



Air Force Life Cycle Management Center

Standard Process

to Execute

Risk and Issue Management

in Acquisition Programs

Process Owner: AFLCMC/AZE

Date: 17 Nov 2017

Version: 1.5

Record of Changes. Minor changes are annotated by changing the second digit, i.e., the first minor change after the basic document would be recorded as “1.1”. Major changes are annotated by changing the first digit, i.e., the first major change after release of the basic document would be numbered as “2.0”.

Record of Changes		
Version	Effective Date	Summary
1.0	21 Nov 13	Process standard approved by Standards and Process (S&P) Board on 7 Nov 13.
1.1	28 May 2014	Added Qualitative metric (para 5.2.3 and subs). Reviewed and approved by S&P Board on 15 May 2014.
1.2	10 Jul 2015	Conducted annual review; no changes required.
1.3	29 Feb 2016	Replaced metric (para 5.2.3) with a summary of risk mgmt inspection findings as directed at 24 Feb 2016 S&P Board. Minor admin and references updates also made.
1.4	17 Nov 2016	Fact of life changes due to SAF/AQ implementation of government owned risk tracking tool in place of continued use of commercial software and minor revisions to align to revised Standard Process (SP) S01.
1.5	17 Nov 2017	Fact of life changes due to AFI 63-101/20-101 revision including changes to SharePoint URLs, linkage to new AFLCMC SPs, Guides, and sustainment information. Approved at Nov 2017 S&P Board

Risk and Issue Management Process

1.0 Description. This Risk and Issues Management (RIM) process standard supplements the Air Force Life-Cycle Risk Management direction for all AFLCMC organizations involved in system acquisition as directed by DoDI 5000.02 and AFI 63-101/20-101. Risk is a fundamental consideration from the first discussion of capability needs until final disposition of a materiel solution. The focus of this process standard is on risk management as a program management tool for acquisition programs acquiring weapon systems, information systems, system modifications, or services used by programs in the Program Executive Officer's (PEO's) portfolio to sustain these systems. Risk management is accomplished through active planning, risk identification, analysis, handling, and tracking of program or project risks. To ensure AFLCMC programs provide decision makers with the best available risk and issue information, and meet Air Force risk management expectations, program offices shall perform the following activities:

- 1.1 Execute rigorous, continuous risk management practices;
- 1.2 Manage risks and issues threatening the ability to achieve program objectives within defined performance, schedule and cost constraints in accordance with this standard;
- 1.3 Conduct Acquisition Center of Excellence facilitated risk workshops as part of the acquisition strategy development to identify risks in executing the program;
- 1.4 Conduct Integrated Risk Assessments (IRAs) to quantify and analyze risk impact on program schedule(s) and cost in support of the annual program office estimate;
- 1.5 Ensure programs conducting Program Sufficiency Reviews (PSRs) complete the PSR assessment suite prior to acquisition strategy risk workshops or IRA risk WBS 1.3.1.3;
- 1.6 Ensure Risk Handling Plan and Issue Corrective Active Plan execution and oversight;
- 1.7 Document the program's risk and issue management processes and strategies in a Risk Management Plan developed by a multi-functional team at program initiation;
- 1.8 Track unclassified risks and issues for active Acquisition Master List (AML) programs in the AF Enterprise Risk Management Service (ERMS).
 - 1.8.1 Classified program risk will be tracked separately in the appropriate IT environment with AF ERMS comparable data. (See ref 10.7).
 - 1.8.2 For programs initiated before Oct 12, the Program Executive Officer (PEO) may approve continued use of a pre-existing tracking system on a subsequent sole source contract if the Program Manager (PM) certifies it as AF ERMS equivalent (See link at 10.7 for equivalency requirements). A Memorandum for Record, certifying equivalency by the PM and approving use by the PEO, is included in the Risk Management Plan (RMP).
 - 1.8.3 AFLCMC programs in AF Space PEO portfolio may use the Space and Missile Center (SMC) standard risk tracking system in lieu of ERMS. If the SMC system is used, identify it in the program RMP and notify the owner of this standard process.

2.0 Purpose.

- 2.1 The purpose of the RIM process is to consistently apply risk management in an organized fashion. In general, the government performs risk management to facilitate the identification of risks and issues so it can improve the occurrence of positive events and reduce the impact of negative events. Consistent and proper risk management provides program managers with a confidence level in achieving program objectives within planned schedule, cost, scope, quality and resources. It also allows program managers to have more control over the program and puts them in a better position to react to negative events.
- 2.2 This process standard is supplemental to the AF instructions and guides referenced in Section 10. The intent of this process standard is not a repetition of existing information beyond what is required to ensure understanding of the more specific manner in which Center organizations will execute these instructions and guidance. This process standard is intended to serve three purposes for all AFLCMC acquisition programs regardless of PEO portfolio. These three purposes are:
 - 2.2.1 To document the AFLCMC risk and issue management process and tools employed in this process for the management of risks and issues;
 - 2.2.2 To serve as a “just-in-time” reference for personnel when they need guidance on risk and issue management (Recommended “start here” document) ;
 - 2.2.3 To introduce new employees to the unique aspects of how risk and issue management is accomplished for acquisition programs managed in AFLCMC.

3.0 Potential Entry/Exit Criteria and Inputs/Outputs

3.1 Entry Criteria.

- 3.1.1 Acquisition strategy planning in support of a request for an Acquisition Decision Memorandum initiating program at Milestone A or later
- 3.1.2 The modification approval of Part V of AF form 1067
- 3.1.3 The receipt of a new sustainment support request or need to replace on-going support

3.2 Exit Criteria. Risk and issue management on a system or process ends with system disposal or discontinuation. At the end of the acquisition phase, residual risks and any MDA approved risk mitigation plans are passed to the PEO’s sustaining program office for continued monitoring and action.

3.3 Inputs.

- 3.3.1 Program requirements
- 3.3.2 Outputs from functional processes that reveal program risks (See 7.1)
- 3.3.3 Program and platform specific management plans (System Engineering Plan, System Safety Program Plan, Program Protection Plan, Life Cycle Sustainment Plan, etc.)

- 3.3.4 Contractor RMP
- 3.3.5 Contractor identified and managed risks and issues
- 3.3.6 Contractor deliverables (Test Management Plan, Computer interface document, etc.)
- 3.3.7 DoD, AF policies and guidance on risk and issue management (See Sec 10)
- 3.3.8 MIL-STD-882 hazard determination and legacy system safety identified risks.
- 3.3.9 Risks identified during Analysis of Alternatives applicable to the acquisition.

