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NEW AIR FORCE INTEGRATED BASELINE REVIEW (IBR) PROCESS A QUICK REACTION CAPABILITY (QRC) PERSPECTIVE

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Abstract

Since the early 1990s, the U.S. Air Force has been using Integrated Baseline Reviews (IBR) as a key technique for early assessment of the efficiency and effectiveness of baseline plans, resource allocations, scheduling and costs. Much of the earlier IBR doctrine does an excellent job describing what is required to complete these assessments, but little detail had been written about the specific processes, procedures, steps and techniques required to undertake these assessments. The January 2012 "Air Force Integrated Baseline Review (IBR) Process Guide", developed by SAF/AQXC personnel, is one of the best documents to date to address this concern. Adrawback of this document is that the described IBR Process is based primarily on experiences with, and lessons learned from, the Acquisition Category (ACAT) I KC-46 Tanker Program.

But what about smaller-than ACAT I programs, and those system programs with Quick Reaction Capability (QRC) acquisition processes? This article addresses experiences and lessons learned with implementing a modified version of the new Air Force (AF) IBR process on an ACAT III QRC acquisition. This article will identify recommended and sequenced IBR process "steps", place emphasis of the IBR Control Account Manager (CAM) Discussions, and provide samples of pertinent tools and worksheets.

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INTRODUCTION

Since 1993, U.S. Air Force acquisition commands have been conducting Integrated Baseline Reviews (IBR) for Air Force (AF) Program Management Offices (PMO) and Contractors to reach a common understanding concerning their project baseline and the project technical, schedule, cost, resources, as well as risks and impacts. IBRs have beenconducted with only general guidelines and little detail describing processes. The absence of quantifiable and repeatable IBR processeshas resulted in inconsistency of results.

With the January 2012 publication of the Air Force IBR Process Guide – Version 2.0, the Secretary of the Air Force, Acquisition Integration (SAF/AQXC)provided a standardized process for planning and conducting IBRs across the AF enterprise. This new IBR process is based primarily on experiences and lessons learned with IBR efforts conducted to support the Acquisition Category (ACAT) I KC-46 Tanker Program. The Process Guide is a significant improvement over past IBR doctrine and guidance concerning IBR process steps, descriptions and sequencing. However, the document does not address the more streamlined and less-resource-intensive requirements of ACAT II/III and/ or Quick Reaction Capability (QRC) acquisitions. This article attempts to address some of these considerations.

The DDR Program

The Dismount Detection Radar (DDR) is an AF ACAT III QRC acquisition program designed toprovide a more persistent Ground Moving Target Indicator (GMTI) capability for the detection and tracking of vehicles and dismounts. The system will

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operate as a pod on the MQ-9 (Reaper) Remotely Piloted Aircraft (RPA). Program Management (PM) support is at Hanscom Air Force Base (AFB) and provided by AFLCMC/HBDG - the Next Generation Systems Branch, Theater Battle Control Division of the Air Force Life Cycle Management Center. A QRC program, as described in Air Force Instruction (AFI) 63-114, is different from the standard acquisition process. A program Milestone Decision Authority (MDA) "must streamline the acquisition program to the maximum extent possible and accept appropriate risk to provide rapid capability to warfighting commanders. This explicit MDA authority and responsibility is central to QRC acquisition. The MDA, testers, lead command, and warfighters shall accept a level of risk higher than normal to satisfy urgent needs". (Para. 4.1, AFI63-114)

In compliance with the guidance of paragraph 1.4, Designation of a QRC Program" of AFI 63-114: "... No more than 180 calendar days shall elapse from validation of the urgent need to initial fielding, unless an alternate timeline has been endorsed in accordance with paragraph 3.2.3.2 of this Instruction" (AFI 63-114) "and approved by the MDA." Paragraph 1.4.2 states that: "The Milestone Decision Authority (MDA) designates the urgent need for QRC acquisition and approves a course of action (COA). In this case, and at the direction of Chief of Staff of the Air Force (AF/CC) or the Joint Rapid Acquisition Cell (JRAC), the time to initial fielding may exceed 180 calendar days from urgent need validation.

