

RISK MANAGEMENT SURVEY OF DEPARTMENT OF THE NAVY PROGRAMS

September 1997

Conducted by:

ASN(RD&A)ABM

As part of a coordinated, continuing, multi-part effort titled:

Focus: TECHNICAL RISK MANAGEMENT

FOR

THE DEPARTMENT OF THE NAVY

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RISK MANAGEMENT SURVEY OF DEPARTMENT OF THE NAVY PROGRAMS

BACKGROUND:

Historically, Department of Defense (DoD) and Department of the Navy (DoN) Program Managers have used cost, schedule, and performance parameters to exercise control over and measure the success of their programs. In recent years, the value of a pro-active Risk Management effort has taken on more importance as evidenced, for example, by the emphasis on Risk Management in the latest DoD and DoN 5000 series documents and the *Defense Acquisition Deskbook*. An increasing awareness of risk — especially technical/ performance risk — as a driver of cost, schedule, and performance outcomes is permeating the community. The Secretary of Defense himself recently emphasized the benefits of using industry best practices to reduce and manage risk in defense acquisition programs.

However, more data was needed to identify current best practices in the area of Risk Management and the extent to which they are being used in DoN programs.

APPROACH:

ASN(RD&A)ABM surveyed forty-one DoN programs during the summer of 1997 — nearly one-fifth of all currently active programs — to collect information about the implementation of Risk Management. [*Actual numbers of programs surveyed: 14 of 29 ACAT I programs (48%); 7 of 26 ACAT II programs (27%); 10 of 92 ACAT III programs (11%); and 10 of 75 ACAT IV programs (13%).*]

This approach was intended to:

1. Establish a baseline for DoN Risk Management.
2. Determine the most common characteristics found in program Risk Management plans.
3. Collect representative examples of tools, methodologies, and best practices used by DoN programs for Risk Management.
4. Identify the references cited most frequently as assisting with the Risk Management process.
5. Collect representative examples of statements of work mandating contractor-established Risk Management programs.

All observations and statistics presented on the following pages are derived from the contents of the Risk Management plans identified during the survey.

OBSERVATIONS:

- ◆ About half the programs surveyed (17 of 41) do not have Risk Management plans; all ACAT I programs except one, however, do have Risk Management plans.
- ◆ Although a majority of ACAT II, III, & IV programs surveyed lack formal Risk Management plans, they do include and apply Risk Management assessment criteria as part of their program management plans.
- ◆ Few programs offer formal Risk Management training, yet most program offices indicate that some type of training would be beneficial.
- ◆ All Risk Management programs surveyed define objective criteria for determining level of risk and for assigning risk ratings (e.g., High, Medium, or Low).
- ◆ All ACAT I program plans reviewed contain a contractual requirement for a Risk Management program, while few ACAT II, III, or IV programs have such a requirement.
- ◆ None of the programs surveyed use award fee scoring criteria to incorporate Risk Management.
- ◆ Only three programs from the survey sample, all ACAT I, make use of independent Risk Assessment teams.



The following pages contain additional Survey details and Risk Management sample documents.

Table 1: DON PROGRAMS SURVEYED

ACAT#	PROGRAMS SURVEYED	PROGRAM MANAGERS	PHASE
I	1. AEGIS (DDG)	PMS-400	ALL
I	2. Standard Missile (Block IV)	PEO(TAD) PMS-422	II
I	3. Tomahawk Cruise Missile (Block IV)	PEO(CU) PMA-280	II
I	4. Surface Combatant 21st Century (SC-21)	PEO(SC/AP)	O
I	5. Advanced Amphibious Assault Vehicle (AAAV)	DRPM AAAV	I
I	6. New Attack Submarine (NSSL)	PEO(SUB) PMS-450	II
I	7. F/A-18 Hornet, Naval Strike Fighter	PEO(T) PMA-265	II
I	8. Expanded Sea Sparrow Missile (ESSM)	PEO(TAD) - D	II
I	9. V-22 Osprey Tiltrotor	PEO(A) PMA-275	III
I	10. Cooperative Engagement Capability (CEC)	PEO(TAD) - C	II
I	11. USMC H-1 Upgrade (Cobra)	PEO(A) PMA-276	II
I	12. Combat Control Communications & Intelligence (C ³ I)	PEO(SUB) PMS-401	II
I	13. Heavy Weight Torpedo (MK48 ADCAP)	PEO(SUB) PMS-404	III
I	14. Light Weight Torpedo (MK46/MK50)	PEO(SUB) PMS-404	II / III
II	15. Advanced Deployable System (ADS)	SPAWAR PMW-183	II
II	16. Advanced Integrated Electronic Warfare System (AIEWS)	PEO(TAD) - D	I
II	17. Ship Self Defense System (SSDS) MK1	PEO(TAD) - D	II
II	18. Close-In Weapon System (CIWS)	PEO(TAD) - D	III
II	19. Rolling Airframe Missile (RAM BLK I)	PEO(TAD) - D	II
II	20. Evolved Sidewinder (AIM-9X)	PEO(T) PMA-259	II
II	21. Verticle Launch Missile (VLM)	PEO(SUB) PMS-404	II
III	22. Remote Minehunting System (RMS)	PEO(MIW) PMS-407	II
III	23. CSA MK2	PEO(USW) PMS-415	III
III	24. MK30 Mod 0 ASW Target	PEO(USW) PMS-403	II
III	25. Airborne Laser Mine Detection System (ALMDS)	PEO(MIW) PMS-210	I
III	26. Distributed Explosive Technology System (DET)	PEO(MIW) PMS-407	II
III	27. Shallow Water Assault Breaching System (SABRE)	PEO(MIW) PMS-407	II
III	28. AN/WLY-1	PEO(USW) PMS-415	II
III	29. Acoustic Device Countermeasures MK4 (ADC MK 4 Mod 0)	PEO(SUB) PMS-404	III
III	30. AN/SQQ-32	PEO(MIW) PMS-407	II
III	31. Mine Detection Sonar Set (AN/AQS-20)	PEO(MIW) PMS-407	II
IV	32. Advanced Strategic Tactical Expendables (ASTE)	PEO(T) PMA 272	II
IV	33. Ship Automatic Liquid Agent Detector (SALAD)	NAVSEA	II
IV	34. Composite Pumps	NAVSEA	II
IV	35. Potable Water Electrolytic Disinfectant Generator (PWEDG)	NAVSEA	II
IV	36. Magnetic Cable Improvements (MCI)	PEO(MIW) PMS-210	II
IV	37. MK 105 Upgrade	PEO(MIW) PMS-210	II
IV	38. C4-I	PEO(MIW) PMS-210	II
IV	39. Closed Loop Degaussing System/MCM (CLDG/MCM)	PEO(MIW) PMS-210	II
IV	40. S-3 Phased Depot Maintenance Program (PDM)	PEO(A) PMA-290	II
IV	41. E-6 Program	PEO(A) PMA-271	III