3.4 Outputs.

- 3.4.1 Program RMP
- 3.4.2 Identified risks and issues with associated Risk Handling Plans (RHPs) and issue Corrective Action Plans (CAPs)
- 3.4.3 RHP waterfall charts showing projected and actual risk burndown associated with RHP activities as represented over time
- 3.4.4 Quantified risk data used in the schedule analysis and cost analysis portions of an Integrated Risk Assessment which support the annual Program Office Estimate (POE) and other cost estimates
- 3.4.5 AF standard 5X5 risk matrix using AF standard likelihood and consequences for ratings
- 3.4.6 1X5 issue matrix using AF standard consequences for ratings.

4.0 Process Workflow and Activities. This section provides a visual representation of the RIM process with details of workflow and activities and shows the cyclical nature of the process.

- 4.1 Supplier, Inputs, Process, Outputs, Customer (SIPOC), **Table 1**. This table represents a high level SIPOC representing a macro view of the RIM process.
- 4.2 Process Flowchart. **Figure 1** is a high level RIM process flowchart. **Figure 2** breaks out the Risk quantification process called an Integrated Risk Assessment.
- 4.3 Work Breakdown Structure (WBS). The WBS in **Table 2** provides additional detail for the activity boxes in the RIM process flowchart. Due to the continuous and cyclic nature of risk management, time intervals shown are not cumulative and are shown as typical time intervals for a range of program complexity. See links at references 10.7 and 10.8 for supporting information in accomplishing the activities. The MS Excel version of this WBS with more detail is at **Attachment 1**.

Table 1. SIPOC

Suppliers	Inputs		Process	Outputs		Customers
<i>Providers of the required resources</i>	Resources Required to execute process	Requirements	<i>Description of Activity</i>	Deliverables From Process	Requirements	<i>Anyone who receives output of the process</i>
1) User/lead Command; 2) DoD and SAF Acquisition offices; 3) Acquisition Program Office; 4) Prime Contractor	1) Program Initiation Docs; 2) DoD 5000.02; AFI 63-101/20-101; AFPAM 63-128 Chap 12; 3) Cross-functional Risk working group/IPT; 4) Contractor Risk mgmt plan and company risk mgmt standard practices	Overarching program requirements (CDD, 1067) and program constraints; Analysis of Alternatives, Market Research;	Execute and document program specific Risk and Issue Management	Approved program Risk Management Plan including issue mgmt; Database of individual risks and issues and associated Risk Handling Plans and issue Corrective Action Plans; 5X5 risk matrix; 1X5 issue matrix;	Individual risks statements in If-Then format; Issues in Since-Then format; Risk and Issue ratings using AF Standard Criteria; Risk Handling and Corrective action plan data sufficient to generate planned and actual burn-down charts.	Acquisition Decision Authority, PEO, DoD and AF oversight IPTs, Program office personnel, Contractor.
Users, Program Office cross-functional personnel; outside Subject Matter Experts; Contractor and sub-contractors	Program reqmts; results of other assessments (Technology Readiness Assessment; System safety Hazard analysis, Analysis of System Security risks, etc.) existing documented risks; linked mechanically sound program schedule; schedule risk analysis tool;	Well-constructed risk statements and sufficient background to develop data needed for risk analysis. Mechanically sound and linked schedule with sufficient detail (WBS level 4 or greater desired).	Conduct Integrated Risk Assessment to quantify and analyze risk data in support of annual program office estimate and other cost estimate reviews	New and updated risks in a 5X5 matrix; issue 1X5 matrix; Schedule risk analysis using specifically identified risk; cost analysis to support program office estimate	Risk quantified impact to cost and schedule (best case/worst case/ and most like case) assuming the risk occurs; Issue quantified impacts to cost and schedule; ID of schedule task impacted by risk/issue; Risk and Issue ratings using AF Std Criteria updated by quantified data	Acquisition Decision Authority, PEO, DoD and AF oversight IPTs, Program office personnel, Cost Staff

