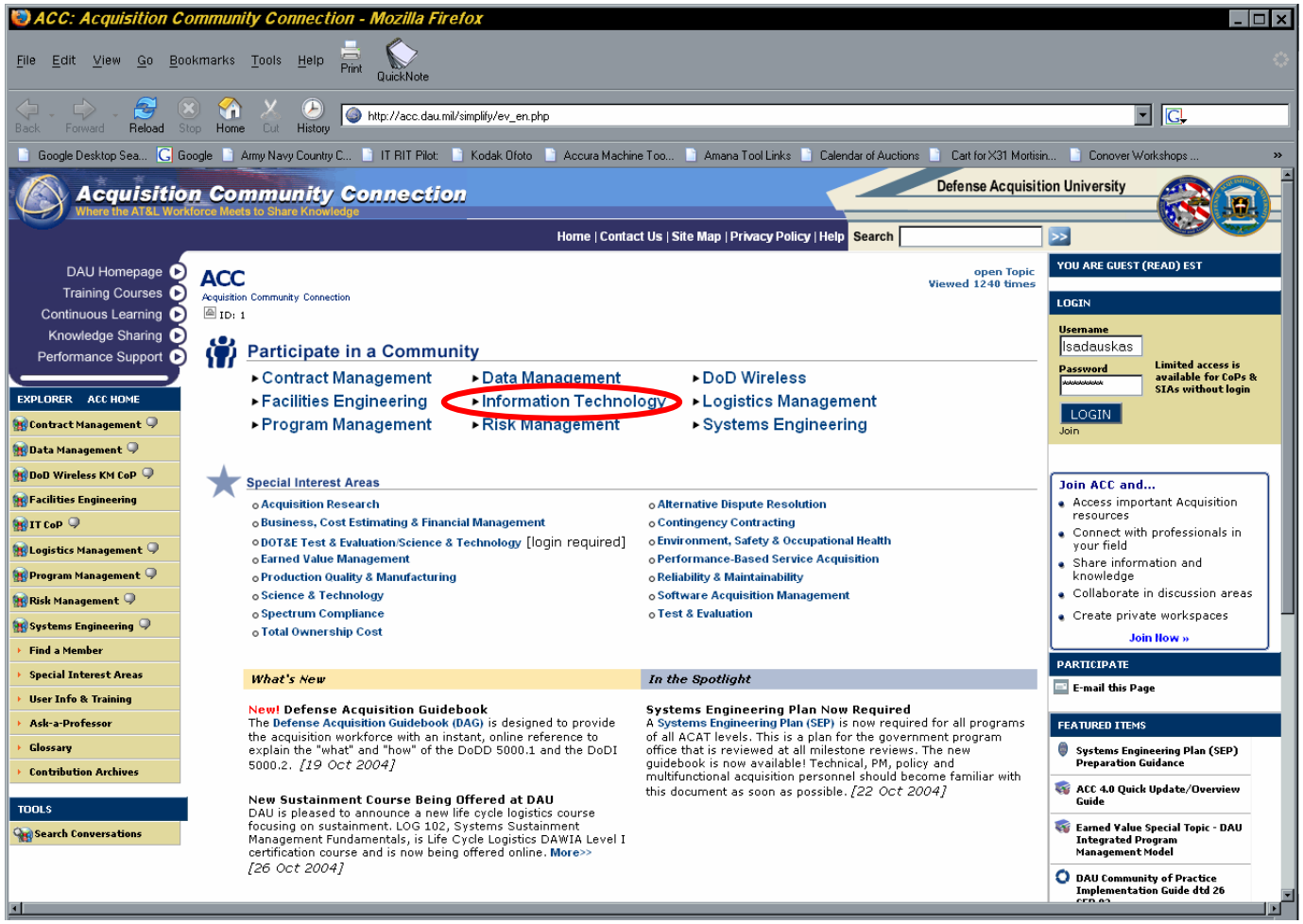
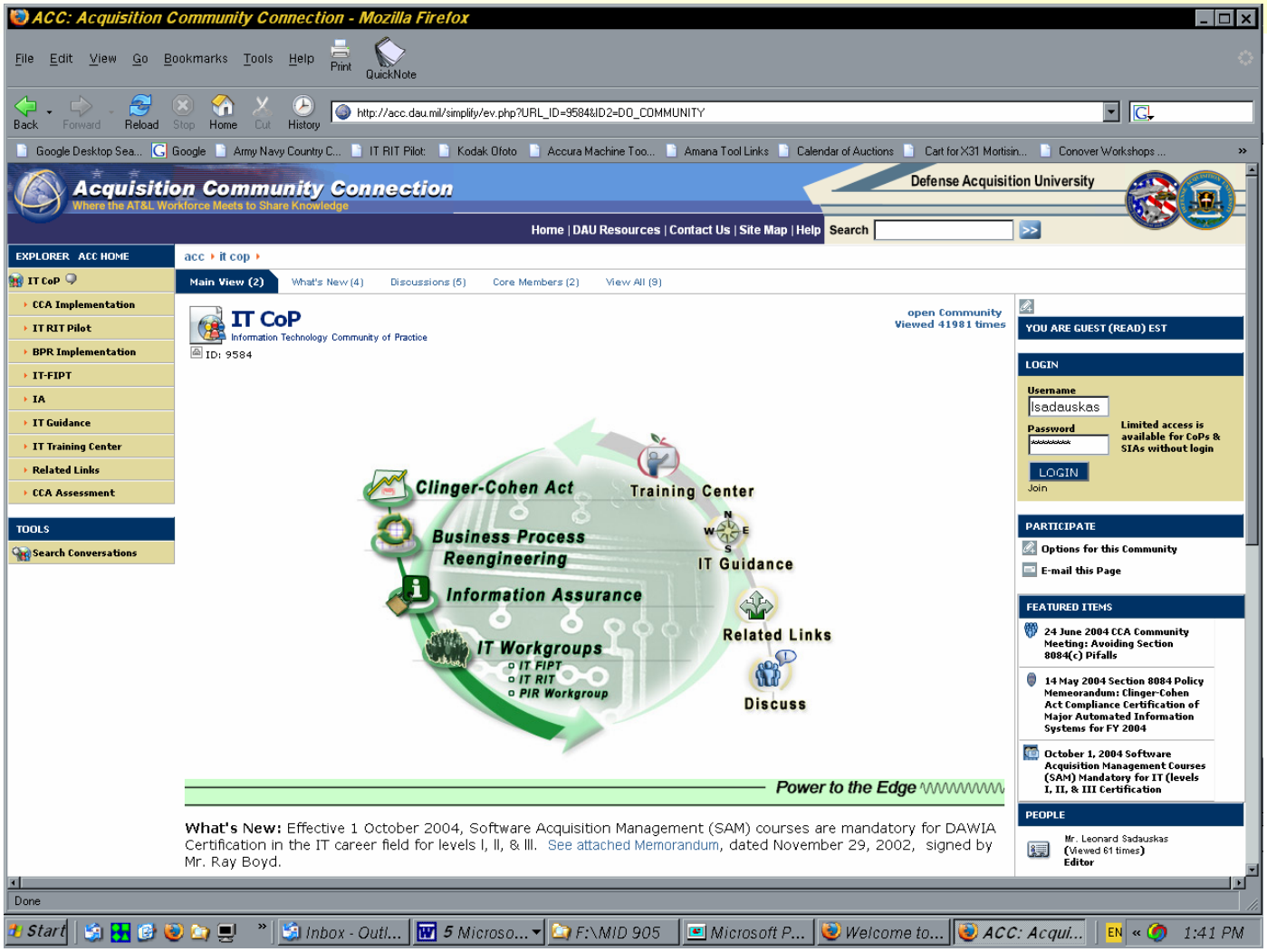
Acquisition Community Connection (Formally PM CoP)



IT Community of Practice



APPENDIX XII

DEFENSE ACQUISITION MANAGEMENT INFORMATION RETRIEVAL (DAMIR)

Business Case

Document XXX
Version: 1.0

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1 EXECUTIVE SUMMARY

The Under Secretary of Defense for Acquisition, Technology, and Logistics (USD(AT&L)), proposed streamlining acquisition management of Major Defense Acquisition Programs (MDAP) and Major Automated Information Systems (MAIS) by eliminating burdensome reporting, while continuing to enable OSD to perform its oversight role as well as respond to OMB and Congressional needs. The DAMIR initiative is to create a net-centric environment where data would be made available as quickly as possible to those who need it across the DoD Enterprise by (1) supporting posting data to shared spaces as early as possible; (2) providing users with the capability to pull data from its origin; and (3) ensuring information integrity. DAMIR will provide a performance-based integrated collaborative environment that will provide a shared solution for enterprise program management.