Table 2: OCCURRENCE OF COMMON CHARACTERISTICS BY ACQUISITION CATEGORY (ACAT)

ACAT ⇒	I	II	III	IV	TOTALS ↓
# PROGRAMS SURVEYED ⇒	14	7	10	10	41
# PROGRAMS WITH RISK MGMT. PLANS ⇒	13	3	6	2	24
<i>Common TRM* Plan Characteristics</i>					<i>Overall Frequency of Characteristic</i>
CONTRACTUAL REQUIREMENT	13	1	0	0	14
PROCESS-ORIENTED	2	0	1	0	3
PRODUCT-ORIENTED (WBS)	7	0	0	2	9
PRODUCT/PROCESS COMBO	4	3	0	0	7
PROBLEM-DRIVEN	4	0	0	0	4
DEVELOPMENTAL TEST-BASED	0	0	4	0	4
CONTINUOUS ASSESSMENT	8	3	1	1	13
PERIODIC ASSESSMENTS	5	0	3	1	9
INDEPENDENT RISK ASSESSMENT USED	3	0	0	0	3
RISK EVALUATED & CATEGORIZED	13	3	6	2	24
FORMAL TRAINING/AWARENESS	6	1	0	0	7
USE OF ELECTRONIC DATABASE	11	3	1	0	15
EVENT-DRIVEN RISK MITIGATION PLANS	4	2	0	0	6
REFERENCE USE:					
DoD 42457-M †	9	2	1	0	12
NAVSO P-607I †	9	0	1	0	10
<i>Methods & Metrics for Product Success</i> †	3	1	1	0	5
PMWS/TRIMS †	6	0	0	0	6

*TRM = Technical Risk Management

† Document names are spelled out, with directions for ordering, in *Figure 10*.

Table 3: DISTRIBUTION OF COMMON CHARACTERISTICS IN PROGRAMS WITH RISK MANAGEMENT PLANS

ACQUISITION CATEGORY⇒	ACAT I (13)													ACAT II (3)			ACAT III (6)						ACAT IV (2)	
PROGRAM (see key below)	1	2	3	4	5	6	7	8	9	11	12	13	14	15	17	20	22	24	26	27	28	29	33	40
ACAT	I	I	I	I	I	I	I	I	I	I	I	I	I	II	II	II	III	III	III	III	III	III	IV	IV
PROGRAM PHASE	All	II	II	0	I	II	II	II	III	II	II	III	II/III	II	II	II	II	II	II	II	II	III	II	II
Common Plan Characteristics																								
CONTRACTUAL REQUIREMENT	♦	♦	♦	♦	♦	♦	♦	♦	♦	♦	♦	♦	♦	♦										
PROCESS-ORIENTED	♦			♦																		♦		
PRODUCT-ORIENTED (WBS)			♦					♦	♦	♦	♦	♦	♦										♦	♦
PRODUCT/PROCESS COMBO		♦			♦	♦	♦							♦	♦	♦								
PROBLEM-DRIVEN						♦			♦				♦	♦										
DEVELOPMENTAL TEST-BASED																	♦	♦	♦	♦				
CONTINUOUS ASSESSMENTS				♦	♦	♦	♦		♦	♦		♦	♦	♦	♦	♦					♦			♦
PERIODIC ASSESSMENTS	♦	♦	♦					♦			♦						♦		♦	♦			♦	
INDEPENDENT ASSESSMENT	♦			♦		♦																	♦	
RISK EVALUATED/CATEGORIZED	♦	♦	♦	♦	♦	♦	♦	♦	♦	♦	♦	♦	♦	♦	♦	♦	♦	♦	♦	♦	♦	♦	♦	♦
FORMAL TRAINING/AWARENESS				♦	♦	♦			♦	♦	♦					♦								
USE OF ELECTRONIC DATABASE		♦	♦	♦	♦	♦	♦	♦	♦		♦	♦	♦	♦	♦	♦					♦			
EVENT-DRIVEN MITIGATION		♦	♦		♦		♦							♦		♦								
REFERENCE USE:																								
DoD 42457-M	♦	♦	♦	♦		♦		♦		♦		♦	♦	♦	♦						♦			
NAVSOP-607I	♦	♦	♦	♦		♦		♦		♦		♦	♦								♦			
Methods & Metrics for ...			♦	♦		♦								♦							♦			
PMWS/TRIMS	♦	♦	♦	♦		♦		♦																

Key to DoN Programs with Risk Management Plans

- | | | | |
|-----------------------------|------------------|--------------------|-------------------|
| 1. AEGIS (DDG) | PMS-400 | 14. MK46 / MK50 | PEO(SUB) PMS-404 |
| 2. Std. Missile Blk IV | PEO(TAD) PMS-422 | 15. ADS | SPAWAR PMW-183 |
| 3. Tomahawk Blk IV | PEO(CU) PMA-280 | 17. SSDS MK1 | PEO(TAD)-D |
| 4. SC-21 | PEO(SC/AP) | 20. AIM-9X | PEO(T) PMA-259 |
| 5. AAV | DRPM AAV | 22. RMS | PEO(MIW) PMS-407 |
| 6. NSSN | PEO(SUB) PMS-450 | 24. MK30 Mod0 ASW | PEO (USW) PMS-403 |
| 7. F/A-18 Hornet | PEO(A) PMA-265 | 26. DET | PEO(MIW) PMS-407 |
| 8. ESSM | PEO(TAD)-D | 27. SABRE | PEO(MIW) PMS-407 |
| 9. V-22 | PEO(A) PMA-275 | 28. AN/WLY-1 | PEO(USW) PMS-415 |
| 11. USMC H-1 Upgrade | PEO(A) PMA-276 | 29. ADC MK 4 Mod 0 | PEO(SUB) PMS-404 |
| 12. C ³ I (NSSN) | PEO(SUB) PMS-401 | 33. SALAD | NAVSEA |
| 13. MK48 ADCAP | PEO(SUB) PMS-404 | 40. S-3 PDM | PEO(A) PMA-290 |

DESCRIPTIONS OF COMMON CHARACTERISTICS & SUMMARY OBSERVATIONS

The common characteristics from **Tables 2 & 3** are now presented individually, along with an explanation of how each is “defined” or used in this document. (See ♦ below.) The text in the rectangle below each characteristic contains related summary — but not evaluative — information about the data collected during the course of the survey.

