RISK MANAGEMENT PLAN

TRICARE Online Engineering and Security Support

For The

Military Health System (MHS)

Resource Information Technology Program Office (RITPO)

Prepared By:

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1 Approach

Risk management is an integral component of Team MarLaw overall program management, and is proactive in nature to ensure that undesirable consequences are anticipated as early as possible in the life of the program. The functions of our risk management program are to:

- Identify potential sources of risk and identify risk drivers.
- Quantify risks, including both the probability of occurrence and seriousness of impact, and assess their impacts on cost (including life-cycle costs), schedule, and performance.
- Determine the sensitivity of these risks to program, product, and process assumptions, and the degree of correlation among the risks.
- Determine and evaluate alternative approaches to mitigate moderate and high risks.
- Ensure that risk is factored into decisions on selection of specification requirements and design and solution alternatives.
- Take action to avoid, control, assume, or transfer each risk, and adjust the management plan as appropriate.

The objective of our risk management approach is to ensure deliverables and performance that meet the customers needs on time and within budget, and achieve the proper balance between risk and reward.

Team MarLaw risk management involves five steps:

1. **Risk Planning** to decide how risk will be managed, including the specification of the risk management process and organizational responsibilities.

2. **Risk Identification** to recognize potential risks and their root causes as early as possible.

3. **Risk Assessment** to characterize and quantify risks which merit attention.

4. **Risk Analysis** to evaluate alternatives for handling the assessed risk (including "what if studies").

5. **Risk Handling** to deal with a risk by choosing a specific course of action.

The five steps in our risk management process are practiced iteratively, as shown in **Exhibit 1**, with a continual exchange of information with program management and engineering.