Figure 1. Risk and Issue Management Flowchart

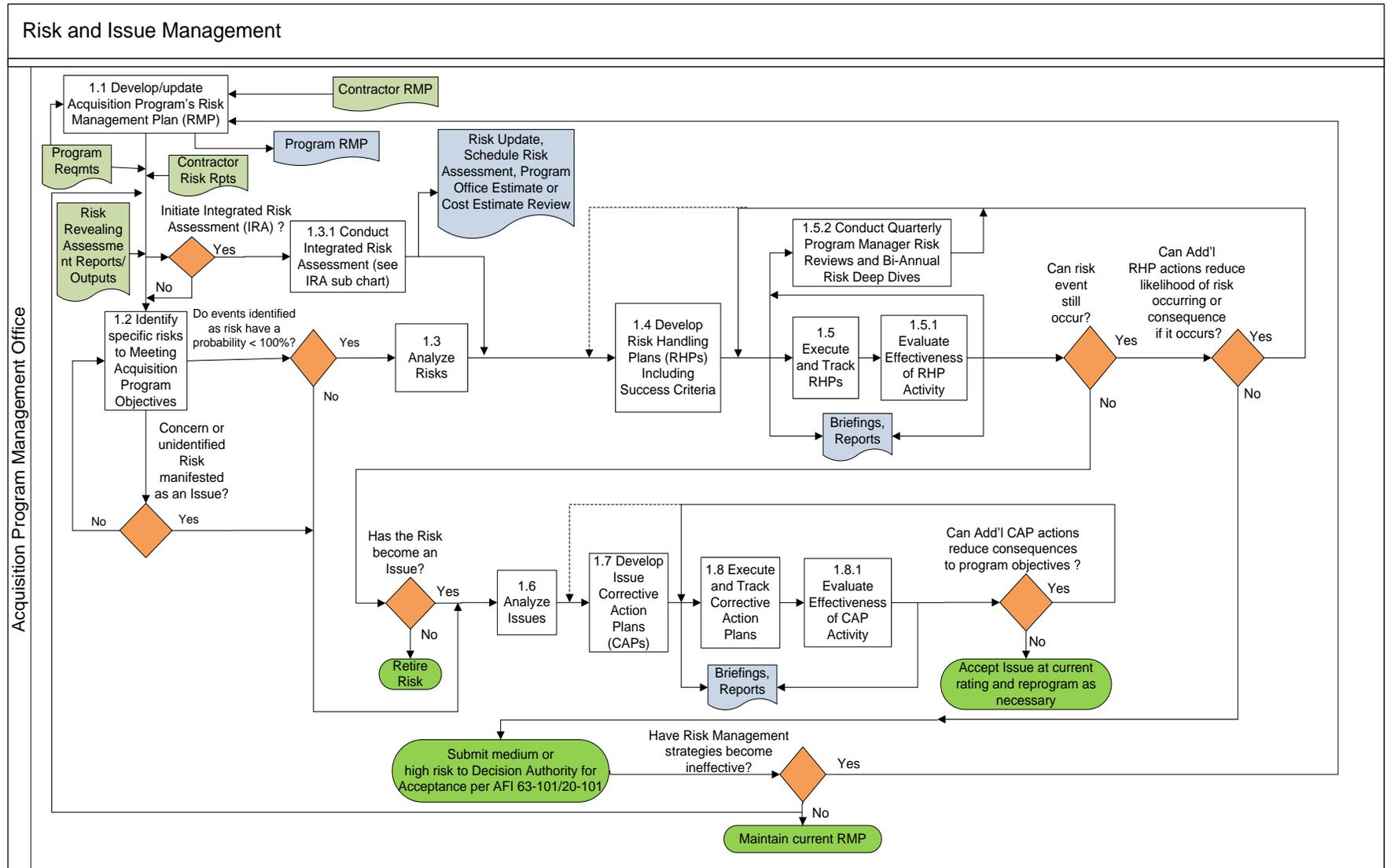


Figure 2. Integrated Risk Assessment Flowchart

Risk and Issue Management – Integrated Risk Assessment

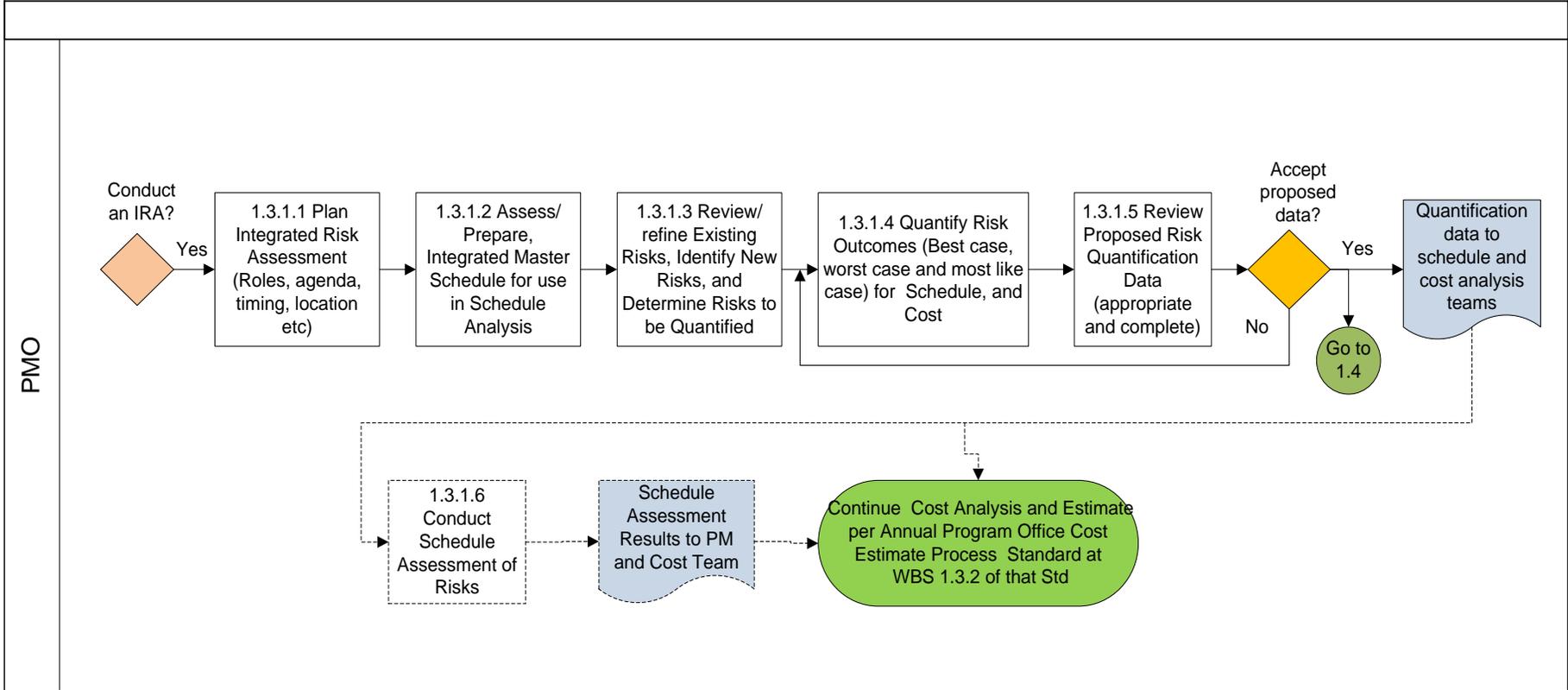


Table 2. Excerpt of WBS

Lvl	WBS	Activity	Description	OPR	Time
1	1.0	Conduct Risk and Issue Management for Acquisition Programs	Risk and Issue Management as a management process for acquisition programs accomplished through active identification, assessment, analysis, handling, and tracking of program risks and issues.	Program Manager	N/A continuous process
2	1.1	Develop/Update Acquisition Program's Risk Management Plan	The Program Manager, in coordination with the program office functional leads, develops a Risk Management Plan (RMP) consistent with AF policy and this standard process that articulates the program strategy for reducing risk and managing issues that threaten the ability to meet program objectives. Program personnel and teams manage risks and issues according to the strategy and process documented in a Risk Management Plan (RMP). The RMP includes roles and responsibilities, interaction with contractor(s), and plans to reduce programmatic risks. The RMP also documents the plan to maintain configuration management in the tracking of all risks, including tiered risks if used; frequency of risk review meetings and structures, such as Risk Review Boards, and the expected participants. RMPs are annually reviewed throughout the life cycle of the program, and if necessary, updated with current strategies and processes. See AFI 63-101/20-101 para 4.6.1, (2 nd sentence) for 12 areas of emphasis that the AF directs to be addressed in the RMP.	Program Manager	Initial Plan 90 days, Updates 30 days,
2	1.2	Identify Specific Risks to meeting Acquisition Program Objectives	<p>This activity identifies specific risks to meeting documented and derived requirements that are necessary to fulfill the program objectives within the allotted cost and schedule. Pre-award risk workshops, for the purpose of identifying risks to executing a program that need to be considered in the acquisition strategy and execution are facilitated by local Acquisition Center of Excellence offices. Risk workshops may occur at any time during a program execution and are part of the technical evaluation phase of an Integrated Risk Assessment or risk integration activity of a Program Sufficiency Review. Risk statements are made in an IF (Risk), THEN (outcome) format to facilitate risk rating and handling. Issues that are realized risks, known issues, and those incidentally identified as part of risk assessment activities are analyzed under WBS 1.6. See AFI 63-101/20-101 para 4.6.2 – 4.6.12 for expanded discussion of areas of AF emphasis.</p> <p>During sustainment, risk identification continues with emphasis on maintaining readiness and availability. Integrated Product Support elements, Supply Chain Risk Management and Diminishing Manufacturing are ongoing concerns. They can adversely impact parts availability and reliability, hardware performance and cybersecurity. (See Ref 10.2, Chap 7).</p>	Program Manager, Program office Functional Leads	N/A continuous activity