- ♦ **CONTRACTUAL REQUIREMENT FOR TRM:** The establishment and maintenance of a risk management program is contractually required.

Over half the programs in the sample included a requirement for a risk management program in the contract statement of work. This requirement was found in all ACAT I programs, in one ACAT II program, and in no ACAT III or ACAT IV programs. None of the programs surveyed used the alternative approach of award fee scoring criteria to incorporate program risk management. (See *Figure 1*)

- ♦ **PROCESS-ORIENTED TRM:** TRM conducted primarily by assessing contractor critical processes for design, test, production, etc. against industry best practices for the same, with the variance determining the level of risk.

Two ACAT I programs and one ACAT III program implemented primarily process-oriented risk management programs. These programs used DoD 4245.7-M, NAVSOP-607I, and the Navy’s *Methods & Metrics for Product Success* as the bases for their efforts. (See *Figure 2*)

- ♦ **PRODUCT-ORIENTED (WBS) TRM:** TRM based on the work breakdown structure (WBS) to organize the risk management program, with risk assessments conducted on WBS elements. Risk is expressed as a *probability estimate* rather than as a *degree of process variance from a best practice*.

A risk management plan based primarily on the project work breakdown structure was the most common type of TRM implemented. Over half the ACAT I programs in the sample used this approach, as did both ACAT IV programs with risk management plans.

- ♦ **PRODUCT/PROCESS COMBO TRM:** Critical processes and WBS elements, in some combination, are both assessed for risk as the approach to TRM.

Four ACAT I programs and all three ACAT II programs in the sample used a risk management plan structured as a combination of the process/product approaches. Included is a figure based on the ADS program, using *Methods & Metrics for Product Success*, which illustrates this approach. (See *Figure 3*)

- ♦ **PROBLEM-DRIVEN TRM:** Risk management program approach is to: 1) Identify all possible problems, *then* 2) Develop methods for their elimination, *rather than* to: 1) Concentrate primarily on risks involving critical processes/elements, *then* 2) Decide whether or not to accept the risk involved.

Four ACAT I programs from the sample used a problem-solving approach integrated with a product and/or process-oriented approach for their risk management programs.

- ♦ **DEVELOPMENTAL TEST-BASED TRM:** TRM is based on a *Test, Analyze & Fix* type of approach.

Only ACAT III programs in the sample had risk management plans based on developmental testing. Two of these four programs involve explosive devices for which risk management is conducted exclusively by means of extensive testing to 1) identify problems or 2) verify design approaches.

- ◆ **CONTINUOUS TRM ASSESSMENT:** Risk assessments and risk management are on-going program activities, rather than activities conducted only at scheduled times.

Thirteen programs indicated the use of a continuous risk assessment process as a component of risk management rather than performing only periodic risk assessments. Continuous, of course, is a somewhat relative term, but does imply that risk assessments are conducted more often than just for Milestone Reviews. These programs have commonly developed, or adapted from other sources, their own risk assessment forms for documenting results to enter into their databases. (See Figures 4 & 5)

- ◆ **PERIODIC TRM ASSESSMENTS:** Risk management approach calls for Risk Assessments in preparation for Milestone Reviews, at which time the results of all risk reduction efforts conducted to date are considered.

Fewer programs relied on periodic risk assessments than relied on a continuous risk assessment process as part of a risk management strategy, but still sometimes developed or adapted their own risk assessment forms. (See Figures 4 & 5)

- ◆ **INDEPENDENT RISK ASSESSMENT USED:** An outside team of experts conducts independent risk assessments.

Independent risk assessment teams were used by three programs from the sample to perform an original risk assessment. All were ACAT I programs.

- ◆ **RISK EVALUATED & CATEGORIZED:** TRM employs a clearly defined set of evaluation criteria (metrics) for assigning risk ratings (low, moderate, high) to identified area, element, or process risks as a step in monitoring the effectiveness of risk-handling strategies.

All programs in the sample had a clearly defined method for categorizing risks, the most predominant method involving a matrix to which values for *Probability of Occurrence* and *Consequences of Occurrence* are both assigned for each risk element. (The Program Risk Analysis Matrix for the F/A-18 is a typical example of this kind. - See Figure 6) A variation of this matrix (used by the SC-21 program - see Figure 7) takes a process-oriented approach to risk management and so plots *Critical Process Variance* from known (best practice) standards — *not Probability of Occurrence* — against *Consequences of Occurrence*.

- ◆ **FORMAL TRM TRAINING/AWARENESS:** A formal risk management training or awareness program is used to educate, ideally, both government and contractor personnel to the operations and expectations of the risk management program being used.

About a quarter of the programs in the sample provided some kind of formal training in TRM. Of these, several used an automated awareness/ training program delivered through their Lotus Notes® electronic database. The usefulness of this automated awareness/ training system was not evaluated.

- ◆ **USE OF ELECTRONIC DATABASE:** Program risk assessment/ risk management efforts are collected, tracked, and updated from a central electronic database which can then produce regular reports to assist with managing program risk.

Lotus Notes, mentioned above, was the electronic database selected by a number of programs for risk management and to share information. Lotus Notes allows authorized users (e.g., IPT members) to enter, update, and track risks on a real-time basis; attach graphic documents such as program technical performance measures to risk assessment forms; and link risks directly to contract WBS elements.

- ◆ **EVENT-DRIVEN RISK MITIGATION PLANS:** Risk mitigation activities integrate w/overall program schedule/resources.

Six programs in the sample used the results of their risk assessment efforts to develop risk mitigation plans tied to program events. Most of these tracked and reported the success of their risk mitigation efforts by using a "waterfall" type of graphic, samples of which are included here. (See Figures 8 & 9.)

- ◆ **REFERENCE USE:** DoD and Navy risk management publications/ software are the references used most frequently as TRM guidelines or for structuring a risk management program.

ACAT I programs, more than ACAT II, ACAT III, or ACAT IV programs, reported using the primary DoD and Navy references listed (*see Figure IO*) to assist with their risk management efforts.

- ◆ **RISK AND RISK MANAGEMENT DEFINITIONS:** Below are selected risk and risk management definitions.

RISK - An undesirable situation or circumstance which has both a probability of occurring & a potential consequence to program success; risks are normally associated with uncertainties.

RISK MANAGEMENT - An organized, systematic decision-making process that efficiently identifies risks, assesses or analyzes risks, and effectively reduces or eliminates risks to achieving program goals. *F/A-18 Hornet*

RISK - A measure of the inability to achieve overall program objectives within defined cost, schedule, and technical constraints and has two components: 1) the probability of failing to achieve a particular outcome and 2) the consequences of failing to achieve that outcome.