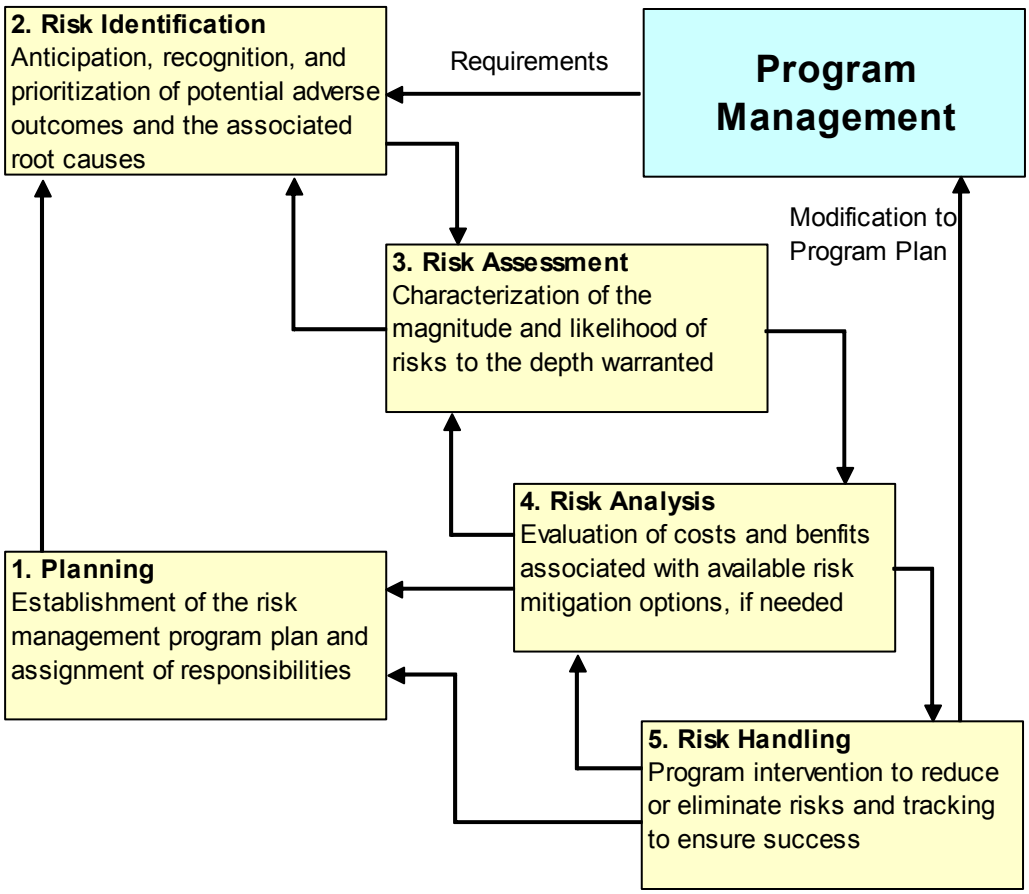


Exhibit 1: Team MarLaw Risk Management Process

2 Risk Management Plan

Our planning and control system supports planning, control, cost collection, funds allocation, risk management, status reporting, technical review, and vouchering. Our process and tools are based on techniques developed to provide programmatic support to NMIMC, TMI&S, TIMPO, NAVSEA, and NAVAIR. The methodology is network-based and supports development of detailed schedules that include measurable milestones for work progress tracking. The system includes Microsoft Project, and Excel to provide schedule analysis and support. Our proven methodology provides a statistical probability evaluation of the impact of risk on tasks. It should be stressed that the tailorable nature of the systems is its greatest value in terms of meeting program objectives in the most cost effective manner. The PM and his staff will evaluate the requirements to use various tools within the system to perform risk assessment. The complexity of the tasks and the importance of schedule/performance make it critical that risks be identified early and appropriate mitigation implemented. Another example of tailoring would be that Team MarLaw would not expect to use network based tools to assess the risk of a single system software update. The Program Manager will perform an assessment based on his experience and discussions with the RITPO and affected users. The remaining paragraphs discuss the depth of risk evaluations that will be performed, if deemed necessary. Team MarLaw's standard risk methodology is depicted in **Exhibit 2**.

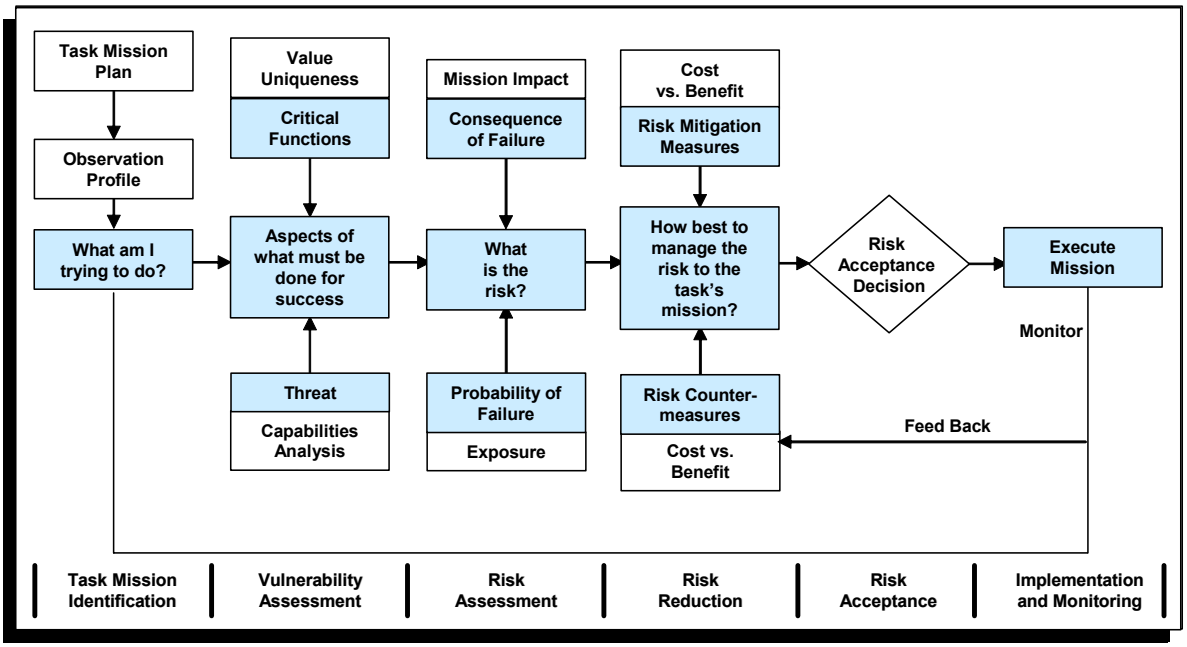


Exhibit 2: Standard Risk Evaluation Methodologies Apply to All Tasks

3 Risk Probability of Occurence Assessment

The risk assessment process begins by networking each task or project to identify all associated missions and subtasks.. This is accomplished by assigning expected predecessor and successor relationships for each work activity. Precedence logic is applied between the activities as the means to constrain the activity relationships within the expected work flow. The resulting network is baselined with the customer/technical personnel to ensure it replicates the program or process as it is intended to be performed. Then each activity in the network is evaluated based on the probability of its being completed within schedule and budget. This process necessarily begins with an understanding of the significance of each activity to the larger project to be accomplished. The process of assessing these probabilities is the process of risk evaluation. The risk evaluation process is initiated as a qualitative assessment of activity uncertainty that is later translated into quantitative data. The techniques employed range from those providing purely qualitative, adjectival results (e.g., low, medium, and high); to those using mathematical indeces to provide an indication of the level of risk.