The DDR QRC is such a "modified" QRC, with a timeframe for initial fielding of approximately three years. Other Air Force QRC programs, because of the rapid requirement of initial fielding, may not have an Integrated Baseline Review (IBR) requirement. Other QRC and/or ACAT II/III programs may need to further tailor the suggestions provided in this article to match their unique IBR requirements.

From June through September 2012, the DDR PMO prepared for, and conducted, its IBR with the DDR Prime Contractor, Raytheon Space & Airborne Systems of El Segundo, CA.

In preparing for the DDR QRC IBR, it quickly became evident that the DDR PMO did not have schedule or resources to conduct its IBR processes as fully as in the ACAT I example described in the January 2012 IBR Process Guide. Apparent variations in describing IBR processes/steps, as per Sections 3, 4 and 6 of the IBR Process Guide, needed to be resolved. The guide identifies IBR processes and steps and in Section 3 (Sequential Description of IBR Activities), Section 4 (Detailed/Specific IBR Procedures) and Section 6 (Templates and Samples). This concern was addressed by identifying specific IBR processes/steps for QRC acquisition requirements. They had to be identified and isolated to ensure the conduct of a successful DDR QRC IBR.

TAILORING IBR FOR QRC

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The January 2012 IBR Process Guide has a great deal of process description information and many examples of supporting documents, matrices, etc. The IBR Process Guide is a significant improvement over past IBR doctrine and guidance concerning IBR process steps descriptions and sequencing. However, the document does not address the more streamlined and less-resource-intensive requirements of ACAT II/III and/or Quick Reaction Capability (QRC) acquisitions. The guide identifiesIBR processes and steps and in Section 3 (Sequential Description of IBR Activities), Section 4 (Detailed/Specific IBR Procedures) and Section 6 (Templates and Samples). Efforts were undertaken to compare the information in these three Sections, and document a sequenced listing of all identified IBR processes/steps.

Tables 1 through 3 depict these identified IBR Phases and Processes in their recommended sequence of performance. The Section and Paragraph number(s) that identify the IBR process/step is provided on these tables.

IBR Pre-& Post-Award Phase Activities

Table 1 – IBR Pre-& Post-Award

IBR Process/Step (Pre- and Post-Award)	IBR Process Guide
Request for Proposal (RFP) with Earned Value Management System (EVMS) requirement	Section 3.1
 Statement of Objectives (SOO) 	Section 3.1
 Statement of Work (SOW) 	Section 3.1

IBR Process/Step (Pre- and Post-Award)	IBR Process Guide
 Contract Data Requirements List (CDRL) 	Section 3.1
Integrated Master Plan	Section 3.1
Work Breakdown Structure (WBS) IAW DI-MGMT-81334C	Section 3.1
Integrated Master Schedule (IMS) IAW DI-MGMT-81650	Section 3.1
Contract Performance Report (CPR) IAW DI-MGMT-81466A	Section 3.1

IBR Phase I - Program Documentation Quality and Integration Review

IBR Phase I evaluates artifact quality and assesses data integration. The steps define standards for measuringthese items. Artifacts and data integration points are assigned to teams and evaluated. "Review Readiness" is a "gray area" that provides the transition between IBR Phase I and Phase II.

Table 2 – IBR Phase I Activities

IBR Process	IBR Process Guide
Joint IBR Expectations	Sections 3.2.2 and 6.1
IBR Phase I Training	Section 6.2
IBR Notification Letter	Section 6.3
Assign Teams to Topic Areas	Section 6.2
Call for Data	Section 6.5
Define Artifacts and Develop Artifact List	Sections 3.3.1, 3.3.2, 4.3, 6.2, and 6.4
Assess Artifacts Quality and Traces	Sections 3.3.3, 6.2, 6.6 and 6.8
Assess Data Integration	Sections 3.3.3, 6.2 and 6.6
Readiness Review	Sections 3.3.4, 6.2 and 6.7

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IBR Phase II - Control Account Level Discussions

Business Office and CAM discussions are conducted during IBR Phase II. The IBR Event and Exit Briefing are completed during this Phase.