RISK MANAGEMENT - The act or practice of controlling risk. It includes risk planning, assessing risk areas, developing risk-handling options, monitoring risks to determine how risks have changed and documenting the overall risk management program. *MK 48 / MK 50 Torpedo Program*

RISK - Difference between actual performance of a process and the known best practice for performing that process.

RISK MANAGEMENT - Proactive management technique that identifies critical processes and a methodology for controlling their risk to the program. *SC-21 Program*

EXAMPLES OF FORMS & ILLUSTRATIONS FROM DoN RISK MANAGEMENT SURVEY PROGRAMS

Section A: STATEMENTS OF WORK (SOW)

STANDARD MISSILE (BLOCK IV)

3.10 Risk Management: The contractor shall establish a risk management program to identify and control the development-to-production transition elements of DoD 4245.7-M. The risk management program shall consist of planning, identification, assessment, analysis and risk reduction techniques to support sound program transition decisions. The contractor shall document this program in a transition plan prepared following the guidance of DoD 4245.7-M. Periodic risk assessments shall be presented to the Standard Missile Program Management Office at government/ contractor reviews. The Government will perform periodic reviews of the Contractor's risk management program.

ADVANCED INTEGRATED ELECTRONIC WARFARE SYSTEM (AIEWS)

3.1.4.5 Risk Management and Reporting: The Contractor shall maintain a risk management program to assess the risks associated with program cost, schedule, and achievement of technical requirements. Specific risk management functions as outlined in the Integrated Management Plan (IMP) shall include, at a minimum:

1. Identify known and potential risks.
2. Assess risks, including a relative ranking by program impact and the establishment of critical thresholds.
3. Define methods or alternatives to mitigate or minimize these risks, including the identification of criteria upon which a programmatic decision must be made to initiate alternatives or to make other programmatic changes.

This plan will be presented to the Government initially for approval and concurrence with risk area assessments and thresholds, then in monthly updates and at in-process and technical reviews.

ADVANCED DEPLOYABLE SYSTEM (ADS)

c1.3.1.1.1.3 Risk Management: The Contractor shall implement A Risk Management Program in accordance with the ADS Risk Management Plan using DoD 4245.7-M templates as a guide. All templates applicable to pre-Milestone II shall be addressed. The initial set of Contractor-defined risks shall be updated as new risks are identified by the Government or Contractor. The Contractor shall quantify risks with respect to impact on performance, cost, and schedule and shall identify and develop mitigation plans for risk reduction/resolution.

Figure 1: SAMPLE RISK MANAGEMENT SOW CONTRACT CLAUSES

Section B: RISK ASSESSMENT STATUS, PROCESS & REPORT FORMATS

A number of programs among those surveyed used a format similar to that used in DoD 4245.7-M and *Methods & Metrics for Product Success* to present the results of a technical risk assessment or an overview of program risk status based on risk assessment results. An example of this technique is shown below.