2	1.3	Analyze Risks	<p>Analyzing Risk is the process of examining each identified risk, isolating the cause, and determining the impact. "Rating" the risk is also part of this process. To rate a risk determine likelihood of risk occurring (likelihood of IF phrase of risk statement) and determine Most likely impact to program in terms of Cost, Schedule and/or Performance consequence if risk occurs (Rate THEN phrase of risk statement). Quantification of the Most Likely impact rating a supporting rationale should also be captured. Qualitative Likelihood and Consequence ratings must be in accordance with the AF standard likelihood and consequence criteria and be presented on an AF standard 5X5 matrix per AFI 63-101/20-101 para 4.6.1.1.</p> <p>Risks identified using Mil-Std-882E and the Airworthiness Risk Bulletin (ref 10.14) use the AFI 63-101/20-101 Atch 3 translation matrix for rating performance consequences.</p> <p>For System Security risks use the process to determine likelihood and performance consequence found at the System Security Engineering (SSE) icon in the System Engineering (SE) Toolset (See toolset link in Ref 10.7).</p> <p>Unless indicated by peculiar notation on the AF Standard 5X5 program risk matrix, the matrix locations for any translated risks are cited as the performance impact.</p> <p>The PM for acquisition programs which are purely sustainment activities, such as contractor logistic support, knowledge support and IT sustainment should consider developing an alternative Consequence Rating Criteria and seeking Milestone Decision Authority (MDA) approval for use (see para 6.1.1.2).</p> <p>Sustainment risks not associated with an acquisition program should be rated against objective consequence criteria approved by the system Program Manager and documented in the system's RMP.</p> <p>See ref 10.7 for examples of enterprise and sustainment consequence criteria.</p> <p>Research and document additional risk information such as contributing causes that lead to the risk occurring. This information will influence handling plan strategies.</p>	Program Manager	1-10 workdays
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3	1.3.1	Conduct Integrated Risk Assessment	Conduct Integrated Risk Assessment in support of annual Program Office Estimate or other directed cost estimate or milestone reviews. This activity is a structured effort designed to update risks, gather quantitative data on the range of impacts if the risks are realized, and analyze the potential risk effect on the program cost and schedule. The goal of this activity is to provide decision makers with better program insight. The quality of the gathered best case, worst case and most likely case cost and schedule data for each risk directly impacts the quality of the subsequent analysis. This activity is not applicable to acquisitions which primarily deliver “on demand”, continuous or level of effort support. (I.e. Contract Logistic Support, helpdesk support, etc.)	Program Manager	60 work days
4	1.3.1.1	Plan Integrated Risk Assessment	Planning an Integrated Risk Assessment (IRA) includes determining the following: scope of the program to be analyzed; Ground Rules and Assumptions, including if a Program Sufficiency Review precedes the IRA; IRA event schedule; Integrated Master Schedule(s) versions to be used; personnel needed; training needed; and if a IRA charter is needed to ensure active participation.	Integrated Risk Assessment Core Team	20 work days
4	1.3.1.2	Assess/prepare Integrated Master Schedule for use in schedule analysis	The Integrated Master Schedule (IMS), provided in scheduling software such as Microsoft Project, is used to assess the impact of specific risks on the program schedule. The IMS must first be assessed to ensure mechanical integrity and if necessary prepared by correcting improper links and constraints. If multiple IMSs are used, a strategy must be developed to address linkages or touch points between schedules to ensure risk impacts are not artificially constrained by the lack of schedule interfaces.	Program Office Schedule POC and Prime contractor scheduler	Included in 1.3.1.1 planning
4	1.3.1.3	Review/refine existing risks, identify new risks and determine risks to be quantified	This is the first Integrated Risk Assessment (IRA) activity (Commonly called IRA part 1) of the technical evaluation phase. This meeting brings all the IRA teams together to review each of the existing risks and determine if the risk statement is still current and appropriate. New risks, including those from a preceding Program Sufficiency Review, are introduced, and risk statements created. Risks revealed by functional assessments are also considered if they have the potential to impact program cost, schedule or performance. The Core Team determines which risks (and issues if impacts are not in current program cost/schedule) are quantified.	Integrated Risk Assessment Core Team	25 work days (activities 1.3.1.3-5) 2-5 days

4	1.3.1.4	Quantify Risk Outcomes (Best case, worst case and most likely case) for Schedule, and Cost	The execution team determines the range of the impacts of the outcome if the risk occurs without consideration to additional risk handling or mitigations that are not part of the current schedule baseline. Specific quantification data, as defined in the ground rules, is collected. This activity is performed by the risk owners during a "homework period" of usually no less than two weeks and no more than 4 weeks.	Integrated Risk Assessment Execution team, Schedule POCs	Included in 1.3.1.3 time span. (>10 workdays, <20 workdays)
4	1.3.1.5	Review/Validate Proposed Risk Quantification Data	Risk Owners present the quantification data and supporting information to the Integrated Risk Assessment (IRA) Core Team, at a meeting commonly called IRA part 2. The Core Team accepts the data quantification assumptions and data, or directs rework. The technical evaluation phase of the IRA is not completed until all rework data is submitted and approved by the Core Team (Commonly called IRA part 2). Quantified data is passed to the cost and schedule analysis teams.	Integrated Risk Assessment Core Team	Included in 1.3.1.3 time span. 1- 5 workdays
4	1.3.1.6	Conduct Schedule Assessment	The Schedule Analysis team uses the risk schedule quantification data to run a Monte Carlo simulation on the schedule(s) to determine the range of impacts to the focus points. Results are briefed to the Core Team and given to Cost Analysis team for incorporation into the Program Office Estimate.	Lead, Schedule Analysis Team	15 workdays
2	1.4	Develop Risk Handling Plans (RHPs)	Develop a Risk Handling Plans (RHP) for each high and medium rated risk. RHPs from low risks are at the Program manager's discretion or as directed in the Risk Management Plan. RHPs consist of discrete actionable activities. Information for each activity includes: short activity description; estimated completion date; criteria to determine if activity was successfully completed and impacted risk as expected; rating of risk (likelihood and consequence by type) if activity is successful. RHPs strive to prevent the risk from occurring or changing the outcome so that the impact of the risk occurring is reduced. RHPs activities must occur before a risk is realized. Contingency plans may be identified but no risk rating reduction is credited beyond what is acted on prior to the risk occurring. See AFLCMC Risk SharePoint site for minimum required tracking data.	Risk Owner(s)	10 workdays
2	1.5	Execute and Track Risk Handling Plan (RHP)	This activity executes the Risk Handling Plan (RHP) activities and monitors their execution. RHP activity data is updated as activities are completed. Risks should be reviewed and updated by the risk owner at least monthly. Dynamic programs may warrant more frequent review. Updates can be driven by the Program Executive Officer execution review schedule, or Defense Acquisition Board reviews where all medium and high risks are briefed.	Risk Owner(s)	1-5 days