IBR Process	IBR Process Guide
Readiness Review	Sections 3.3.4, 6.2 and 6.7
IBR Phase II and CAM Discussion Training	Sections 4.2 and 6.2
Business Office Discussions	Sections 3.4.1 and 6.8
Control Account Manager (CAM) Selection	Sections 3.4.2 and 6.2
Control Account Discussions	Sections 3.4.3, 3.4.4, 3.4.5, 6.8, 6.9, 6.10 and 6.11
Evaluate Risks	Sections 6.10 and 6.11
Performance Measurement Baseline (PMB) Approved	Sections 6.2
Status Review	Section 3.4.5 and 6.12
IBR Exit Briefing	Sections 3.5 and 6.13

Table 3 – IBR Phase II Activities

The last four IBR activities in Table 3 are usually conducted as part of the actual IBR Event or Meeting.

DDR QRC-Based IBR Process

DDR QRC IBR Pre- & Post-Award Phase activities were conducted fairly closely to the requirements described in the IBR Process Guide. IBR Phase I Activities were slightly modified to accommodate DDR's ACAT III resource limitations. Resources (e.g., analysts, time, travel funding, etc.) normally associated with, and available to,ACAT I programs simply are not available to ACAT II/ACAT III and/or QRC programs. Many artifacts and documents required of ACAT I acquisitions were not necessary for DDR ACAT III and QRC needs.

The DDR PMO did not have the resources available to undertake extensive assessments of Artifact Quality and Traces. Instead the DDR PMO, with the Prime Contractor's assistance, researched the Contractor's published EVMS and PM processes. The DDR PMO then documented that all required artifacts were provided and, if necessary, the Contractor had established procedures to perform data traces for each required artifacts. If a future data trace need was identified, the procedure for performing it was documented and available.

The extensive IBR Scoring procedures (part of Artifacts Traces and Data Integration in the January 2012 AF IBR Process Guide) were beyond the limited resources of the DDR PMO. Some fidelity of analysis was "lost" because of this decision, but the intense QRC schedule requirements drove this decision and any associated risks were judged as acceptable.

Business Office and CAM Discussions

The quick-reaction nature of the QRC process necessitated that the DDR PMO conduct Business Office Discussions less formally and more streamlined than those described in the IBR Process Guide.

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The key part of any IBR Process is the conduct of Control Account Managers (CAM) Discussions. CAM Discussions provide the means for Government subject matter experts (SME) to communicate directly with CAMs and reach a common understanding concerning project baseline and project technical, schedule, cost, resources, risks and impacts. These CAM Discussions are: usually focused on individual subsystems and/or functionality of an overall system; are often conducted at the Contractor's facility; and the Government SMEs frequently are inexperienced with the conduct and output expectations of the discussions.

To meet the time-sensitive QRC schedule and address the reality of limited travel funds, a "virtual" process was developed for DDR IBR CAM Discussions. Implementing the "virtual" CAM Discussions required extensive coordination between the DDR PMO and the Prime Contractor, development of CAM Discussion Worksheets, and a teleconference meeting for each subsystem and associated CAM.

Both parties needed to acknowledge that differences of opinions and approaches to work completion were likely to be identified and were reasonable. One way to ensure the success of this managerial mindset and to ensure a standardization of process was for the PMO to develop and publish anticipated CAM Discussion questions and provide them to the Contractor prior to CAM Discussions. To this end, CAM Discussion Worksheets, Figures 1 through 4, were developed, using a multitude of IBR and CAM Discussions references cited at the end of this article.

These Worksheets ensured that all of the Government's subsystem-specific Integrated Product Team (IPT) Leads had a solid list of pertinent questions to ask of the CAMs, and the Worksheets ensured that the CAMs had the opportunity to prepare for answering the questions. The effort was very successful, resulting in the Government IPT Leads better understanding the Contractor's program management planning and schedule, while the CAMs had a fuller appreciation of Government concerns.

Lessons Learned

A number of high-level lessons were learned from this tailored application of the new AF IBR Process. These lessons learned included:

- A well thought-out Acquisition Decision Memorandum (ADM) was invaluable in scoping QRC requirements (vs. DoD 5000 series requirements) and in scoping IBR requirements, such as artifact data calls and CAM Discussion questions.
- Artifact and data requirements can be significantly tailored back to meet QRC time-sensitive needs.
- Descriptions and sequencing of IBR processes can, and should, be further refined based on additional applications

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of the guidelines in the January 2012 AF IBR Process Guide.