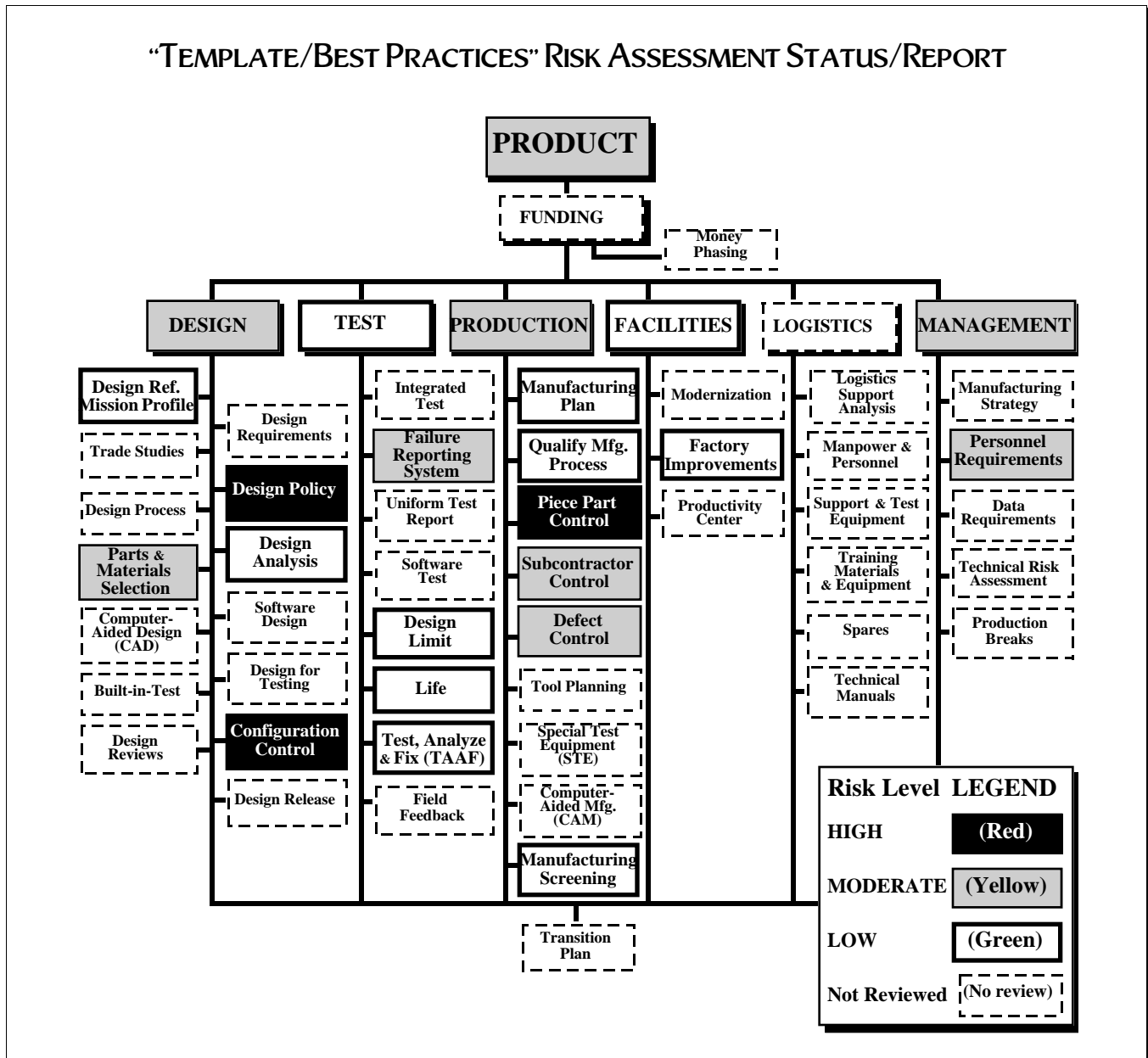


Figure 2: SAMPLE RISK STATUS REPORT FORMAT

ADVANCED DEPLOYABLE SYSTEM (ADS) RISK ASSESSMENT PROCESS

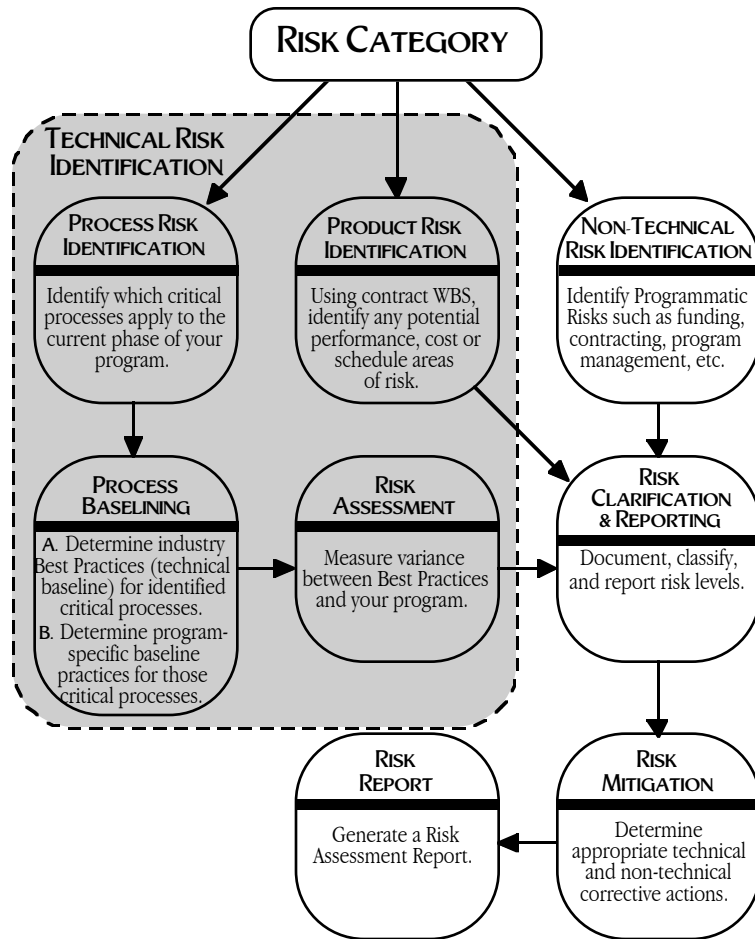


Figure 3: SAMPLE PRODUCT/PROCESS COMBINATION RISK MANAGEMENT PROCESS

(Based on *Methods & Metrics for Product Success* Risk Assessment methodology)

ADVANCED DEPLOYABLE SYSTEM (ADS) RISK ASSESSMENT FORM (RAF) Please fill out and submit to RMD Coordinator. Use additional pages if needed. <ul style="list-style-type: none"> • POC E-mail • Phone & Fax 		Risk-Tracking Number (Assigned by RMD Coordinator) XXX - XXX - XXX
Risk Title:		Overall Risk Level (See reverse. Circle one.) Low Moderate High
Product / Subassembly / Configuration Item: <div style="border: 1px solid black; padding: 5px; width: fit-content; margin-left: auto; margin-right: auto;"> Process Area or Template (To be identified by RMD Coord.) </div>		Risk Level Identifiers (Enter a number 1 - 5. See reverse.) Probability of Occurrence: _____ Consequence of Occurrence: <ul style="list-style-type: none"> • Performance _____ • Cost _____ • Schedule _____
Requirement Affected (Record paragraph # & security classification. Provide summary of requirement if unclassified.) A-Spec _____ PIDS _____ WBS _____ Other _____		Date Identified: _____ Submitted: _____ Risk Originator Name: _____ Phone #: _____ IPT: _____ Risk Owner (Assigned by Risk Originator/IPT) Name: _____ Phone #: _____ IPT: _____
Risk Description: (Provide as much detail as possible. Use <i>IF-THEN-IN-ADDITION</i> format.) 		
Risk Level Rationale: (Use Risk Level Identifiers [see reverse] and ADS Risk Level Standard Guidelines.) 		
Risk Mitigation Recommendations: (What actions will be/have been taken to mitigate this Risk and when? How could we have avoided this Risk?) 		

Figure 4: SAMPLE TECHNICAL RISK ASSESSMENT FORM

<p align="center">ADVANCED DEPLOYABLE SYSTEM (ADS) RISK STATUS FORM (RSF)</p> <p>Please fill out and submit to RMD Coordinator. Use additional pages if needed.</p> <ul style="list-style-type: none"> • POC E-mail: • Phone & Fax : 	<p align="center">Risk-Tracking Number (Assigned by RMD Coordinator) XXX - XXX - XXX</p>				
<p>Risk Title:</p>	<p align="center">Current Risk Level (Circle one.)</p> <p>Low Moderate High</p> <p align="center">Reporter</p> <p>Name: Phone #: IPT:</p>				
<p>Product / Subassembly / Configuration Item:</p>	<p align="center">Date</p>				
<p>Plan of Action: (What actions will be taken to mitigate this Risk?)</p>	<p align="center">Milestone(s) (Projected dates of completion)</p> <table border="1"> <thead> <tr> <th align="center">Action #</th> <th align="center">Date</th> </tr> </thead> <tbody> <tr> <td style="border-right: 1px solid black;"> </td> <td> </td> </tr> </tbody> </table>	Action #	Date		
Action #	Date				
<p>Risk Mitigation / Corrective Actions: (What actions have been taken to mitigate this Risk?)</p>	<p align="center">Completion Dates (For each Corrective Action)</p>				
<p>Current Risk Level Rationale: (Use Risk Level Identifiers & ADS Risk Level Standard Guidelines.)</p>					
<p>Lessons Learned: (How could we have avoided this Risk? What have we learned?)</p>					