Three alternatives were considered for the DAMIR effort. The first alternative was the status quo, with minimal upgrades and continued maintenance of the Consolidated Acquisition Reporting System (CARS) family of systems. This alternative has been the standard approach for the last several years and as out lived its usefulness. The CARS field dBase input system is not user friendly and as many deficiencies that cannot be fixed through “band aid” attempts. This alternative is not acceptable. A second alternative is to develop a new customized “CARS” system using open system technology such as Oracle Database, Portal capability and Collaboration tools. This alternative has many technical risks typical of custom software development and does not meet the DoD MID 905 and other initiatives focused on using commercial-off-the-shelf (COTS) solutions. We feel that this alternative is inappropriate for this initiative because adequate software solutions are available for this non-unique requirement that has an established user base. The third alternative is to maximize the use of COTS products and develop a net-centric environment. This alternative will provide a performance-based integrated collaborative environment that will provide a shared solution for end users to collaborate on enterprise program management. This alternative satisfies DoD’s transformational legislation, MID 905 guidance, and industry best practices of using COTS software.

The recommend alternative is the third alternative to use a COTS software solution augmented by existing COTS and GOTS software to implement DAMIR. Existing CARS family of systems software will be analyzed to determine its applicability to the new DAMIR environment. Expanded use of COTS software should streamline business processes, increase operational efficiency, and yield significant savings to the program.

2 INTRODUCTION

2.1 Background

As part of the Transformation Legislation Agenda, DoD recently submitted a proposal to repeal chapter 144 of title 10, United States Code (except for the subsections pertaining to Independent Cost Estimates). Repeal of this legislation would streamline the management of acquisition programs and ease reporting requirements to Congress; however, internal oversight responsibility would still require certain program data be accessible.

The OSD has responsibility for all matters relating to the DoD Acquisition System and serves as the Defense Acquisition Executive responsible for supervising and establishing policies on acquisition matters. OSD performs this oversight through the use of various reports such as the Defense Acquisition Executive Summary(DAES), the Selected Acquisition Report(SAR), and the Acquisition Program Baseline(APB).

The DAES report provides summary reporting of Acquisition Category(ACAT) I MDAP and ACAT IA MAIS programs. The DAES is prepared by the program manager to provide program status information to DoD Acquisition Officials. The APB is a contract between the PM, PEO, and the Milestone Decision Authority (MDA) that documents the cost, schedule, and performance goals of a specific program. The SAR provides Congress with summary reporting of cost, schedule, and performance information for MDAPs.

Oversight and reporting to OSD and Congress is accomplished primarily through the Consolidated Acquisition Reporting System (CARS) software (SW). CARS data is used for all ACAT I programs, functioning as a central repository for CARS-related acquisition program information. It is a data entry and reporting system that combines DAES, SAR, and APB components into an interconnected set of databases. It is a reporting tool but not a management tool. The CARS consists of three related applications: Contract Assessment System(CAS), SAR Analysis Support System(SASS), and DAES-Web Application.

The CAS is a web-based SW application that provides earned value management (EVM) data to OSD analysts for each contract awarded by an MDAP Office. Since CAS depends on CARS for its data input, it relies on manual input of aged data--not allowing the acquisition manager real-time visibility of the program, thus forcing reactive fixes of already existing problems versus proactive management of potential problems. The SASS is a software application that provides OSD analysts with a capability to provide SAR summary tables. These are submitted in conjunction with the annual and quarterly SARs to Congress. The DAES Web is a web-based SW application that allows analysts access to automated data such as information from CARS to execute reporting requirements with some limited ability to aggregate the programmatic data and provide reports.

The Services have developed SW tools to support the program management and reporting needs of their SAEs and OSD. The Army's Acquisition Information Management(AIM) is a web application/relational database that provides automated

system services to the Army's acquisition community to support planning, programming, management, and execution of acquisition programs. The Navy's Dashboard provides information on program indicators such as contracts, cost, funding, performance, schedule, and test and evaluation. The Air Force's System Metric and Reporting Tool (SMART) is a web application that currently runs on an SQL server database and provides program portfolio management and real-time data access and serves as a portal to CARS financial information. APLUS is an OASD(NII) web application that provides program status, APB, regulatory status, oversight review, Congressional/GAO/IG interest information and program documentation information.

Provide limited background on the organization, industry or market conditions, that create drivers for the project.>

2.2 Subject of the business case data and provide reports.

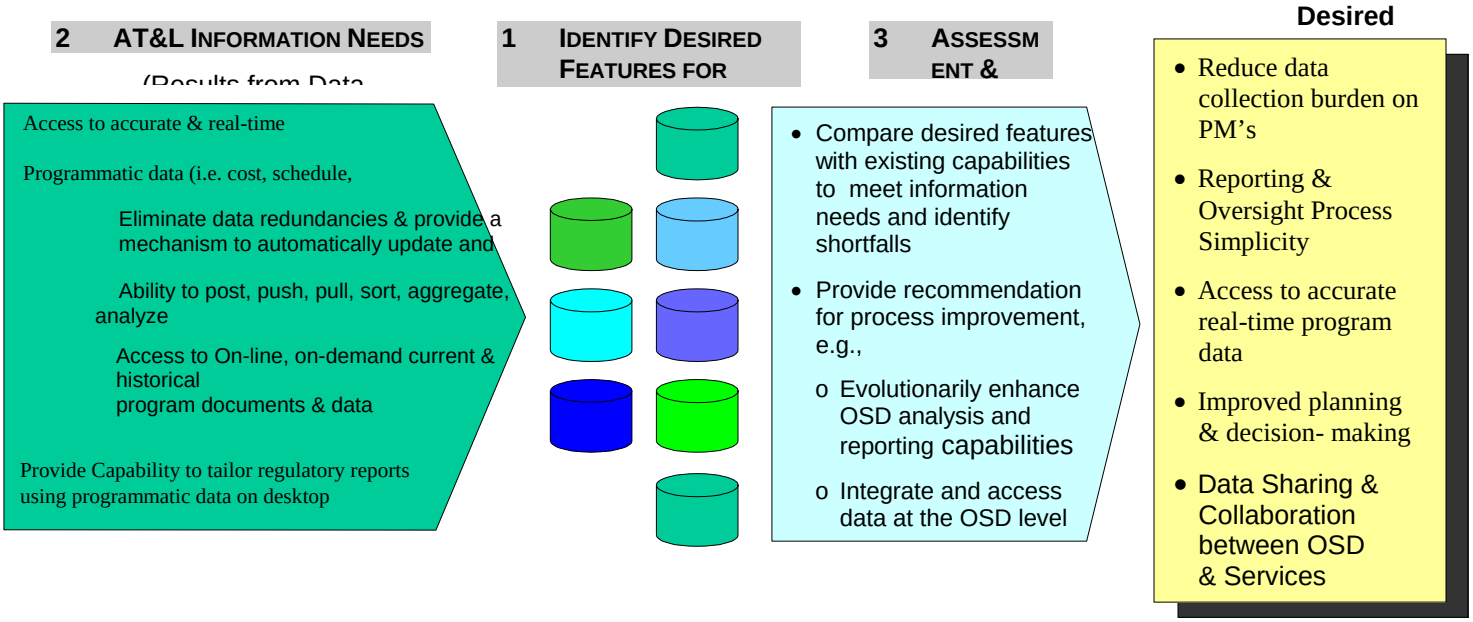
Current OSD processes of oversight and reporting are not as effective or efficient as they could be. Oversight and reporting to OSD and Congress is accomplished primarily through the Consolidated Acquisition Reporting System (CARS) software (SW) which is a Personal Computer-based system that requires a number of manual steps to transform the data for use. CARS data is used for all ACAT I programs, functioning as a central repository for CARS-related acquisition program information. It is a data entry and reporting system that combines DAES, SAR, and APB components into an interconnected set of databases. It is a reporting tool but not a management tool. Today, OSD analysts physically inputs electronic file data from the Services into the CARS transforming the data from the flat CARS format to a relational database format.