- An additional section in the AF IBR Process Guide describing unique ACAT III and QRC IBR requirement is worth consideration.
- Successful IBRs should be conducted in a fully cooperative and open manner between the PMO and Contractor.
- Business Office Discussions, as described in the January 2012 AF IBR Process Guide, can be effectively conducted in a less formal manner for ACAT II/ACAT III and/or QRC programs.
- CAM Discussions can be effectively conducted using a series of "virtual", teleconference meetings. However, "virtual" CAM Discussions require extensive coordination between the Government and Contractor IBR Leads and between CAMs and Government IPT Leads / SMEs.

 A prepared and published CAM Discussion Worksheet helps ensure standardization and better cooperation between PMO IPT Leads and CAMs. This improved cooperation and successful application of CAM Discussions and the IBR Event tends to carry-over for CAMs and Government IPT Leads/SMEs with better cooperation in post-IBR activities.

CONCLUSION

Although written to support ACAT I program IBR requirements, the guideline and processes within the January 2012 AF IBR Process Guide can be effectively tailored to support the unique requirements of ACAT II/ACAT III and/or QRC system acquisition programs. The DDR QRC success with its IBR, artifact data calls, and associated CAM Discussions proves this conclusively.

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	DISMOUNT DETECTION RADAR (DDR) QUICK REACTION CAPABILITY (QRC) INTEGRATED BASELINE REVIEW (IBR) CONTROL ACCOUNT MANAGER (CAM) DISCUSSION FORM		
CA/			
CA/	WBS Title/Area:		
	trol Account Manager(s):		
Gov	ernment IPT Lead(s):		
No. Mar	CAM Discussion Question	Response / Resolution / Risk / Action Item	
mai			
	How many Control Accounts are yours?		
1.	Which ones are they?		
2.	Do you believe you have had adequate Planning / Earned Value Management (EVM) training?		
3.	How does the Control Account Manager (CAM) provide Raytheon management insight into plan deviations?		
	How do you open a Work Package?		
4. Tech	How do you close a Work Package?		
5.	How does your work package structure relate to the scope in your Work Authorization?		
6.	Will you be able to accomplish the scope, within schedule, and budget as shown in your Work Authorization?		
	Are you responsible for any subcontracts or suppliers?		
	How do you monitor performance of these?		
7.	What is the process for managing subcontractor or supplier earned value?		
8.	Please discuss any pending Baseline Change Requests (BCR).		
	Do you have or foresee any technical, cost and/or schedule risks and impacts?		
	What are they?		
9.	Which are you tracking, and which are being tracked at the program level?		

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Figure 1 – Page 1 of Blank CAM Discussion Worksheet

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DISMOUNT DETECTION RADAR (DDR) QUICK REACTION CAPABILITY (QRC) INTEGRATED BASELINE REVIEW (IBR) CONTROL ACCOUNT MANAGER (CAM) DISCUSSION FORM

No.	CAM Discussion Question	Response / Resolution / Risk / Action Item
cheo	dule Questions	
10.	Please discuss rationale for any time phasing of the work packages or planning packages.	
	Are all of your work packages and planning package represented in the Integrated Master Schedule (IMS)?	
11.	The Government understands that Raytheon is using Critical Chain methods to execute the DDR schedule. Explain your role in it.	
12.	Can you demonstrate Schedule Integration across the Master Schedule (Top Program Level), the Intermediate Level Schedule (Control Accounts / Program Elements) and the Detail Level Schedule (Work Packages)?	
13.	Do you have any detailed schedules below the work package?	
14.	Please discuss any schedule interfaces, logic, and constraints.	
	How do you know if a task from another control account will affect your effort?	
	How are you informed by other organizations or IPTs of changes in their output that may affect your control accounts schedules?	
15.	How do you coordinate the completion of these tasks?	
16.	Please show how you manage your control accounts' tasks against the schedule.	
	Are you on the program's critical path?	
16.a	If "yes", which of your specific tasks are on the critical path?	
	What happens when you are on the critical path?	
16.b	Do your actions change when executing your tasks vs. preparing to execute?	
16.c	Discuss the likelihood of executing to planned durations (i.e., confidence in task durations).	
17.	For any complete efforts, please demonstrate Basis of Estimate (i.e., how performance is measured on the selected work packages)?	
17.a	Do you use interim milestones on any of your work packages to measure progress?	