Figure 5: SAMPLE TECHNICAL RISK STATUS FORM

F/A-18 RISK MANAGEMENT PROCESS

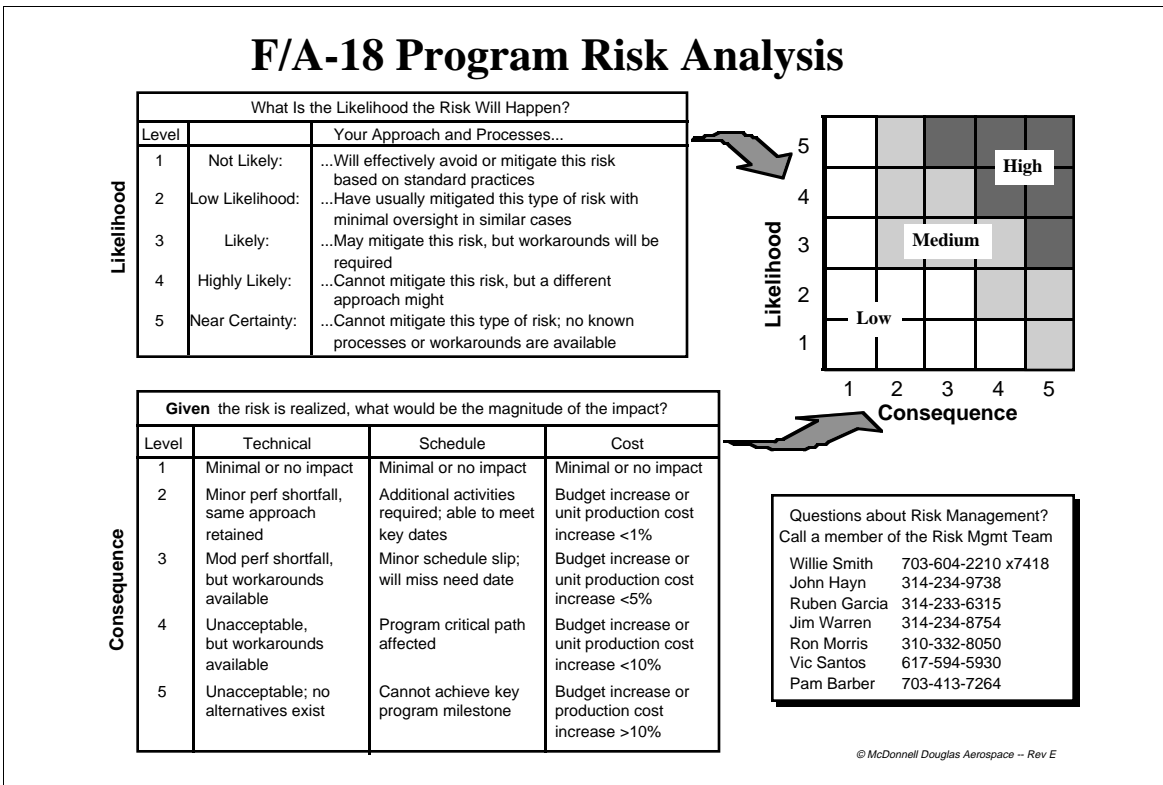
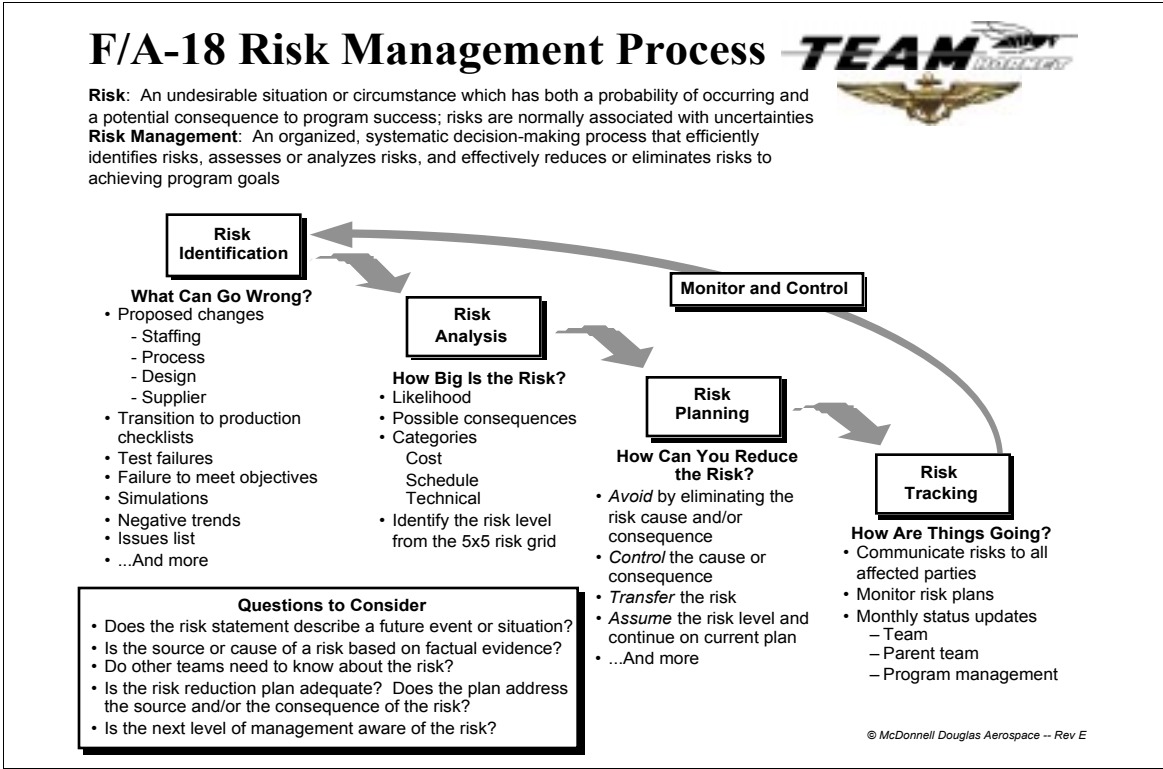