Current issues with this process include:

- overburdened program managers responding to too many “masters”: Service and OSD overseers;
- AT&L manually loading CARS data (provided by Services in 3.5 inch floppy-disk format) into dispersed databases;
- lack of on-line connection between OSD overseers, Service overseers, and Program Managers to collaborate and review programmatic data;
- inability to retrieve real-time programmatic and budgetary data needed for oversight and reporting; and
- limited access to SIPRNET by Service program office personnel.
-

Figure 2

MDAP/MAIS Oversight & Reporting Processes & Software Tool Assessment Approach



2.3 Purpose of the business case

The Business Case is used to obtain management commitment from our stackholders and sponsor approval for investment in business change, through rationale for the investment. It provides a framework for planning and management of the business change. The Business Case contains information covering five key aspects of the proposed program: strategic fit to the DoD, options appraisal, commercial aspects, affordability and achievability. The ongoing viability of the project will be monitored against the Business Case.

2.4 Governing mandates

The Under Secretary of Defense (Acquisition, Technology, and Logistics) (USD(AT&L)) is the Principal Staff Assistant and advisor to the Secretary and Deputy Secretary of Defense for all matters relating to the DoD Acquisition System. The USD(AT&L) position was created in law and was vested with the responsibilities of serving as the Defense Acquisition Executive. The USD(AT&L) has the statutory functions of establishing policies on acquisition matters for all elements of the Secretary of Defense over the Military Departments' acquisition systems and processes. The USD(AT&L) serves as the Defense Acquisition Executive with responsibility for supervising the performance of the DoD Acquisition system; establishes policy for acquisition plans and strategies, validates program acquisition requirements, and develops acquisition program guidance; sets policy for acquisition matters, including contracting, research and development, production, logistics, developmental testing, procurement, and training and career development of acquisition personnel; sets policy for administrative oversight of defense contractors; serves as the DoD Procurement Executive.

The DAMIR supports the President's Management Agenda principle initiative of Expanded Electronic Government by implementing a net-centric capability. Specifically, the DAMIR takes existing, manually intensive processes, automates and allows for improvement of those processes, which enables the centralized collection of acquisition data that is easily shared within the DoD and can be made available to share externally as well. The DAMIR project will support the Net-Centric Enterprise Services (NCES) DoD initiative to create an infrastructure that will enable users to quickly take advantage of DoD and intelligence community networks, eliminating the system-by-system approach. The DAMIR COTS solution must be compatible with the DoD Metadata Registry, based on the International Organization for Standardization (ISO) 11179 Specification for Metadata Registries. .

2.5 Alternative Solutions and data

Three alternatives were considered: status quo, custom development of a new system, and a commercial-off-the-shelf (COTS) solution.

The first alternative was the status quo, with minimal upgrades and continued maintenance of the Consolidated Acquisition Reporting System (CARS) family of

systems. Oversight and reporting to OSD and Congress is accomplished primarily through the CARS software which is a PC-based system that requires numerous manual steps to transform the data for use. CARS functions as a central repository for CARS-related acquisition program information. It is a data entry and reporting system, but not a management tool. Today, OSD analysts manually load electronic file data from the Services into the CARS, transforming the data from the flat CARS format to a relational database format. The CARS consists of four related applications: CARS Field System, Contract Assessment System (CAS), SAR Analysis Support System (SASS), and DAES-Web Application. This larger software system tracks and generates reports on performance, cost and schedule data of MDAPs and MAIS. These reports are submitted to Congress, OMB, GAO and DoD. The CARS Field System is used by the Program Offices to produce the APB, SAR and the DAES. The SAR and DAES also include unit cost reporting and Nunn-McCurdy unit cost breach information. The CAS is a web-based application that provides earned value management (EVM) data to OSD analysts for each major contract. Since CAS depends on the CARS Field System for its data input, it relies on manual loading of data--not allowing the acquisition manager real-time visibility of the program, thus forcing reactive fixes of already existing problems versus proactive management of potential problems. The SASS is a software application that provides OSD analysts with a capability to produce the SAR summary tables. These are submitted in conjunction with the annual and quarterly SARs to Congress. The DAES-Web application allows analysts to view the Program Office assessments, add their OSD assessments and to create the OSD feedback package. This alternative is not desirable because the basis of the system, the CARS field system, is developed on a dBase database management structure and is restricted by dBase infrastructure shortcoming. Also, this system does not meet MID 905 and DoD initiatives of net centricity. It was determined that this alternative does not meet the future needs of the Department of Defense.

A second alternative is to develop a new customized “CARS” system using open system technology such as Oracle Database, Portal capability and Collaboration tools. This alternative has many technical risks typical of custom software development approaches such as:

The third alternative is to maximize the use of COTS products and develop a net-centric environment. This alternative will provide a performance-based integrated collaborative environment that will provide a shared solution for end users to collaborate on enterprise program management. Collaborative tools will permit users in remote locations to work as if working collectively in the same location, sharing common corporate resources. Through the tool(s), it will allow users to drill down to relevant data, organize for data collection, and as part of an integrated program management system facilitate managers’ ability to be proactive as a result of the timeliness and depth of their data analysis. The tools will harness existing technology to exploit volumes of data and evolve as the enterprise meets new business challenges. The system will enable users to customize the way they search and actually view information in real-time and display previously unavailable combinations of information.

The last alternative is the preferred choice and the only one that meets the DoD's Management Initiative Decision (MID) 905 to transform the DoD computing infrastructure from a platform-centric information technology (IT) environment to a customer-focused, net-centric environment. MID 905 directs five key information technology architectural tenets that must be employed to ensure effective transformation to net-centricity. (1) Only handle information once. Collecting information or replicating data entry is costly and adversely impacts operational efficiency. Only handling information once requires that technology and processes be reengineered and integrated to minimize time and effort dedicated to data collection and entry. (2) Post before processing, the second tenet of net-centricity, will provide users immediate access to data and eliminate delays normally caused by processing or analyzing information before it is disseminated. (3) System users must have the technical capability to access data when it is needed. The ability to "pull" data when it is needed, in the form that it is needed, is a vital component of net-centricity. This concept gives data control to users, by allowing them to "pull" data as needed instead of having massive amounts of information "pushed" to them regularly, regardless of whether it is needed. (4) Collaboration technologies must be utilized dot assist users in making sense of the data that is pulled. For example, to address most defense-related issues, a diverse group of subject matter experts collaborate to maximize benefits obtained from information that has been gathered. Often, the expertise needed to comprehensively analyze complex information does not reside in one organization or location. As a result, the capability to collaborate with experts within and outside DoD will be a value-added feature of net-centricity. (5) Diverse network paths must provide users with the capability to operate freely in an environment that is reliable and secure. When operational, the net-centric environment will eliminate current interoperability concerns and strengthen information assurance.

Many technical risks are minimized by implementing a COTS solution. An acquisition strategy that uses COTS products can provide the following potential benefits:

• Avoid the risks typical of the custom development approach

• Reduce front-end development cost "spikes" in the budget

• Allow for a more rapid infusion of current technology, tools, and open system standard interfaces

• Expand product competition across a broader market/vendor base

• Use products which are built to world-wide standards

• Leverage industry and market supported skill sets

Using the above considerations and after conducting several "trade studies" with several COTS software vendors who have products that provide the service we need, as well as talking to customers that have used these products, we determined the COTS solution is the most cost effective and least time consuming.

<Describe the primary alternatives considered. Provide the basis for any comparable projects and or benchmark models used to validate estimation data sources. Describe the estimation approach (ballpark, parametric, or detail labor and material) used.>

2.6 Scope of the case

<Describe the time frame and resources available for the business case development process. Also, describe any constraints in alternatives considered.>

2.7 Financial metrics

Primary Metrics to be used will be schedule, performance and funding. Key performance parameters (KPPs) will include both functional and technical considerations. The primary functional KPP will be "user friendliness" issues: ease of use, level of expertise required by user to establish display and drill-downs, expertise required to effectively use the system (i.e., EXCEL and EVM), and facilitation of non-expert use of summaries and data understanding. Technical KPPs include connectivity, burden on network administration, enterprise resource support requirements, and burden to set-up and modify data sources. Additional metrics may be added as requirements evolve.