3	1.5.1	Evaluate Effectiveness of RHP Activity	When a Risk Handling Plan activity is complete, the actual completion date is entered into the risk tracking system and the activity is evaluated to see if it was successfully completed and if it had the intended effect on the risk (reducing likelihood or consequence rating). Determine if additional risk tracking activities will lower the risk. Consider any resource constraints when recommending further action.	Risk Owner(s)	1-5 days
3	1.5.2	Conduct quarterly Program Manager Risk Reviews and Bi-Annual Risk Deep Dives	At least quarterly, the Program Manager shall conduct a review of all high and medium active risks and issues to ensure the Risk Handling Plan (RHPs) and Corrective Action Plan (CAP) actions are appropriate and still on track. Bi-annually the Program Manager will conduct a risk deep dive to ensure risks from all functional areas are identified, analyzed, and tracked in addition to ensuring the RHP and CAP actions are appropriate and on track.	Program Manager	<1 day for quarterly review; 1-2 for deep dive
2	1.6	Analyze Issues	Determine most likely impact to program using the AF Standard Consequence definitions for Cost, Schedule and/or Performance. Issues ratings are presented on a 1X5 matrix using the top row of the 5X5 risk matrix (since the probability of an issue is 100%). Analysis the root cause of an issue to help in determining the most feasible Corrective Action Plan.	Issue Owner	1-5 days
2	1.7	Develop Issue Corrective Action Plans (CAPs)	Issue Corrective Action Plans strive to contain the impact of realized risks or issues not previously identified as risk that the Program Manager determines warrant tracking and Corrective Action Plan development.	Issue Owner	10 workdays
2	1.8	Execute and Track Correction Action Plans	This activity monitors the execution of the Corrective Action Plans (CAP) and updates CAP activity data as appropriate. Updates are often driven by the Program Executive Officer execution review schedule or the Program Manager's review schedule. Resolution urgency will also be a factor in the frequency of CAP monitoring and updates. See AFLCMC Risk SharePoint site (Ref 10.7) for minimum required tracking data need to ensure burndown (i.e. waterfall) charts can be created.	Issue Owner	1-5 days per update
3	1.8.1	Evaluate Effectiveness of CAP Activity	When a Corrective Action Plan activity is complete, the actual completion date is entered into the tracking system and the activity is evaluated to see if it was successfully completed and if it had the intended effect on the consequence (reduced consequence rating).	Issue Owner	1-5 days per update

5.0 Measurement.

5.1 Process Results. The ultimate measure of effective risk management for an acquisition program is the execution of all program objectives within program cost and schedule constraints without deferring requirements to subsequent acquisitions. However the long interval between program initiation and completion does not make this an effective measure of an ongoing risk management process. Periodic Integrated Risk Assessments, which quantify and analyze the impacts of risks to schedule and cost, provide the program manager a better understanding of program status and how realizing risks can affect the planned schedule and drive costs.

5.2 Process Evaluation.

5.2.1 Self-inspection of Risk Management is one of the 10 key areas covered in the AF Systems Engineering Assessment Model (SEAM) process. Assessment results are reported annually to PEO's Director of Engineering. (ref 10.18 para 1.1.3 and subs)

5.2.2 Risk and issue management is a continuous and cyclical process with each risk and issue moving through the process at its own pace. Therefore this standard does not require time standard data collection.

5.2.3 As directed at the 24 Feb 2016 S&P board, a summary of inspection findings on acquisition risk management revealed since the last annual report will be briefed in lieu of the previously established metric or the proposed revision.

6.0 Roles and Responsibilities. The roles and responsibilities for risk management evolve throughout the life cycle of a system with some stakeholders holding more responsibility at certain times during the acquisition process and less during others.

6.1 Program Manager (PM)

6.1.1 Own the program's Risk and Issue Management process and oversees its execution using rigorous, continuous risk management practices.

6.1.1.1 Conducts risk and issue reviews at least quarterly and bi-annual deep dives.

6.1.1.2 Determine if the AF Standard Rating Consequence Criteria are adequate for the type of acquisition program or lifecycle phase and if not, take these actions:

6.1.1.2.1. Develop alternative consequence rating criteria ensuring they are of similar scale to the AF Standard Consequence Criteria.

6.1.1.2.2. Include alternative consequence rating criteria in either the Acquisition Strategy document or an Acquisition Decision Memorandum for MDA approval per AFI 63-101/20-101 tailoring requirements.

6.1.2 Ensure program's risk management process is accurately documented in the program's Risk Management Plan (RMP).

6.1.2.1 Include contractor's risk management plan as attachment to program RMP.

6.1.2.2 Address in the program's RMP how joint risk management is accomplished.

6.1.2.3 Include any MDA approved alternative consequence rating criteria in RMP.

- 6.1.3 Initiate Integrated Risk Assessments (IRA) in conjunction with annual Program Office Estimates for programs which have scheduled activities.
 - 6.1.3.1 Arrange for Cost and Schedule Analysis Team support.
 - 6.1.3.2 Request independent Subject Matter Expert (SME) support, as needed.
- 6.1.4 Communicate to the Program Executive Officer, Milestone Decision Authority and senior leaders the risk and issues associated with the program in accordance with AFI 63-101/20-101 Para 4.6.1.3.
- 6.1.5 Track unclassified risks and issues for programs with competitively awarded contracts after Oct 2012 in the AF Enterprise Risk Management Service (ERMS).
 - 6.1.5.1 Certify AF ERMS equivalency of legacy risk tracking system for PEO approval and retain signed memo in the program Risk Management Plan or assign POC to fulfill the ERMS risk manager role.
- 6.2 Program Executive Officer (PEO)
 - 6.2.1 Consider risks and issues relevant to portfolio level decisions.
 - 6.2.2 Approve use of AF ERMS certified equivalent legacy risk tracking systems.
 - 6.2.3 When acting as Milestone Decision Authority (MDA), accept high and medium residual risks to the program and document the decision in Acquisition Decision Memorandums in accordance with AFI 63-101/20-101.
 - 6.2.4 Assign Acquisition Apps Store (AAS) personnel administrators (PA) to manage AAS and ERMS access and permissions for directorate programs of record and maintain platform level visibility of risks and issues. PEO may delegate management of AAS and ERMS access/permissions to three letter Division Chiefs.
 - 6.2.5 Notify the AAS program office of PA assignment and assignment changes.
 - 6.2.6 When acting as MDA, ensure the AF Standard Consequence Rating Criteria are not adequate for the acquisition program prior to approving proposed alternative risk Rating Criteria documented for approval in the Acquisition Strategy or an ADM.
- 6.3 Three letter Division Chiefs for PEO organizations managing acquisition programs
 - 6.3.1 Maintain platform/division level visibility of risks and issues in ERMS.
- 6.4 Organization Functional Leads
 - 6.4.1 Ensure personnel are trained in risk management and assessment of risk in the functional area, including any risk revealing assessments unique to the functional area. (See 7.1).
 - 6.4.2 When appropriate, ensure personnel are trained to use the risk tracking system.
- 6.5 Program Functional Leads