Figure 6: SAMPLE RISK MANAGEMENT PROCESS & ANALYSIS METHODOLOGY

SC - 2I RISK MANAGEMENT PROCESS

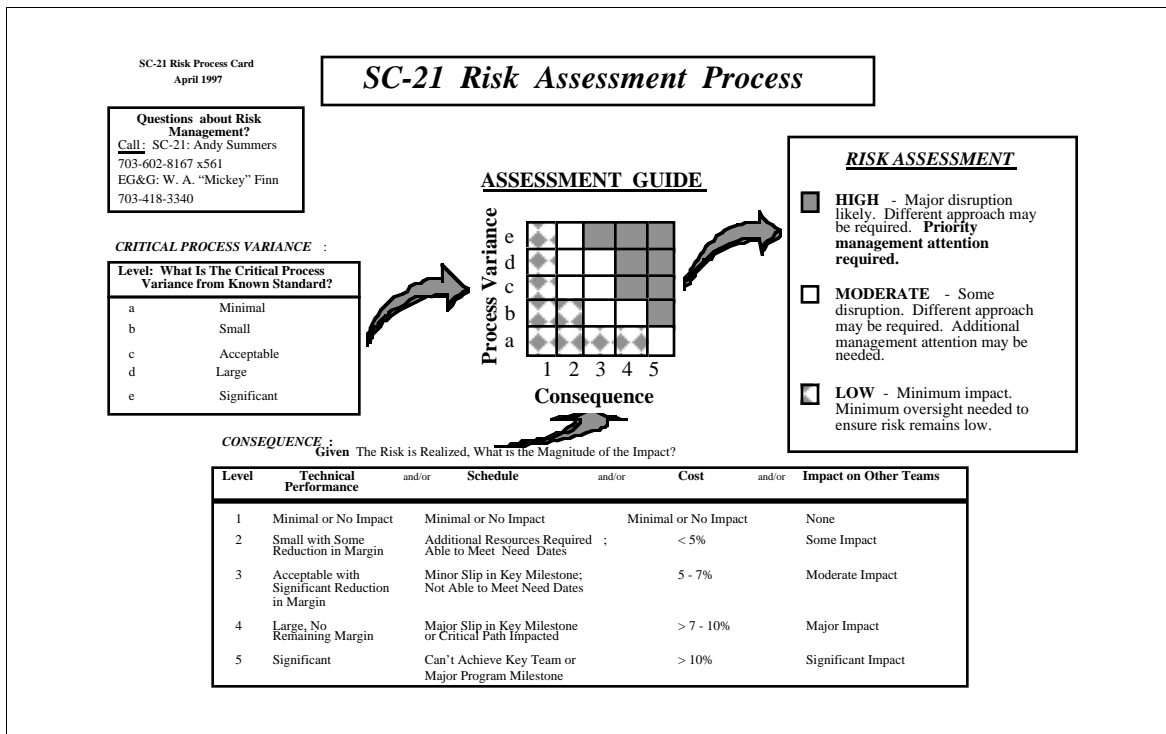
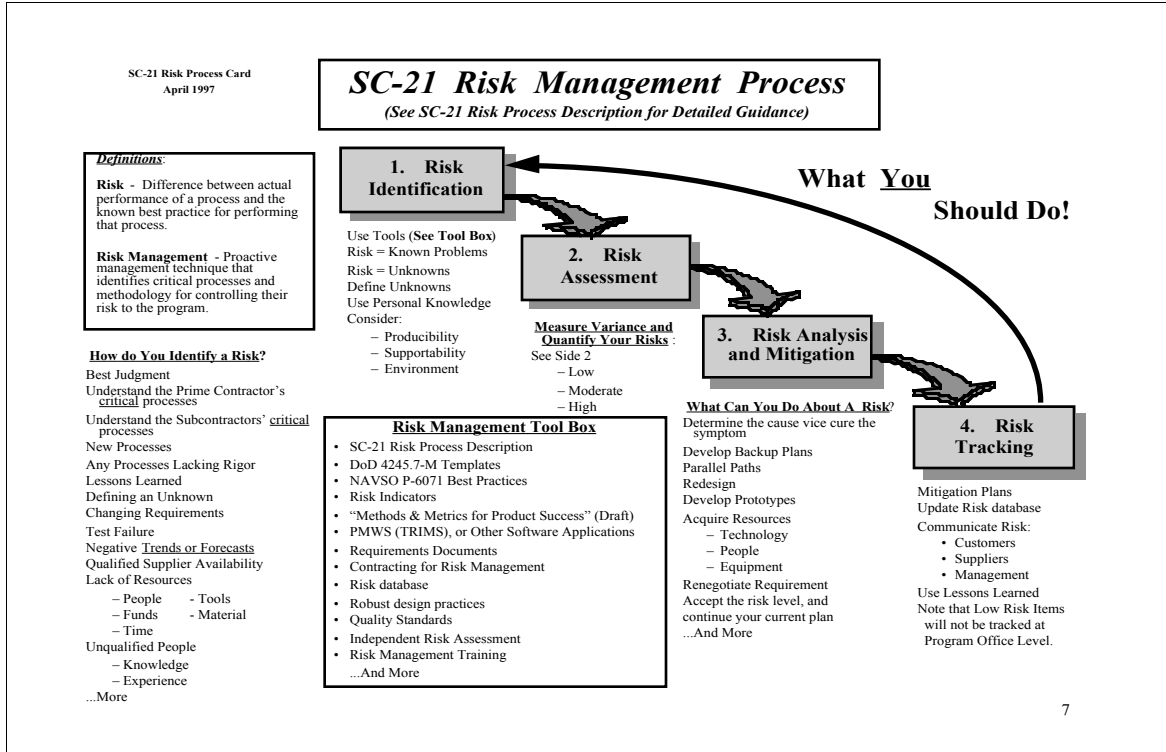