<Describe which financial metrics will be used to evaluate the effectiveness of an investment and / or to compare alternative solutions.>

2.8 Benefits

In order to maximize the potential benefits to all concerned during the development phase, we believe the project goals for acquisition managers at all levels and across Services should be to: share access to relevant, consistent and near real-time information; access the same data Program Managers (PMs) use to manage their programs on a daily basis; be responsive to evolving information needs; and to reduce workload at every level. OSD envisions a solution that will streamline the acquisition reporting process by satisfying the above goals. The DAMIR project will support the Net-Centric Enterprise Services (NCES) DoD initiative, which will create an infrastructure that will enable users to quickly take advantage of DoD and intelligence community networks, eliminating the current "system-by-system" approach. The DAMIR implementation will allow data to be accessed where it resides and reduce the number of data repositories and maximize the use of web technologies. The pilot will enable transformational business processes to improve effectiveness, efficiency, and services by: eliminating duplication, incompatibility and redundancy of systems and business processes between OSD and the Services; managing knowledge as a corporate

asset using standard shared information as a driver; enabling a workforce of effective managers equipped with the right information to make effective business decisions; providing information integrity; adopting leading practices to optimize business operations; emphasizing cooperative strategies for satisfying common needs across the enterprise; capturing and validating information once for reuse across the enterprise; providing security and protection of sensitive information; affecting changes through increasing efficiency and economy of scale; providing a web-based system that provides a robust environment of data pull rather than data push.

A set of recommended steps, intended to relatively quickly create an initial capability while evolving to increase capability over time, are: (1) Identify and tag core set of data elements. The RIT has begun interviewing and identifying data element requirements of OSD stakeholder organizations. (2) Extract core tagged data from existing databases using COTS and existing tool(s). Evaluate and select a tool that can extract core tagged data for OSD's use from Service/Agency databases. (3) Obtain web-based applications to format and display data. Use portal capability to access web-based applications that are commercially available or if necessary developed to meet unique needs. (4) Evolve to a common extraction tool that can access other databases. (5) Establish a portal capability to share and collaborate.

The pilot supports the President's Management Agenda principle initiatives of Improved Financial Performance by providing accurate and timely financial information on MDAP and MAIS programs; Expanded Electronic Government (EEG) by implementing a net-centric capability that minimizes the data collection burden on the program manager in the field by promoting Enterprise-shared data: enter once--use many, post before process, and pull data rather than push data; and the Budget and Performance Integration by integrating planning, evaluation and budget information with program managers and OSD for monitoring and evaluating implementation of MDAP and MAIS programs.

<Describe the expected primary benefit areas (revenue enhancement and cost reduction) for each alternative solution.>

2.9 Costs

<Describe the expected primary cost areas (capital and expense) for each alternative solution.>

2.10 Major assumptions

<Describe key assumptions that are critical to the investment decision.>

3 BUSINESS IMPACTS

3.1 Overall Results

<Present net result (Cash Flow, IRR, etc.) that demonstrate impact of primary alternatives under consideration.

Supplement with tables and / or charts that demonstrate accrual and cash flow impacts of the investment (for example, annual and cumulative cash flow charts and summary financial results tables).>>

3.2 Benefits

The only possible benefit of keeping status quo alternative is the familiarity with the product. CARS has been used by OSD and the Services for approximately fifteen static cost. However, because of the many inherent problems with the old system such as the CARS field version is developed in dBase flat files that have to be manually merged into an Oracle databases (classified an unclassified) at the OSD level. The system is not user friendly and requires manual manipulation at both the field and OSD level to update the files. To continue to support this system at the status quo is not an acceptable option.

The only benefit to the second alternative to develop a new customized "CARS" system using open system technology such as Oracle Database, Portal capability and Collaboration tools would be the new system. This alternative has many technical risks typical of custom software development approaches such as:

<Present significant benefit impacts (both revenue enhancement and cost reduction) for each project alternative under consideration>

3.3 Costs

<Present significant cost impacts (both capital and expense) for each project alternative under consideration.>

3.4 Analysis of Alternatives

<Compare primary alternative solutions in side-by-side table or chart (or possibly overlapping chart if it is not overly complex) to assist in evaluating decision>

4 SENSITIVITIES, RISKS, AND CONTINGENCIES

<Identify key parameters and conditions that impact the investment decision. Present potential contingent actions that could mitigate the uncertainty. Identify how such uncertainties impact the analysis and investment decision

Link spreadsheet sensitivity or simulation charts or tables if they clarify the decision process. Also consider using a decision tree if it aids in understanding the alternative solution uncertainties..>

If the pilot is selected as an RAI-NC candidate, cost and schedule risks will be minimized. Performance risks will focus on management and technical risks. Change management within the Enterprise will be crucial to the successful implementation of the DAMIR project as a whole and the successful EVM pilot implementation will rely on some cultural change initiatives as well. Both cultural changes and best business practices are absolutely vital in order to realize the maximum benefit. Change Management services will need to supplement the software implementation project and assist to help minimize risks inherent when seeking to implement enterprise-wide technology applications. Change Management strategies will include: organizational change management and communication, knowledge of business objectives, organizational culture, buy-in and commitment, decision-making processes, and the impact of new business processes. The contractor will work with the acquisition community to develop and execute a Communication Campaign to support the new application and new business processes.

A phased implementation of DAMIR capability has been agreed upon. The first “spiral” pilot implementation will benefit from this phased approach by incrementally implementing change and thus lowering the initial cultural “shock.”

Technical risks are those that have been identified under metrics for technical KPPs. Many technical risks are minimized by implementing a COTS solution. An acquisition strategy that uses COTS products can provide the following potential benefits:

• Avoid the risks typical of the custom development approach

• Reduce front-end development cost "spikes" in the budget

• Allow for a more rapid infusion of current technology, tools, and open system standard interfaces

• Expand product competition across a broader market/vendor base

• Use products which are built to world-wide standards

• Leverage industry and market supported skill sets

Critical dependencies are the availability and accessibility of program management data for the pilot to exploit. This risk has been identified and collaborated with the Services and other DoD Agencies and it was determined that most data is available and accessible, but risks still exist such as firewall issues and memorandums of agreement between OSD and the Services on data access policies and procedures.

5 RECOMMENDATIONS AND CONCLUSIONS

The recommend alternative is the third alternative to use a COTS software solution augmented by existing COTS and GOTS software to implement DAMIR. Existing CARS family of systems software will be analyzed to determine its applicability to the new DAMIR environment. Expanded use of COTS software should streamline business processes, increase operational efficiency, and yield significant savings to the program.

<Provide recommendations based on the analysis above. Discontinue investment, select one of the identified alternatives, or defer decision pending additional information or changes in business or market conditions.

Identify any specific actions that are recommended to ensure that risks and uncertainties are effectively managed throughout the implementation process.>

APPENDIX XIII
POST PILOT PHASE REVIEW OF PILOT PROGRAMS

NOT YET COMPLETE

APPENDIX XIV
Report of OSD RIT Pilot Project
GTN-21
SW Acquisition Capability
Mini-assessment

20-23 May 2003

Conducted at:
USTRANSCOM, GTN-21 Program Management Offices, Bldg 1700 Scott AFB, Ill.

GTN-21 Pilot Team Representative: Maj. Steve Kendall, USMC

Assessment Team: Mr. George Winters, AFPEO/C2&CS, Lead Assessor
Mr. Leonard Sadauskas, DASD(CIO) CP/O
Mr. Russ Peter, AFPEO/C2&CS
Maj. Steve Kendall, GTN-21 PMO Representative

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I. Introduction

This is the OSD Rapid Improvement Team (RIT) for IT Acquisition Management Improvement, Assessment Team report of findings from a software acquisition capability assessment (hereafter referred to as the mini-assessment) conducted at the USTRANSCOM, J6, GTN-21 Program Management Office during 20-23 May 2003.

A. Purpose and Goals

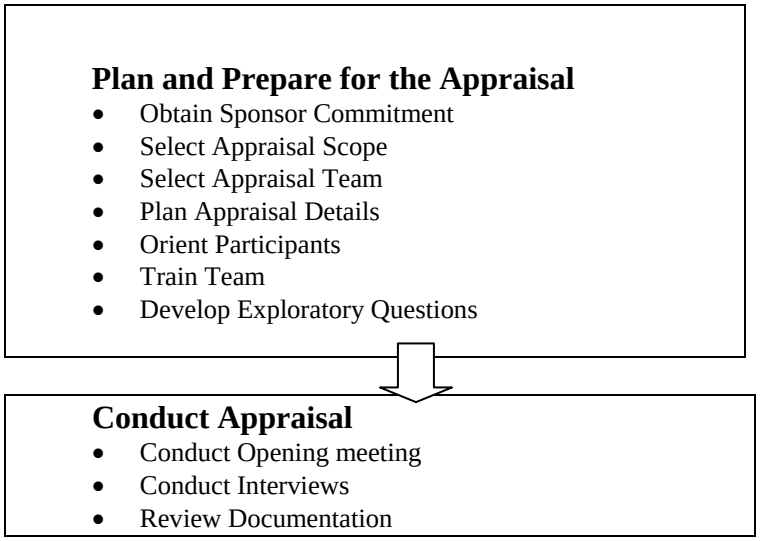
The purpose and goals of the GTN-21 mini-assessment are:

- To gain insight into the RIT recommendation that assigns oversight responsibility to the lowest competent echelon. The elements of the oversight decision are the PEO/PMO acquisition capability and risk associated with the investment. The application of these two elements is referred to as Risk-balanced Oversight.[1]
- To calibrate the effectiveness of other RIT recommendations undertaken by the Pilot Projects.[2]
- To provide the Pilot Program PM and PEO third party insight into organizational strengths and into those acquisition capability improvement opportunities that present risk to the program.
- To collect candidate RIT Pilot best practices.