These techniques used in risk evaluation are based on data bases developed from similar tasks, or from experience of technical experts. Our databases and experiences include projects with information technology, military healthcare, and naval aviation. Consultation with engineering experts is essential to ensure a properly networked program and to assign appropriate levels of effort and weighting factors to each activity. Subject area experts identify areas of risk, the sources of risk, and weight each potential risk area.

4 Risk Schedule and Cost Impact

Corresponding probabilistic distributions for each activity duration are developed based on weighting factors previously developed. These distributions are applied to create a risk schedule which is compared to the planned schedule. A comparison of finish date variances between the two schedules reveals the cumulative impact of risk to the task. As the risk for each activity is ascertained, it is qualified as either low, medium, or high with respect to the likelihood of problems occurring (probability of failure - POF) and the consequence of failure (COF). Having established the POF and COF on an activity basis, the cost and schedule repercussions are then evaluated similarly. The results are then compiled in a matrix format for further analysis.

When compiled in a matrix format, the probability of occurrence for technical failure, schedule delay, or cost overrun are collectively referred to as the probability of occurrence (Op). Similarly, the collective consequence of occurrence is referred to as Oc. These qualitative risk judgments may also be translated into quantifiable probabilities by determining appropriate risk ranges taking the form of probability density functions (PDFs). There are numerous methods used to convert qualitative judgment into PDFs. The most frequently used methods are the diagrammatic and direct method. The "probability encoding" process associated with the diagrammatic method involves selecting the shape of the PDF considered to most accurately reflect the cost and schedule parameters for each activity in question. The most commonly used statistical distributions are the uniform, normal, triangular, and beta. The direct method is to assign probabilities to a given range of values and then fit it to the correct PDF. Each risk area can then be mitigated by modifying/adjusting activities with appropriate resources (dollars, labor, time, equipment) until an acceptable level of specific activity risk or cumulative risk is achieved.

Using an earned-value approach, performance is quantified by relating the cost (hour and dollar actuals) through the spend plan and the schedule percent completed based upon semi-monthly reports. Milestones are selected from the network based on their criticality to accomplish the task and the measurability of progress at that point in time. Since milestones have an associated date, they automatically have a "time" value (e.g. 150 days from start of the effort). The cost value can be established based upon the cost associated with the person hours multiplied by the labor rate plus any cost expended for materials at that date. The technical/performance values assigned to a milestone can be expressed in terms of percent (%) completion of technical task/product/component (e.g., 35% completion of installation); completion of pre-selected quantifiable parameters identified for that specific milestone (e.g., equipment ordered & installation drawings complete); analytically estimated performance parameter values or confidence growth in attaining those parameters (e.g., throughput, memory, storage). Quality is quantified as a weighted number by program management (both Team MarLaw and RITPO) answering:

- Does the product meet the customer's needs?
- Does the product meet the customer's expectations?
- What is the product's accuracy, content, and reliability?
- Will the product/solution withstand the test of time (maintainability)?

Our risk analysis and management approach is depicted in Exhibit 3. The process begins during the initial team planning activities when risk is identified for each work breakdown structure element using the criteria shown. Red, amber, and green ratings are applied by the Team to each task and those determined to be red are immediately worked to identify risk reduction alternatives. The program control administrator will perform an independent assessment and disagreements will be resolved by the PM. Work effort remaining in the amber category, for which risk reduction alternatives have not been identified, will be managed on an exception basis to ensure success. As performance results are quantified in the Performance Measurement process, each amber risk area is given special analysis to determine progress/level of risk. Areas of work that show increases in risk and potential program impact are processed through Risk Mitigation to reduce program impact. This continuous process of Risk Identification, Performance Measurement, and Risk Mitigation ensures that risk is used as a performance parameter in the same sense as cost, schedule, and technical performance thereby helping assure program success.