Figure 7: SAMPLE RISK MANAGEMENT PROCESS & ASSESSMENT METHODOLOGY

Section C: RISK MITIGATION REPORT FORMATS

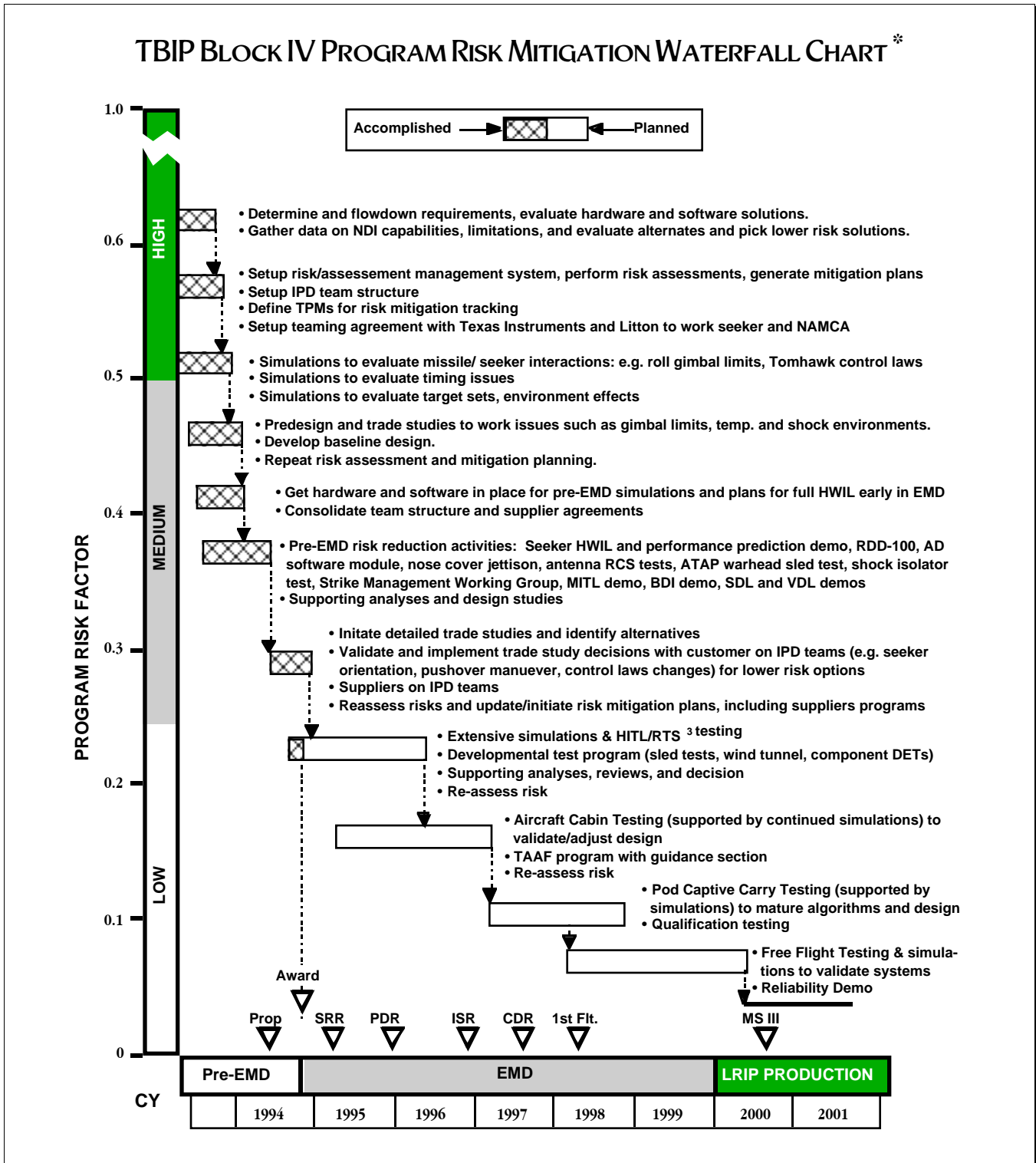


Figure 8: SAMPLE EVENT-DRIVEN RISK MITIGATION REPORT

* Developed by *HMSC* for the *Tomahawk Block IV Missile*

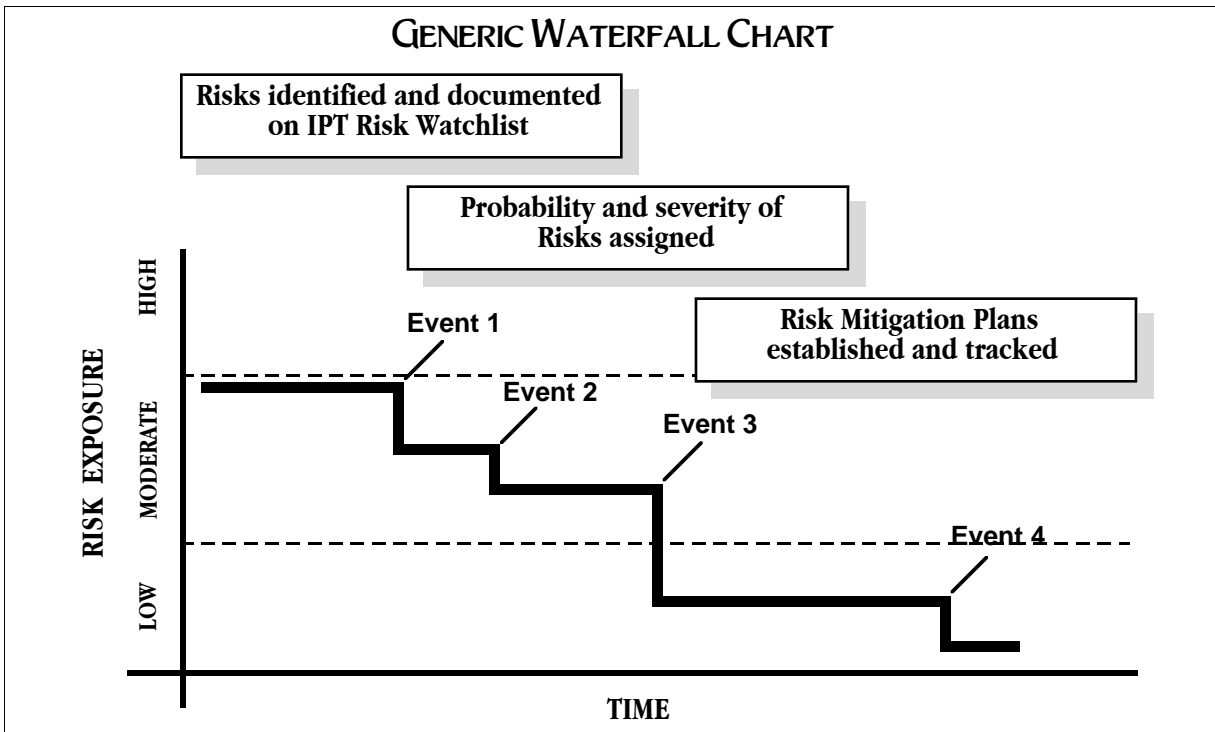


Figure 9: SAMPLE EVENT-DRIVEN RISK MITIGATION REPORT

Section D: REFERENCES & ORDERING INFORMATION

DoD/DoN PUBLICATIONS & SOFTWARE FOR RISK MANAGEMENT

DoD 4245.7-M TRANSITION FROM DEVELOPMENT TO PRODUCTION is available from:

Defense Technical Information Center
 8725 John J. Kingman Road
 Ft. Belvoir, VA 22060
 (703)767-8274 / DSN 427-8274

NAVSOP-607I BEST PRACTICES is available from:

Government Printing Office
 Superintendent of Documents
 P. O. Box 371954
 Pittsburgh, PA 15250-7954

Methods & Metrics for Product Success is available from:

Office of the Assistant Secretary of the Navy (RD&A) Acquisition & Business Management
 2211 South Clark Place
 Arlington, VA 22244-5104
 (703)602-2165 / DSN 332-2165

PROGRAM MANAGERS WORKSTATION/TECHNICAL RISK IDENTIFICATION & MITIGATION SYSTEM is available from:

Best Manufacturing Center of Excellence
 4321 Hartwick Road, Suite 308
 College Park, MD 20740
 1-800-789-4267

Figure 10: RISK MANAGEMENT SURVEY REFERENCES