B. Method

The scope of this mini-assessment is adapted from the coverage provided by the FAA Integrated Capability Maturity Model (FAA-iCMM) v2.0[3] as shown in Tab C. The method follows the FAA-iCMM® Appraisal Method (FAM) Version 1.0[4] tailored as shown in Figure 1 below.

Early access to GTN-21 program documentation via the RIT mandated Army Acquisition Information Management system (AIM) and the Air Force Portal SMART module, and telephone conference coordination and training sessions enabled the assessment team to meet its goals in a four working day effort. One day for preparation, two and one half days on-site and in recognition of the Memorial Day holiday, a report-out on the evening of the third day.



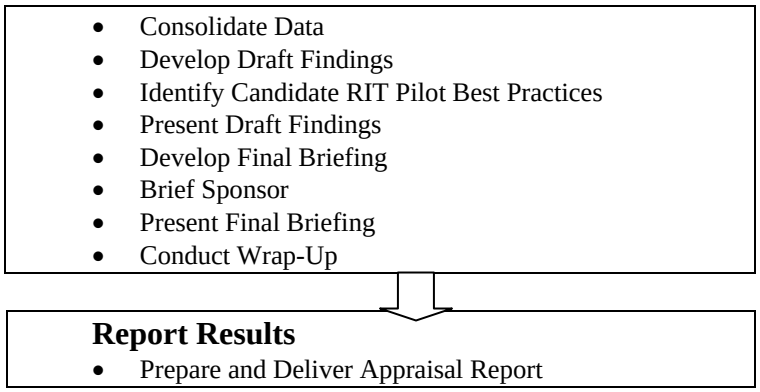


Figure 1, Mini-assessment Methodology

C. Logistics

The mini-assessment was conducted during 20-23 May 2003 at USTRANSCOM in GTN-21 Program Management Offices, Bldg 1700, Scott AFB, Ill.. The assessment team appreciates the support provided by the program management office to plan, conduct and report the results of the mini-assessment. The administrative support, the assigned office and interview spaces, and the prompt turn-around of requests was outstanding. The team wishes to especially recognize the contribution made by the GTN-21 representative Maj. Steve Kendall who was pressed into service as both the POC and an assessment team member.

D. Mini-assessment team personnel

The team consisted of four personnel. The Lead Assessor was Mr. George Winters who is a certified CBA-IPI lead assessor for the SA-CMM® and is the Technical Director, Air Force Program Executive Officer, C2&CS. Mr. Leonard Sadauskas is certified by the American Society for Quality as a Quality Auditor and is a consultant to the DoD CIO for the RIT Pilot. Mr. Russ Peter, Air Force Program Executive Officer, C2&CS. Maj. Steve Kendall, a GTN-21 Project Manager, served both as an assessor and the designated point of contact for the assessment. Mr. Steve Barry of the Software Technology Center, Hill AFB Utah, who is the resident consultant to the PMO for implementation of the FAA-iCMM was unable to participate in this assessment. The results of Mr. Barry's efforts were however in evidence as seen in the large ratio of strengths to improvement opportunities reported in the findings.

E. Personnel interviewed and briefed

The attendees at the opening briefing and out-brief are provided as PDF files in Tab A to this report. The assessment schedule, Figure 2, lists the personnel interviewed. There were no follow-up interviews.

Day 1	Day 2	Day 3
1245 – 1255 In-brief with Col. Tate SPD	0800 – 0930 Interviews: Risk Management, Process Development, Process Improvement	0800 – 1200 Follow-up Interviews: J3 Performance Measures, SW Function Point Estimate, Business Rule Definitions, CM, PMO to Prime Relationship, Facilities,

		Resource Requirements
1300 – 1310 Introductions and GTN video	0930 – 1000 Assessment Team Consolidation	1200 – 1300 Lunch
1310 – 1430 GTN 21 briefing	1000 – 1130 Interviews: QA&M, Measurement & Evaluation, T&E, Transition	1300 – 1600 Prepare Out-brief
1430 – 1700 Interview PM, DPM, J3	11:30 – Lunch	1600 - 1730 Out-brief
	1300 – Interviews: Systems Engineering	
	1430 – 1500 Assessment Team Consolidation	
	1500 – 1700 Interviews: CM, Process Training, Product Training, PMO Operations, Financial Management	
	1700 – 1800 Assessment Team Consolidation Prepare Draft Out-brief	

Figure 2, Assessment Schedule

F. Documents Reviewed

The key GTN-21 acquisition documents were presented to the assessment team on-line in AIM during the planning period. All PMO and prime contractor, Northrop Grumman Corporation Information Technology Defense Mission System (NG), C3I Systems GTN 21 Engineering Process Group documents, were made available on the GTN-21 portal during the assessment. Additionally, the prime contractor provided a CD-ROM of the document index and specific requested documents relating to process improvement and quality assurance. We did not keep an index of the 100 or so documents we reviewed because they were typically accessed on line and searches produced both the principal and supporting documentation. The timely manner in which documents were available for review enhanced the dialog, demonstrated the value of a well-designed on-line repository and contributed to the value of the assessment.

II. Findings

The PMO selected 10 process areas for assessment, A through J as shown in Figure 3 below. During the assessment, four additional process areas, K through N, came into play and were added to the findings. A description of the FAA-iCMM model's architecture and listing of its 23 process areas is presented in Tab B.

The 68 findings of this mini-assessment are listed in Figure 3 for each process area in three categories: Strengths and candidate RIT best practices within the strengths, and improvement areas (Figure 3 refers). The candidate best practices are those that, in the judgment of the assessment team, work particularly well for GTN-21 and should be considered for recommendation to other IT programs. Section III further addresses the candidate best practices. All findings were corroborated with information from at least two different sources. A description of each process area (PA), its purpose, strengths and improvement areas (if any) follows Figure 3.

Process Area		# Strength(s)	# RIT Best Practice Candidate(s)	# Improvement Area(s)
A	Needs/Requirements	4	3	3
B	Evaluation	2	1	2
C	Project Management	8	2	2
D	Risk Management	1		2
E	Quality Assurance Management	1		1
F	Configuration Management	4	1	
G	Measurement & Analysis	3		3
H	Process Definition	3		2
I	Process Improvement	1		2
J	Training	1		2
K	Deployment/Transition/Disposal	2	2	1
L	Supplier Agreement Management	5	1	1
M	Integrated Teaming	6	2	5
N	Information Management	1	1	

Figure 3, Summary of Findings

A. PA: Needs/Requirements

Purpose: Elicit, analyze, clarify, and document needs and expectations; develop requirements, derive detailed requirements, and manage those requirements throughout the life cycle.

1. Strengths:

- It appears that the GTN-21 team understands the need to control change and aggressively manages requirements and expectations
- The team found evidence that the GTN-21 team understands the need to minimize changes to COTS and aggressively manages COTS changes. **This procedure may constitute a RIT Best Practice.**
- The team found evidence that customer, USTRANSCOM J3, participation on all IPTs contributes significantly to expectations management and **may constitute a RIT Best Practice.**
- It appears that the existence of well-defined measures of effectiveness provides bridges among the strategic plan, the ORD, and test documents. **This circumstance may constitute a RIT Best Practice.**

2. Improvement Opportunities:

- It appears that the commitment that GTN-21 IOC will provide the same or better functionality as GTN introduces the risk of requirements creep into the GTN-21 program inasmuch as GTN performance may change over the life of the GTN-21 development.
- The team found evidence that the potential need for a Global Information Grid (GIG) waiver might have been overlooked.
- It appears that the major effort associated with defining business rules is not being managed as a derived requirement and has not been subject to measurement of size, complexity, or progress.

B. PA: Evaluation

Purpose: Confirm that products and services satisfy specified requirements and identify defects.