5 Risk Mitigation

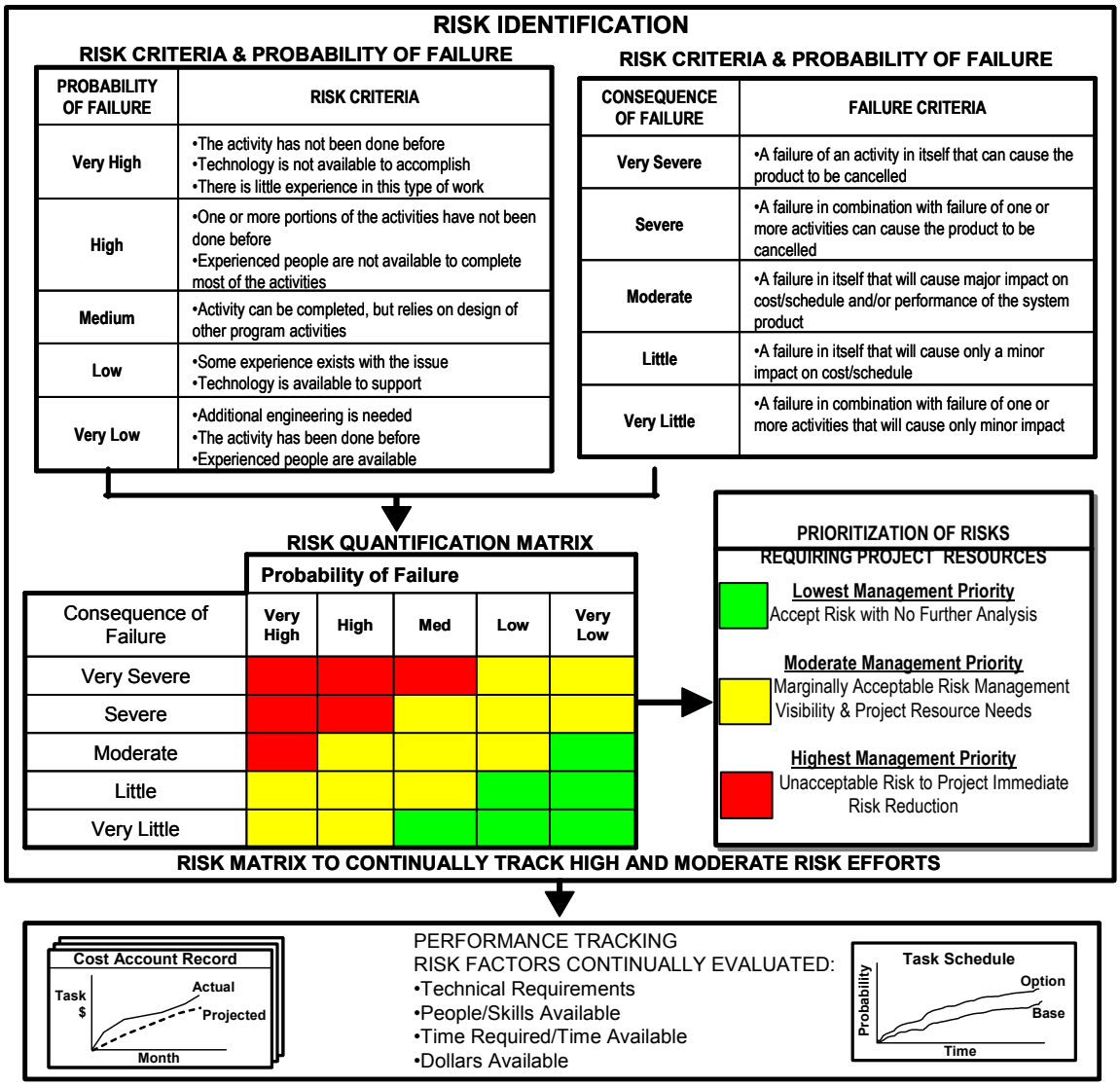


Exhibit 3: Our Risk Mitigation Process Focuses on Early Identification, Tracking, and Abatement of Risk Areas to Assure Quality Products Are Delivered on Time and within Budget

The risk mitigation process will be developed jointly between RITPO and Team MarLaw in the spirit of integrated development. The completed process will be fully coordinated with all the effected staff before submittal to the RITPO Risk Review and Evaluation Board.