- 6.5.1 Ensure personnel are trained in risk management and assessment of risk in their functional area, including any risk revealing assessments unique to the functional area (See 7.1).
 - 6.5.2 When appropriate, ensure personnel are trained to use the program's risk tracking system.
 - 6.5.3 Participate in risk reviews, cross-functional risk assessments (including IRAs) and workshops.
 - 6.5.4 Ensure functional area risks are incorporated in the program's overall risk management effort. AFI 63-101/20-101 places the responsibility on the Lead System Engineer to ensure technical risks are incorporated.
- 6.6 Program Office Personnel
- 6.6.1 Identify and elevate potential risks to functional or Integrated Product Team leads as they are revealed including those revealed in functional area assessments (see 7.1).
 - 6.6.2 Complete risk and issue management activities including development of RHPs and CAPS when assigned as Risk Owner. If co-owner of a joint risk, assure that the risk statement and RHPs reflects a program perspective and are appropriate and adequate.
 - 6.6.3 Take training in AF Life-Cycle Risk Management and as appropriate, functional assessments that reveal risks and risk tracking tool operation.
 - 6.6.4 Participate in risk reviews, cross-functional assessments such as IRAs, and workshops.
- 6.7 Center Cost Chief or Delegated Cost Chief at Operating Locations
- 6.7.1 Provide resources (manpower, software tools for Monte Carlo simulations) to account for the quantification of acquisition program risks in Program Office Estimates as requested. Center staff manpower resources are requested by program office as needed.
 - 6.7.2 Ensure Program Office Estimates incorporates all risks and that appropriate tools and methodologies are used to quantify risks provided by Subject Matter Experts or from the program office.
 - 6.7.3 Approve the risk-adjusted Program Office Estimate in accordance with *AFLCMC Standard Process for Annual Program Office Cost Estimate*.
- 6.8 AFLCMC Risk Technical Expert (AFLCMC/AZE)
- 6.8.1 Designated RIM process standard owner.
 - 6.8.1.1 Maintains and coordinates any changes to this process.
 - 6.8.1.2 Leads personnel to work on any process improvement and change events related to this process.
 - 6.8.2 Maintain AFLCMC acquisition risk management SharePoint sites.
 - 6.8.3 Provide risk management overview training during Focus Week and PM Bootcamp and oversee Acquisition Center of Excellence pre-award workshop training content.
 - 6.8.4 Train IRA teams and oversees/facilitates ACAT 1 IRAs, as available.
 - 6.8.5 Advise programs on risk management processes, policies and tools.

7.0 Tools. During the risk and issue management process various tools are used. Some tools are used to help reveal risk, others to analyze, track, or report. For example, soon after contract award or option execution, an Integrate Baseline Review (ref 10.1, table 8 of Enc. 1) is used to verify the technical content of the performance measurement baseline and the adequacy of the related resource (budgets) and schedules using risk revealing and risk analyzing tools. Tools listed here are AF or AFLCMC standard tools unless otherwise noted.

7.1 Risk Revealing Tools. The following tools (including other assessment methodologies) are frequently used to reveal risks in various aspects of an acquisition program. This list is not considered all inclusive. Other program areas, such as program protection planning, while not having ‘tools’, must still be assessed. None of these tools or processes alone, or in combination, will reveal all risks in a program. Program office knowledgeable personnel must be continually assessing program aspects and changes to identify risks as they present.

7.1.1 Technology Readiness Assessments

7.1.2 Manufacturing Readiness Assessment

7.1.3 System Engineering Assessment Model

7.1.4 Risk Identification: Integration and -ilities

7.1.5 Environment, Safety and Occupational Health (ESOH) Programmatic Risk Toolset

7.1.6 MIL-STD-882 System Safety engineering design-related hazards identification process (see hazard analysis tasks)

7.1.7 Logistics Health Assessment

7.1.8 Cybersecurity Assessment

7.1.9 Intelligence Supportability Analysis and Intelligence Health Assessment

7.1.10 Operational Test Readiness Assessment

7.1.11 System Security Risk Management Process

7.1.12 Weapon System Supply Chain Risk Management (SCRM) Process

7.1.13 Airworthiness Risk Assessment

7.1.14 Independent Logistics Assessment

7.2 Risk Analysis Tools. These tools are used to statistically analyze the impact to the program schedule or cost if the risk is realized. Cost analytical tools are managed by the financial management community. Tools to analyze schedules are less readily available within the Air Force so the prime contractor or a third party contractor supporting the government may supply the software and perform the analysis with government oversight. There is no AF central manager for schedule risk analysis tools and none certified for use on AF computer system except as noted below and embedded in Open Plan Professional scheduling software.

7.2.1 Crystal Ball (cost, AF Certification for installation maintained by AFMC/FM)

7.2.2 @ Risk (schedule, not certified for AF Computer systems)