1. Strengths:

- The team observed that the Northrop Grumman prepared OT&E website enhanced the project team's understanding of test objectives by providing a centralized location for T&E documents and future test results.
- The team observed that early involvement of all contractor and government independent test organizations into the Combined Test Force is an effective risk mitigator and may constitute a **RIT Best Practice**.

2. Improvement Opportunities:

- The team observed that there exists a non-systems perspective to test processes.
- The team observed that the current evaluation approach appears to be silent in several areas crucial to the successful verification and validation of the GTN 21 objectives.
    - Human Systems Interface testing
    - Training efficacy
    - Long-term database/data warehouse surveillance

- External interface analysis
- Infrastructure Impacts

C. PA: Project Management

Purpose: Ensure the project achieves its objectives, by planning, directing, tracking, and controlling necessary activities.

1. Strengths:

- The team found evidence that a robust EVM-based approach is used to manage the program.
- The team found evidence that a robust formal risk management program is applied across the program.
- The team found evidence that robust program oversight mechanisms are in place to integrate the efforts of the various IPTs.
- It appears that the practice of maintaining the government estimate of the program will be of great value to the program and **may constitute a RIT Best Practice.**
- The team found evidence that the strong emphasis on change management will be of great value to the program.
- The team found evidence that the GTN-21 program has placed appropriate emphasis on external interfaces and changes thereto.
- Use of the portal by all GTN-21 team members, government and contractor, enables a high level of collaboration and **may constitute a RIT Best Practice.**
- Use of the action item (AI) database by all GTN-21 team members enables strong central control of AIs from all IPTs.

2. Improvement Opportunities:

- When an IPT is created for a special need (e.g. schedule), consider including a sunset clause in the IPT charter based on defined exit criteria.
- The team found little evidence of systematic correlation among critical risks, the critical path, and critical performance parameters.

D. PA: Risk Management

Purpose: Identify and analyze risks and execute plans that reduce the likelihood and/or consequence of risks that meet mitigation criteria.

1. Strength:

- The team found evidence of a strong formal risk management program that is applied across all disciplines, is reviewed regularly at the PM level, and undergoes process improvement.

2. Improvement Opportunities:

- The team found little evidence of systematic correlation among critical risks, the critical path, and critical performance parameters.

- The team found little evidence of the use of executive management influence to resolve external risks and issues.

E. PA: Quality Assurance and Management

Purpose: Ensure the quality of the product, ensure the quality of the processes, and provide management with appropriate visibility into both product and process.

1. Strength:

- The team observed that some process owners are taking action to ensure that quality exists within their processes.

2. Improvement Opportunity:

- The team found little evidence that senior management assists process owners by actively ensuring process fidelity.

F. PA: Configuration Management

Purpose: Establish and maintain status of configuration items, analyze and control changes, and maintain the integrity of work products and data throughout the life cycle.

1. Strengths:

- Configuration management personnel appear to understand CM and are applying lessons learned from GTN to ensure improved CM is performed for GTN-21.
- The team found evidence that the mechanism established for USTRANSCOM enterprise configuration management will facilitate management of GTN-21 external interfaces. **This mechanism may constitute a RIT Best Practice.**
- It appears that the CM function makes optimum use of the GTN-21 portal.
- The team found evidence that the action item (AI) database provides positive central management of AIs from all IPTs.

2. Improvement Opportunity:

- None Observed.

G. PA: Process Definition

Purpose: Define and maintain a standard set of process assets that support organizational learning and process improvement.

1. Strengths:

- The team observed that the Management Portal makes IPT processes readily available to all team members.
- The team observed that the contractor corporate process definitions are available in a portlet on the management portal.
- The team observed that the PMO has selected the FAA iCMM as their reference model and established a plan for implementation.

2. Improvement Opportunities:

- The team observed that the PMO has not achieved planned process definition goals, thereby inhibiting progress to process improvement.
- The team observed that the need for documented PMO processes is more urgent as IOC approaches.

H. PA: Process Improvement

Purpose: Continuously improve the effectiveness and efficiency of organization processes.

1. Strength:

- The team observed that the Award Fee and CRB/CCB processes have undergone improvements and have garnered the benefits of that improvement.

2. Improvement Opportunities:

- The team observed that the PMO is functioning with largely *ad hoc* processes thereby inhibiting improvement to these processes until they are defined.
- The team observed that the lack of process metrics likewise inhibits process improvement.

I. PA: Measurement and Analysis

Purpose: Collect and analyze data related to processes and products to provide quantitative insight into performance.

1. Strengths:

- The team found evidence of a strong Earned Value Management process that is used by the PM and key staff to manage the program.
- The team found evidence of use of the manning metric to monitor the start up of the contractor team.
- The team found evidence of periodic re-estimation based on function point growth.

2. Improvement Opportunities:

- The team found little evidence of measurement and analysis applied to processes within the PMO.
- The team found little evidence of the application of metrics for quality trends and system performance (maturity matrix).
- The team found little evidence of tracking the progress of defining business rules.

J. PA: Training

Purpose: Develop and maintain people's skills and knowledge so they perform their roles effectively and efficiently.

1. Strength:

- The team observed that a learning environment at the Branch level fosters the sharing of learned information. (e.g. practicum, Architecture Brief)

2. Improvement Opportunities:

- The team observed that the process of allocating available training slots by Service hampers the utilization of available training resources by a Joint Command such as USTRANSCOM.
- The team observed that while waiting for completion of process documentation, the PMO is missing opportunities for training personnel in those processes.

K. PA: Deployment, Transition and Disposal

Purpose: Place a product into an operational environment, transfer it to the customer, and deactivate and dispose of it.

1. Strengths:

- The team found evidence that vendor support has been arranged for up to 17 years. This arrangement is unprecedented and **may constitute a RIT Best Practice.**
- The team found evidence of a significant effort to understand business rules and capture them in data structure for ease of sustainment and **may constitute a RIT Best Practice.**

2. Improvement Opportunity:

- The effort to define business rules is a major undertaking, and it appears that this effort may constitute a significant schedule risk.

L. PA: Supplier Agreement Management

Purpose: Ensure that activities described in agreements are being performed and that products will satisfy requirements described in those agreements.

1. Strengths:

- The team observed that communications between the government and contractor have evolved to a high level of information exchange through a fully integrated IPT structure and close physical proximity.
- The team observed that government and contractor have embraced a team approach to contract execution leading to enhanced horizontal communications across working groups.
- The team observed the sharing of training resources to improve the performance of the government and contractor IPTs.
- The contractor's strategy to provide a 17year maintenance agreement for COTS software applications, and the accompanying life cycle cost savings, is

viewed by the team as evidence of successful government/contractor collaboration.

- The team observed that the use of the government/contractor shared portal facilitates enhanced Supplier Agreement Management and may constitute a **RIT Best Practice**.

2. Improvement Opportunity:

- While the team observed that government and contractor have embraced a team approach that has lead to enhanced horizontal communications across working groups, it appears that this close teaming approach may inhibit the timely elevation of program issues to executive management.
    - If the team is really tightly connected, neither party (gov't nor NG) would be quick to raise issues with the other party's management, trying to keep resolution within the team. Sometimes that is either impossible or very difficult, yet some issues should be raised to the executive level for resolution or assistance.

M. PA: Integrated Teaming

Purpose: Accomplish multidisciplinary/cross-functional missions, create integrated teams, and establish and maintain a supportive teaming environment.

1. Strengths:

- It appears that there is a strong IPT structure that meets frequently and is collaborative at the PM level.
- It appears that PMO-Contractor teaming is exemplary and may constitute **a RIT Best Practice.**
- The team found evidence of shared training between the Gov't and the Contractor that may constitute **a RIT Best Practice.**
- It appears that test resources are being applied early, and test is well coordinated with the Responsible Test Organization and AFOTEC.
- It appears that security resources are being applied early, lessons learned from GTN are being applied, and the program is accounting for the changing nature of DOD security requirements.
- It appears that external interfaces are being managed early.
- The team found evidence that use of the GTN-21 Portal is a significant aid in collaborative management of the program.

2. Improvement Opportunities:

- The team found evidence that the close, collaborative relationship between the PMO and other stakeholders might inhibit the PMO's willingness to escalate issues for resolution.
- When an IPT is created for a special reason (e.g. schedule), consider including a sunset clause in the IPT charter based on defined exit criteria.
- The team found evidence that risk management coordination between GTN and GTN-21 could be improved.
- The team found evidence that correlation in a systematic way across various IPT products could be improved (e.g. changes to measures in systems

engineering do not appear to be factored into cost and schedule estimates in a systematic way).