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Figure 2 – Page 2 of Blank CAM Discussion Worksheet

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DISMOUNT DETECTION RADAR (DDR) QUICK REACTION CAPABILITY (QRC) INTEGRATED BASELINE REVIEW (IBR) CONTROL ACCOUNT MANAGER (CAM) DISCUSSION FORM

No.	CAM Discussion Question	Response / Resolution / Risk / Action Item
17.b	Is the earned value method chosen appropriate for the type of work performed?	
17.c	Does the method chosen objectively measure performance?	
17.d	Does the earned value assessment correlate with technical achievement?	
Resou	rce and Cost Questions	
	What is your total Control Account budget amount?	
	Of this total budget amount, how much is distributed to work packages and how much is retained in planning packages?	
18.	Do you have any unbudgeted work?	
19.	What role did you play informulating the budget?	
20.	Who prepares the budget for your work packages?	
21.	What elements of cost are you responsible for? - Labor hours - Labor dollars - Overhead - Subcontractor - Vendors - Travel - Other Direct Costs (ODC) - General and Administrative (G&A) - Cost of Money (COM)	
22.	How are your budgets time-phased for each work package and planning package?	
23.	Please discuss the basis of estimate used to develop the baseline for this control account (e.g., history, similar program, standard work)?	
23.a	Is your budget sufficient to perform the work?	
	What is the current Estimate at Completion (EAC)?	
23.b	How does the EAC compare to the Budget at Completion (BAC)?	
23.c	Do you have any resource concems (e.g., staff, equipment, facilities, labs, etc.)?	
	Do you have any Level of Effort (LOE) tasks?	
	If "yes", how did you determine LOE was appropriate?	
24.	What percentage of total tasks are LOE tasks?	

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Figure 3 – Page 3 of Blank CAM Discussion Worksheet

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DISMOUNT DETECTION RADAR (DDR) QUICK REACTION CAPABILITY (QRC) INTEGRATED BASELINE REVIEW (IBR) CONTROL ACCOUNT MANAGER (CAM) DISCUSSION FORM

No.	CAM Discussion Question	Response / Resolution / Risk / Action Item
	How many people are working on your Control	
	Accounts?	
	Do you have a Responsibility Assignment Matrix (RAM)	
25.	for your Control Accounts?	
	Do you have any reportable variances?	
	bo you have any reportable variances:	
	What are the thresholds that trigger a written variance report?	
	Who receives the variance reports?	
26.	What action is taken on the variance reports?	
	How do you use your Earned Value Measurement	
	System (EVMS) to update your resource requirements	
27.	and schedule milestones?	
	Please discuss the current staffing requirements for this	
	control account through completion of the SOW and in	
	support of schedule milestones (e.g., project's resource	
28.	histogram).	
	Demonstrate your Estimate at Completion (EAC) /	
	baseline is reasonably segregated by labor, material,	
29.	and other direct charge categories.	
	Does anyone review labor hours charged to your work	
30.	packages?	
	Please discuss other elements of costs (e.g., travel,	
	material, or other costs) and any issues or risks not	
31.	already discussed, but associated with these resources.	
Other	r and/or Additional CAM Discussion Questions	
	What challenges, uncertainties, or difficulties can	
32.	impede your performance?	
33.	Which is the most challenging to your Control Accounts: technical, schedule, resources or cost going forward?	
	rectifical, schedule, resources of costgoing forward:	
	Has your Integrated Product Team (IPT) effort been	
	impacted by any Government contractual direction	
34.	since the 1 February 2012 contract award, besides the 11 May 2012 restart?	
54.	11 Way 2012 restart?	
	Where and how have you modified your tasks to	
35.	account for your challenges and uncertainties?	

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Figure 4 – Page 4 of Blank CAM Discussion Worksheet

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