7.2.3 Pertmaster (schedule, not certified for AF Computer systems)

7.2.4 Polaris (cost, schedule, v1.x cert expired 29 Apr 2017, sponsored by AFNWC/NCS)

7.2.5 Acumen Fuse (schedule, v6 certified until 7 May 18, sponsored by AFNWC/NIF)

- 7.3 Risk and Issue Tracking Tools. Contractors use various systems to track their risk associated with acquisition programs. Some are proprietary such as Boeing’s BORIS and others are Commercial Off-the-Shelf (COTS) tools such as Active Risk Manager that have been tailored for their company. Not all contractor systems are configured to provide the AF standard matrix, use the AF standards for rating consequences or allow for tracking a risk’s ratings simultaneously in all impact categories of cost, schedule and performance.
- 7.3.1 Probability/Consequence Screening tool (P/CS). This is an AFLCMC owned and managed tool used to facilitate initial program risk identification and rating and is suitable in aiding in the preparation of Acquisition Strategy Panel (ASP) briefings. P/CS tool does not have robust RHP tracking and is not intended for use beyond initial contract award except to facilitate risk workshops.
- 7.3.2 AF Enterprise Risk Management Service (ERMS). In FY 16, SAF/AQX directed and funded the development of a risk tracking tool as part of the Acquisition App Store (AAS). This tool archives and tracks risk, issues and concerns; provides an AF standard 5X5 matrix output of risk; and creates various reports used to track risks and issues. Access to ERMS is included in access to a program’s Acquisition App Store (AAS) SharePoint site, however certain permissions are reserved for risk managers. Users schedule training on AAS training site: <https://cs.eis.af.mil/sites/10033/default.aspx>. The AAS PMO provides training via Defense Collaboration Services.
- 7.4 Risk and Issue Reporting Tools. Current electronic upward reporting of risks and issues is initiated in System Metric and Reporting Tool (SMART)/AAS which populates risk views in the Executive Comprehensive Cost and Requirement (CCaR) System. Issues entered via the CCaR modules are also upward reported and viewable in Executive CCaR. Upward reporting tools provide abbreviated risk information and do not contain the robust risk handling information need to track working level progress. SAF/AQ is considering using ERMS to feed risks and issues into Executive CCaR, via the Acquisition App Store data services; however no published plan or timeline is available at the time of this publication.

8.0 Delivery Approach.

- 8.1 Training Plan. Ongoing training is established and maintained to current AF and AFLCMC policy, instruction, standards and guidance. Updates to this Standard are incorporated into AFLCMC training and SharePoint sites.
- 8.2 Available Training.
- 8.2.1 Risk and Issue Management Overview classes are regularly offered under the Program Management listings during AFLCMC Focus Week and in the AFLCMC Program Manager's "Bootcamp" program.
- 8.2.2 Risk training conducted by the AFLCMC Acquisition Center of Excellence (ACE), as part of facilitated pre-award risk workshops.
- 8.2.3 Self-help risk management information can be retrieved from the Acquisition Center of Excellence Community SharePoint site managed by the WP-OL.
- 8.2.4 The Air Force Institute of Technology (AFIT) School of Systems and Logistics has two courses on risk management: SYS 118 Introduction to Life-Cycle Risk Management, and the classroom course SYS 208 Applied Risk Management.

- 8.2.5 Other training opportunities can be found via the DAU Risk CoP Acquisition Community Connections. Current links for registration or more information on these training opportunities can be found at the Acquisition Center of Excellence Community SharePoint site managed by the WP-OL.
- 8.2.6 Risk training conducted by the AFLCMC Acquisition Center of Excellence (ACE), as part of facilitated pre-award risk workshops.
- 8.2.7 The Change Management Plan is located at Attachment 2 and describes the approach and methods used for implementing and institutionalizing this standard process.

9.0 Definitions, Guiding Principles and/or Ground Rules & Assumptions.

- 9.1 The process covered in this standard applies to acquisition and sustainment risk management and does not cover risk management directed in AFI 90-802.
- 9.2 This process does not address risk processes that are part of analysis of alternatives (AoAs) and development planning although risk information revealed in these processes should influence the program's Risk Management Plan and forms the basis for initial risk management activities. Offices working efforts prior to program initiation should consult the SAF/AQ Early Systems Engineering SE Guidebook, 31 Mar 09.
- 9.3 While conducting an Integrated Risk Assessment (IRA) encompasses analysis of risk affecting program cost, this process standard hands-off the process oversight of the cost analysis to the AFLMC Annual Program Cost Estimate Process Standard by providing IRA generated cost data and output of the schedule analysis of the risks. This interface occurs midway through the Cost Estimate Review process step 1.3.2.
- 9.4 Significant resources can be involved in risk handling. The Program Manager, functional leads, team leads, program office personnel, prime contractor, major suppliers and subcontractors must be actively involved in the risk management process for it to be effective.
- 9.5 Definitions
 - 9.5.1 **Risk:** A potential future event that "*could or might*" occur which would result in the inability to achieve one or more program objectives within defined cost, schedule, and/or performance constraints.
 - 9.5.2 **Issue:** A future event that "*is certain to*" occur and will impact the ability to achieve one or more program objectives within defined cost, schedule, and/or performance objectives. The probability of occurrence for an issue is 100%. A realized Risk (formerly called a Problem) is also covered under the term Issue.
 - 9.5.3 **Concern:** Is a potential negative, future event for which there is insufficient information to characterize the likelihood and/or consequence.
 - 9.5.4 **Risk Management Planning:** Risk Management planning consists of the up-front activities needed for a successful risk management program. Risk planning is the heart of the preparation for the next program phase. Risk management strategies are developed and documentation begins.

- 9.5.5 **Risk Management Plan (RMP):** A formal document developed and maintained throughout the life of the program. The RMP provides detailed information and direction necessary to conduct effective risk management for this project. The RMP also provides effective risk management methods and processes, and assigns responsibility for the implementation of various aspects of risk management. Tailor-able RMP template(s) provided at the AFLCMC SharePoint site.
- 9.5.6 **Risk Handling Plan (RHP):** A formal action plan, complete with milestone schedule, closure criteria, and optional Technical Performance Measures (TPMs) to address a specific risk. A risk handling plan employs one or more individual risk management strategies such as: accepting, avoiding, mitigating, eliminating, transferring, or sharing.
- 9.5.7 **Corrective Action Plan (CAP):** A formal action plan, complete with schedule, closure criteria, and optional TPMs to address a specific issue.
- 9.5.8 **Contingency Plans:** A formal action plan made in advance of a risk being realized but not executed until the risk event has occurred. Often used when program cannot influence the likelihood of the risk occurring and cannot proactively reduce the impacts before the risk event.
- 9.5.9 **Risk Categories:** Risk categories are “bins” for collecting and organizing risks. For example, organize risks by Work Breakdown Structure (WBS), program phase, or risks types (e.g., technical risks, supportability risks, environmental risks). Risk categories provide ways to capture costs to handle risks and to conduct sensitivity analyses among risk categories. Risk categories provide ways of finding relevant risks for lessons learned and linkage to other activities.
- 9.5.10 **Tiered Risks:** Those risks located at different tiers of the enterprise (e.g., Government, Contractor, & suppliers). Each tier performs its own risk management functions and can link to the functions of the tier(s) above and below in terms of transferring and sharing risks. Program offices can also use a tiered approach to identify the required level of management responsibility/attention and help with risk reporting. For example a program can establish tiers according to work breakdown structure with the respective IPT Lead responsible for managing daily risks and reporting to management when a risk has become significant enough to require management attention. For Example: risk; Tier 1-PEO, Program level risks; Tier 2-PM/Contract risks; Tier 3-Major IPT level risks; Tier 4-Team risks.
- 9.5.11 **Active Risk:** A risk tracked due to its assessed rating (usually Moderate or High)
- 9.5.12 **Risk Watch List:** Risks (usually Low) that are tracked but have no handling plan.
- 9.5.13 **Relevant Stakeholders:** Relevant stakeholders are those who are involved in the risk management process in terms of: Establishing a collaborative environment for free and open discussion of risk; Reviewing the risk management strategy and risk handling events; Participating in risk identification, analysis, and handling activities; and Communicating and reporting risk management output.
- 9.5.14 **Risk Review Board:** A risk review board is a group (sized to fit program) chaired by the PM, IPT leads or designee that meets frequently with the relevant stakeholders to foster a team approach to risk management. The board approves the introduction of new risks into the risk database and proactively manages, tracks, and communicates program risks. In addition the relevant stakeholders, review board members include

the functional leads, risk database administrator, and risk owners. If held quarterly and chaired by the PM, this meeting fulfills the PM quarterly review requirement.