- The team found evidence that inter-agency security interfaces may constitute a risk to the program, particularly in light of changes associated with the stand-up of the Department of Homeland Security (DHS).
    - USTRANSCOM systems interface with folks who are responsible for cargo inspection, port security, passenger screening, etc (USCG, Customs, Immigration, etc.), all of whom have been rolled into DHS. The certification and accreditation requirements on either side of the interfaces could diverge if not managed carefully, at which point the data will either not flow or it will require manual intervention.

N. PA: Information Management

Purpose: Make relevant and timely information available to those who need it.

1. Strength:

- The team observed that the structure and organization of the portal is useful in the sharing of information needed to support management of the project and may constitute a **RIT Best Practice.**

2. Improvement Opportunity:

- None observed.

III.Candidate Best Practices

The assessment team identified 13 of the 42 strengths as candidate RIT Pilot best practices and they are so identified in the findings and listed below. Candidate best practices are those, which in the judgment of the assessment team, work particularly well for GTN-21 and should be considered for recommendation to other IT programs. These candidate best practices will be the subject of discussion and selection by the RIT Pilot Team. The PMO will be asked to further describe the selected Best Practices in the context of their environment. The 13 candidate best practices are found in 9 of the 14 process areas and are listed in Figure 4.

BP #	Process Area	Candidate RIT Pilot Best Practice
1	Needs/Requirements	The team found evidence that the GTN-21 team understands the need to minimize changes to COTS and aggressively manages COTS changes.
2	Needs/Requirements	The team found evidence that USTRANSCOM J3 participation on all IPTs contributes significantly to expectations management
3	Needs/Requirements	It appears that the existence of well-defined measures of effectiveness provides bridges among the strategic plan, the ORD, and test documents.
4	Evaluation	The team observed that early involvement of all contractor and government independent test organizations into the Combined Test Force is an effective risk mitigator
5	Project Management	It appears that the practice of maintaining the government estimate of the program will be of great value to the program
6	Project Management	Use of the portal by all GTN-21 team members enables a high level of collaboration
7	Configuration Management	The team found evidence that the mechanism established for USTRANSCOM enterprise configuration management will facilitate management of GTN-21 external interfaces
8	Deployment/Transition/Disposal	The team found evidence that vendor support has been arranged for up to 17 years. This arrangement is unprecedented
9	Deployment/Transition/Disposal	The team found evidence of a significant effort to understand business rules and capture them in data structure for ease of sustainment and Improvement Opportunity: The effort to define business rules is a major undertaking, and it appears that this effort may constitute a significant schedule risk.
10	Supplier Agreement Management	The team observed that the use of the government/contractor shared portal facilitates enhanced Supplier Agreement Management.
11	Integrated Teaming	It appears that PMO-Contractor teaming is exemplary
12	Integrated Teaming	The team found evidence of shared training between the Gov't and the Contractor
13	Information Management	The team observed that the structure and organization of the portal is useful in the sharing of information needed to support management of the project

Figure 4, Candidate RIT Pilot Best Practices

IV. Tab A, Personnel Interviewed and Briefed

GTN 21 iCMM Mini Assessment
20 – 23 May 2003

GTN 21 iCMM Assessment Team

Name	Function	Phone
Mr. George Winters	Lead Assessor	703-588-0935
Mr. Len Sadauskas	OSD RIT Pilot Member	703-602-0980 x102
Mr. Russ Peter	AF PEO/C2&CS Member	703-588-6468

Introductory Briefing

Name	Function	Phone
Col Stephen Tate	SPD	229-5025
Lt Col Frank Madeka	Deputy SPD	229-5023
Lt Col Dan Eickmeier	GTN 21 PM	229-5004
Lt Col Bobby Lyons	GTN 21 Deputy PM	229-5009
LTC Wayne Husemann	T&E Manager	229-5082
LTC Jerry Newman	Systems Migration	229-5008
Bill Koch	Engineering Manager	229-5036
Elaine Morris	Program Control Manager	229-5037
Sue Kennedy	Functional	229-3533
MAJ Steve Kendall	Project Manager	229-5007
Maj Michelle Huffman	Project Manager	229-5385
Joe Buchwald	Program Control	229-5010
JoAnn Meyer	Program Control	229-5011
Roland Lataille	Program Control	229-5012
Clyde Collard	CM	229-5032

GTN 21 PM, Deputy PM, and J3 Interview

Name	Function	Phone
Lt Col Dan Eickmeier	GTN 21 PM	229-5004
Lt Col Bobby Lyons	GTN 21 Deputy PM	229-5009
Sue Kennedy	Functional	229-3533
MAJ Steve Kendall	Project Manager	229-5007
Clyde Collard	CM	229-5032

Risk Management, Process Development, Process Improvement

Name	Function	Phone
MAJ Steve Kendall	Project Manager	229-5007
Maj Michelle Huffman	Project Manager	229-5385
Clyde Collard	CM	229-5032

Test & Eval, Measurement & Analysis, QA&M

Name	Function	Phone
MAJ Steve Kendall	Project Manager	229-5007
LTC Wayne Husemann	T&E Manager	229-5082
Bill Koch	Engineering Manager	229-5036
Whitney Seema	Testing	622-5551
Ralph Hauck	Testing	622-5550
Tim Yohe	NG Process Engineer	622-5544
Clyde Collard	CM	229-5032

System Engineering

Name	Function	Phone
MAJ Steve Kendall	Project Manager	229-5007
Bill Koch	Engineering Manager	229-5036
Francis Peters	Engineering	229-5079
Bill Fetech	Engineering	229-5076
Renee Darsch	Engineering	229-5005
John Dahm	Engineering	229-5057
Rex Drown	Engineering	229-5062
Jacques Sabre	Engineering – Security	229-5061
Clyde Collard	CM	229-5032

CM, Training, Financial Management

Name	Function	Phone
MAJ Steve Kendall	Project Manager	229-5007
Bill Koch	Engineering Manager	229-5036
MAJ Neil Pryor	Contracting	229-5003
Elaine Morris	Plans & Programs Manager	229-5037
LTC Wayne Husemann	T & E Manager	229-5082
Joe Buchwald	Program Control	229-5010
JoAnn Meyer	Program Control	229-5011
Marlyn Thorne	Program Control	229-5038
Matt Bowen	Contracting	229-5102
Nancy Wobbe	J1 – Training	229-7095
Clyde Collard	CM	229-5032

GTN 21 PM, Deputy PM, and J3 Follow-up

Name	Function	Phone
Lt Col Dan Eickmeier	GTN 21 PM	229-5004
Lt Col Bobby Lyons	GTN 21 Deputy PM	229-5009
Sue Kennedy	Functional	229-3533
MAJ Steve Kendall	Project Manager	229-5007
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Outbrief

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Lt Col Dan Eickmeier	GTN 21 PM	229-5004
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MAJ Pat Burden	GTN Program Manager	229-5019
LTC Wayne Husemann	T&E Manager	229-5082
Bill Koch	Engineering Manager	229-5036
Elaine Morris	Program Control Manager	229-5037
Sue Kennedy	Functional	229-3533
MAJ Steve Kendall	GTN 21 Project Manager	229-5007

V. Tab B, Architecture of the FAA-iCMM

A. The Process and Capability Dimensions

The FAA-iCMM is an organizational improvement model with an architecture that is built around two dimensions: the process dimension and the capability dimension. This tab consists of excerpts from the model. Figure 1 below depicts the architecture.