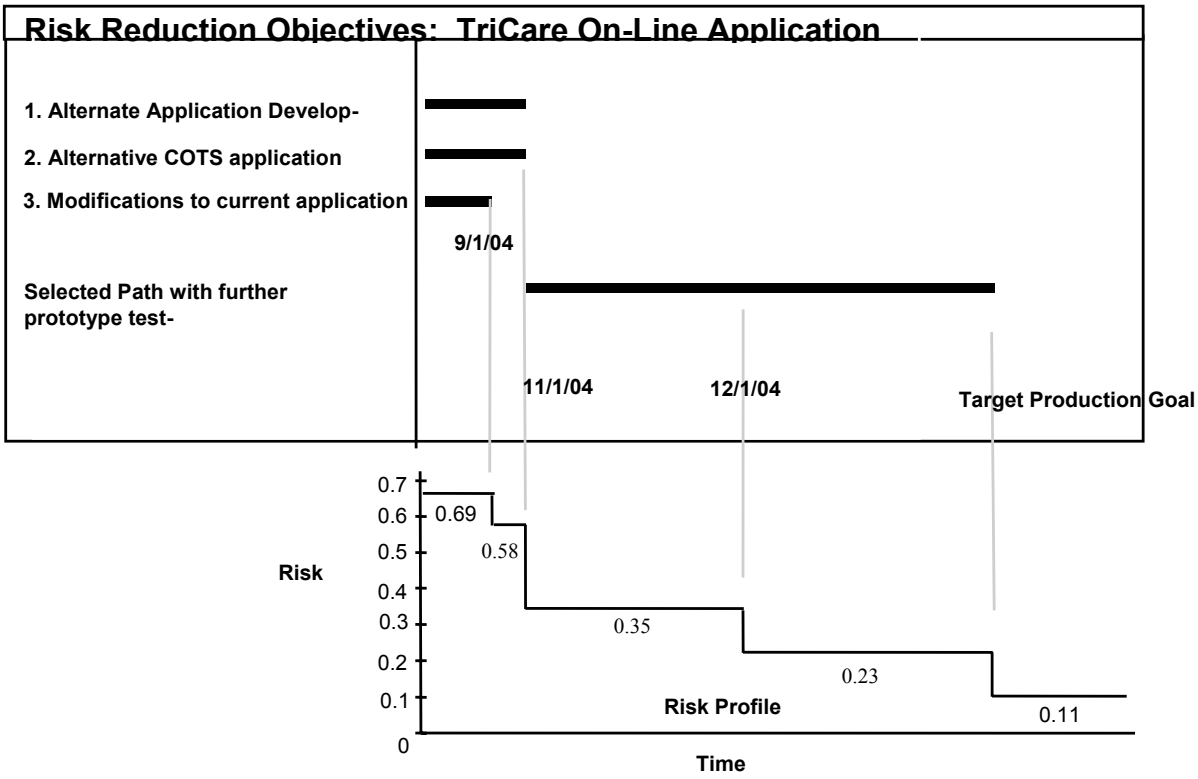
The format utilized by Team MarLaw will cover these areas:

- **Statement of the problem:** This will be based on the risk assessment and will indicate the source of the problem. That is, what are the risk drivers? What is the source of the difficulty or problem?
- **Solution Options:** This section will be based on an appropriate identification and investigation of the possible solution options. For high risks or difficult problems, these may be the result of a selected team effort.
- **Selected Approach:** A clear statement of which option (or options) was selected and why. This could include the results of a trade off study if appropriate. It will also include any additional description of that option necessary to make the selected approach clear.

- **Specific Actions:** This will be a chronological listing of specific actions planned to carry out the selected approach. They will be stated briefly but in enough detail to make clear their function and what they entail.
- **Schedule:** A simple Gantt chart which shows start and end dates for each action.
- **Risk Reduction Projection:** This may be shown as an attachment to the Gantt chart (see attached sample) or as a table. It should indicate the projected reduction of risk from the value noted above, as a function of time. Standard Team MarLaw risk assessment methodology will be used in estimating the reduction in risk value anticipated for each major action. Keep in mind that the objective of the risk management program is to reduce all risks to at least moderate. For those already assessed as moderate, it is to either reduce the risk to low or, at the least, show significant progress downward from the current value.
- **Estimated Cost:** A statement, by fiscal year, of the additional funds or other unprogrammed resources required to accomplish the plan. If no additional resources are required, it will be stated. If known or projected, the source(s) of these funds/resources will be indicated as specified by RITPO.
- **Risk Reduction Metrics (RRMs):** This will be a short description of the risk metric or metrics (maximum of three) that will be used to track progress in execution of the RMP on a monthly basis. It will include the following:
  1. Definition: A short description of each RRM selected. What they will measure? These metrics will be chosen to characterize progress in plan execution. Although they may be defined in terms of the risk drivers for this problem, they are not intended to measure the actual risk value which is determined separately using the risk assessment process.
  2. Unit of Measure: The units in which the RRM is stated.
  3. Assessment Method/Calculation: The instant (monthly) value of the RRM and how it will be measured.
  4. Projected Data Profile: The final required value, planned value and limit value at key dates or milestones. The limit is that value below (or above for a decreasing metric) which the measured value for a given month is cause for concern/investigation of problems with execution of the plan. The table below is an example of what may be used to specify this profile.

  Required (final) value: _____

Event/Milestone and date	Planned Value	Limit Value



Sample Gantt chart and risk reduction forecast