- 9.5.15 **Risk and Issue Color Ratings:** Risks are classified based on the probability and consequence coordinates in the AF Standard 5X5 risk matrix as directed in AFI 63-101/20-101. For issues, only the top row of the 5X5 risk matrix is used since the probability is 100%. Issues are classified based on the impact of the consequence.
- Low:** The risk or issue is depicted as green. Risks and issues at this level are regularly tracked, but a RHP/CAP is optional.
- Moderate:** The risk or issue is depicted as yellow. Tracking and handling plans *are* required for every Moderate risk and issue.
- High:** The risk or issue is depicted as red. The RHP/CAP plans *are* required for every High risk and issue.
- 9.5.16 **Integrated Risk Assessment (IRA):** An IRA is a series of risk assessment and analysis events. The IRA integrates the identification of program risks and specific risk quantitative data with the analysis of the risks impacts on program schedule and cost. This is a cross-functional assessment; however the term “Integrated” in this context signifies the integration of the risk quantification data with the schedule analysis of the identified risks and the integration of both the risk quantitative data and schedule analysis outcomes into the cost analysis that supports the program office cost estimate. Additional information on IRAs can be found at the [AFLCMC Integrate Risk Assessment SharePoint Site](#).
- 9.5.17 **IRA Core Team:** The IRA Core team is the oversight team that reviews and concurs with the risks and associated data to be used in the data analysis. The team consists of the Program Manager, Program Chief Engineer, Program Chief Financial Manager, Functional Leads, Schedule and Cost Analysis Teams leads, other relevant stakeholders and independent subject matter experts as appropriate, program office POC for the IRA, the Contractor counterparts to the PMO team members, and the ACE facilitator (for ACAT 1 or ACAT 2 on oversight list).
- 9.5.18 **IRA Execution Team:** This team is comprised of the risk owners, and schedule owners who will be tasked to provide the risk quantification data. The execution team is prime contractor personnel are usually tasked with gathering the quantitative data on jointly owned risks and issues with oversight and concurrence by the government risk owners.
- 9.5.19 **IRA Schedule Analysis Team:** this team is composed of the contractor and government schedule POCs and any third party schedule analysis expertise brought in by the government. Team composition and duties will be determined by the IRA ground rules and assumptions.
- 9.5.20 **AF Enterprise Risk Management Service (ERMS):** The AF standard risk tracking tool using a SharePoint hosted database application created for use by AF acquisition programs to document, communicate and manage programmatic risks and issues for acquisition programs across all AF portfolios to meet AFI 63-101/20-101 risk management standards.
- 9.5.21 **Focal Points:** A term used to identify the tasks or events that are checked for impact during the schedule analysis activity of an IRA. Often it is a major event, like entry into a critical design review, or completion of Developmental Test and Evaluation.

- 9.5.22 Deep Dive:** A comprehensive review of a topic. In the standard a deep dive refer to a PM review of all risks and issues (active and emerging) including RHPs, CAPs, and progress made in executing the plans typically illustrated with a burn down or waterfall chart (ratings over time).
- 9.5.23 **System Security Risk:** A risk to Department of Defense (DoD) warfighting capability from foreign intelligence collection; from hardware, software, and cyber vulnerability or supply chain exploitation; and from battlefield loss throughout the system life cycle.
- 9.5.24 **Weapon System Supply Chain Risk Management (WS SCRМ):** A systematic management process to identify weapon system supply chain susceptibilities, vulnerabilities, and threats and development of strategies to combat those threats whether presented by the supplier, the supplied product and its subcomponents, its support equipment (to include cyber-related support equipment), or the supply chain (e.g., initial production, packaging, handling, storage, transport, mission operation, and disposal functions.)

10.0 References to Law, Policy, Instructions or Guidance.

- 10.1 DODI 5000.02, *Operation of the Defense Acquisition System*, Chg. 3, 10 Aug 17
- 10.2 AFI 63-101/20-101, *Integrated Life Cycle Management*, 9 May 2017
- 10.3 AFPAM 63-128, *Integrated Life Cycle Management*, 10 Jul 2014
- 10.4 DI-MGMT-81808, *Contractor Risk Management Plans*
- 10.5 DI-MGMT-81809, *Contractor Risk Management Status Reports*
- 10.6 MIL-STD 882E , *System Safety*, 11 May 12
- 10.7 [AFLCMC ACE Risk Management SharePoint Site](#)
- 10.8 [AFLCMC Integrated Risk Assessment SharePoint Site](#)
- 10.9 [AF Acquisition App Store Training Site](#)
- 10.10 *AFLCMC Standard Process for Development Planning*, 23 Sept 14
- 10.11 *AFLCMC Standard Process for Annual Program Office Cost Estimate*, 23 Mar 2017
- 10.12 *AFLCMC Internal Process Guide (IPG) to Conduct Program Sufficiency Reviews*, Mar 16
- 10.13 *Risk, Issue and Opportunity Management Guide for Defense Acquisition Programs*, Jan 17
- 10.14 AWB- 150, *Airworthiness (AW) Risk Assessment and Acceptance*, 13 Sep 2017
- 10.15 *System Security Engineering (SSE) Acquisition Guide* (SSE section of SE Toolset, in ref 10.7)
- 10.16 *AFLCMC Standard Process for Cyber Security Assessment and Authorization*, Jun 2017
- 10.17 *AFLCMC IPG for Weapon System Supply Chain Risk Management*, 30 Nov 16
- 10.18 *AFMCI 63-1201, Implementing Operational Safety Suitability and Effectiveness (OSS&E and Life Cycle Systems Engineering ((LCSE)*, 28 Mar 17
- 10.19 *USAF System Security Engineering Acquisition Language Guidebook V1.2*, 30 Aug 17
- 10.20 *Risk Identification: Integration & Ilities (RI3) Guidebook, Version 1.2*, 15 December 08

Attachment 1. RIM in Acquisition Full WBS



Attachment 2. Change Management/Communication Plan.