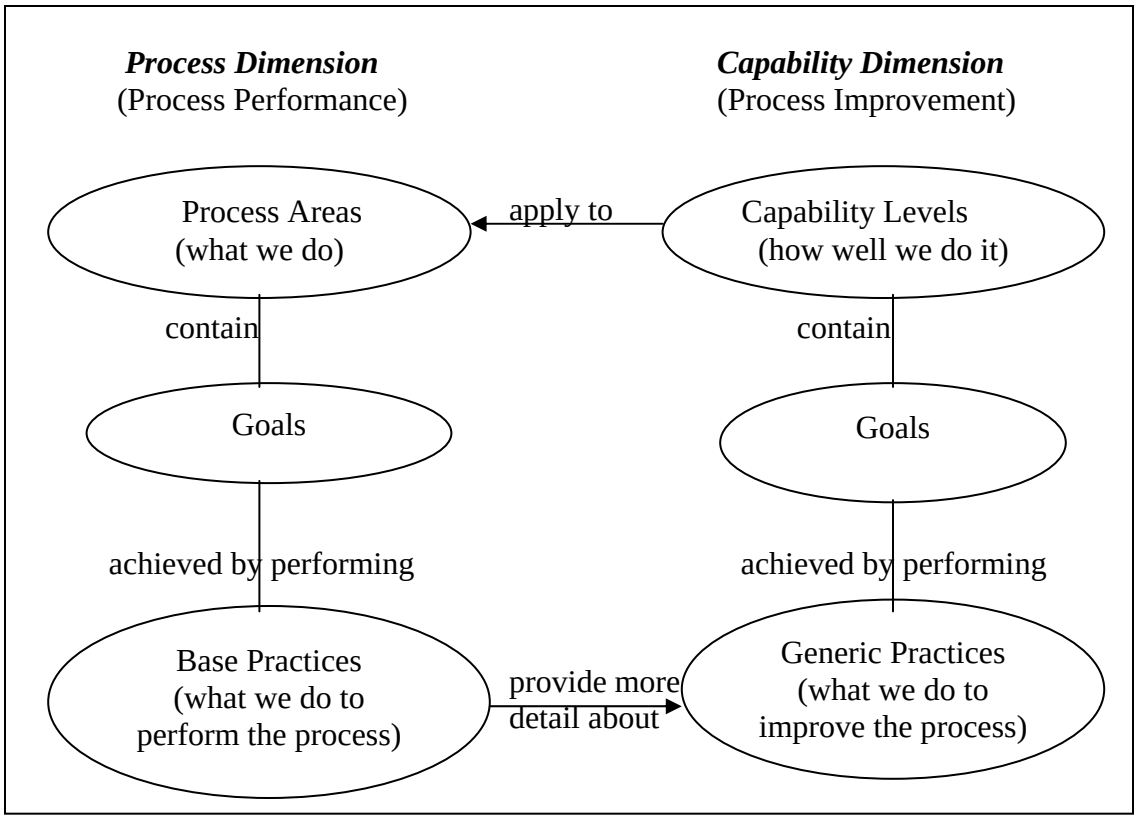

Figure 1, FAA-iCMM® Architecture

The process dimension focuses on process *performance*. It consists of base practices that are specific to the performance of management, life cycle, and support processes across an enterprise. These practices provide guidance regarding *what we do*.

The iCMM uses process areas to describe the process dimension. Process areas group together base practices related to achieving goals and a common purpose.

The capability dimension focuses on process *improvement*. It consists of generic practices that are related to overall process management and institutionalization. These practices provide guidance regarding *how well we do it*.

The iCMM uses capability levels, goals, and generic practices to describe process capability:

- Capability levels indicate increasing levels of ability to perform, control and improve processes associated with process areas.
- Generic practices are staged and organized by capability levels. They can apply to any process area.

B. Relating the Process and Capability Dimensions

The generic practices in the capability dimension are applied to process areas in the process dimension to determine process capability. Some generic practices, however, depend on a process area to perform that practice. In these cases, the process area supports that practice and provides more detailed guidance for performing the generic practice; the related generic practice focuses on deploying these practices in relation to individual process areas.

For example, the generic practice 2.9 Manage Work Products states "Place identified work products of the process under appropriate levels of configuration management." This practice depends on the process area PA 16 Configuration Management to perform that practice and more detailed guidance for performing the Manage Work Products generic practice is found in that process area. The generic practice focuses on assuring that configuration management practices are deployed in relation to work products of any process that is being improved.

C. Capability Level Summaries

This section summarizes the capability levels by presenting their goals and the titles of their generic practices.

Level 1: Performed

Goal: The process achieves the goals of the process area.

Generic Practices:
1.1 Identify Work Scope
1.2 Perform the process

Level 2: Managed: Planned & Tracked

Goal: The process is institutionalized as a managed (planned and tracked) process.

Generic Practices:
2.1 Establish organizational policy
2.2 Document the process
2.3 Plan the process
2.4 Provide adequate resources
2.5 Assign responsibility
2.6 Ensure skill and knowledge
2.7 Establish work product requirements
2.8 Consistently use and manage the process
2.9 Manage work products
2.10 Objectively assess process compliance

2.11 Objectively verify work products
2.12 Measure process performance
2.13 Review performance with higher-level management
2.14 Take corrective action
2.15 Coordinate with participants and stakeholders

Level 3: Defined

Goal: The process is institutionalized as a defined process.

Generic Practices
3.1 Standardize the process
3.2 Establish and use a defined process
3.3 Improve processes

Level 4: Quantitatively Managed

Goal: The process is institutionalized as a quantitatively managed process.

Generic practice:
4.1 Stabilize process performance

Level 5: Optimizing

Goal: The process is institutionalized as an optimizing process.

Generic practice:
5.1 Pursue process optimization

D. Process Dimension

The process dimension of the iCMM describes what an organization does (i.e., the functions it carries out), as distinct from how disciplined it is in doing it. It gathers together best practices from the various iCMM source models and standards to provide integrated process performance guidance.

The iCMM characterizes its process dimension using categories, process areas, goals, and base practices.

A *category* is a group of process areas addressing the same general type or area of activity.

A *process area* (PA) is a group of related base practices that are essential for achieving the purpose of the PA.

A *base practice* summarizes a fundamental essential characteristic of performing a process that meets the purpose of the PA. Base practices are mapped to *goals.*

Process area *goal*s summarize an observable, expected state to be achieved if the practices mapped to them are performed. Goals are expected to be achieved if the purpose of the PA is

met, and the process area is successfully implemented.

Although the process areas are grouped into categories, and described separately, there are many interactions and relationships among them.

The Categories and Process Areas:

There are three process categories and 23 process areas in the iCMM:

- Management Processes - This category contains 5 process areas
- Life Cycle Processes - This category contains 8 process areas
- Support Processes - This category contains 10 process areas

Management Processes

The management processes are used to set vision, goals, strategy, and direction. Management processes initiate, align, plan and track activities that will accomplish the objectives of the enterprise, organization, project, or team. They oversee the execution of the other processes in the model.

The process areas in this category are:

- PA 00 Integrated Enterprise Management
- PA 11 Project Management
- PA 12 Supplier Agreement Management
- PA 13 Risk Management
- PA 14 Integrated Teaming

Life Cycle Processes

The life cycle processes are used to develop, maintain, transition, and operate a product or service in order to provide and sustain the services that a customer or stakeholder needs. These processes cover the typical life cycle of a product or service.

The process areas in this category are:

- PA 01 Needs
- PA 02 Requirements
- PA 03 Design
- PA 06 Design Implementation
- PA 07 Integration
- PA 08 Evaluation
- PA 09 Deployment, Transition, and Disposal
- PA 10 Operation and Support

Support Processes

The support processes are used by other process areas when needed and contribute to the success and quality of all the processes.

The process areas in this category are:

- PA 04 Alternatives Analysis
- PA 05 Outsourcing
- PA 15 Quality Assurance and Management
- PA 16 Configuration Management
- PA 17 Information Management
- PA 18 Measurement and Analysis
- PA 20 Process Definition
- PA 21 Process Improvement
- PA 22 Training
- PA 23 Innovation

VI. Appendix 1, Team Briefings (Separate File)

Forwarded separately as Power Point files

A. Introduction by Mr. Leonard Sadauskas

B. Out-brief by Mr. George Winters

VII. Links to End-note References

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[1] Risk-balanced Oversight, Leonard Sadauskas, DASD(CIO) IT-CoP, SA-CMM+ Assessment References, http://qp.dau.mil/QuickPlace/dod_cio_rit_pilot/PageLibrary85256CB5005D9802.nsf/h_Toc/F7E8E21B0135D9B285256D4B00481256/?OpenDocument

[2] DoD Information Technology (IT) Acquisition Management Transformation Rapid Improvement Team (RIT) Recommendations available for piloting by designated IT Projects, DASD(CIO) IT-CoP, SA-CMM+ Assessment References, http://qp.dau.mil/QuickPlace/dod_cio_rit_pilot/PageLibrary85256CB5005D9802.nsf/h_46673272422746AA85256D4B00484CA3/D90CC0428271169685256D4B00477F56/?OpenDocument

[3] The Federal Aviation Administration Integrated Capability Maturity Model® (FAA-iCMM), version 2.0, An Integrated Capability Maturity Model for Enterprise-wide Improvement, Federal Aviation Administration, September 2001. http://www2.faa.gov/aio/ProcessEngr/iCMM/

[4] The Federal Aviation Administration Integrated Capability Maturity Model® (FAA-iCMM) Appraisal Method (FAM) Version 1.0, Federal Aviation Administration, April 1999. http://www2.faa.gov/aio/ProcessEngr/iCMM/