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Risk Management Best Practices From A Pre-Milestone B Acquisition Program

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ABSTRACT

The Joint Light Tactical Vehicle (JLTV) Family of Vehicles (FoV) is the central component of the Army's long-term Tactical Wheeled Vehicle (TWV) strategy. The program's objective is to balance critical weight and transportability restrictions within performance, protection, and payload requirements of the United States Army and Marine Corps.

One of the challenges faced by the JLTV program is the need to balance the "Iron Triangle" of performance, protection, and payload while managing the disparate requirements of the domestic services and international partners.

The JLTV team developed processes to manage the cost, performance, and schedule risks associated with each of the three contractors participating in the Technology Development phase. This paper will describe the risk management processes and tools developed on the JLTV program to manage and mitigate these contractor risks and extract those that could impact the entire program.

INTRODUCTION

The Joint Light Tactical Vehicle (JLTV) is the central component of the Army's long-term Tactical Wheeled Vehicle (TWV) strategy, satisfying long-term warfighter needs in a transportable and expeditionary platform. The program's objective is to balance critical weight and transportability restrictions within performance, protection, and payload requirements of the United States Army and Marine Corps. The program is currently in the Technology Development (TD) phase, with a Milestone B (MS B) decision expected in September 2011. Three contractors were selected to develop TD vehicles; each has a different vehicle architecture and design approach.

One of the challenges faced by the JLTV program is the need to balance the "Iron Triangle" of performance, protection, and payload while managing the disparate requirements of the domestic services and international partners. Unlike the HMMWV, which has experienced degradation of performance and reliability after being up-armored multiple times in reaction to emerging threats, the JLTV is being architected from the ground up to meet these threats while maintaining transportability, performance, and the capacity for future growth.

Tailoring of the Risk Process at Program Inception

At the inception of the TD phase of the JLTV program, three contractors were selected to participate and develop vehicles for testing and evaluation. An Assistant Product Manager (APM) and appropriate systems engineering and contracting staff were assigned to work with each contractor. The Product Manager (PM) then followed the traditional Defense Acquisition University (DAU)/International Council on Systems Engineering (INCOSE) risk management startup process. He assigned a risk manager, committed resources to the risk management program, assigned risk leads within each Integrated Product Team (IPT) and APM team, and selected Microsoft Excel as the risk management tool for JLTV.

The risk manager led a team that developed the Risk Management Plan (RMP) and tailored it to the specific requirements of the JLTV program. The process, procedures, roles and responsibilities, and metrics that were retained were relatively common throughout programs of this type (See Table 1). However, three novel practices were adopted for JLTV: an early focus on risk, the creation of a Risk Working Group (RWG), and the establishment of procedures to distill contractor-specific risks into overarching program risks.

Early Risk Assessment and *Riskapalooza*

The source selection process for JLTV began in June 2008 and completed in October 2008. In August 2008, the risk manager and IPT/APM risk leads began to gather risks and populate the risk tracking tool. These early activities gave the program an established set of risks and allowed the IPTs and APM teams to begin establishing a regular cadence for scrutinizing program risks. The contract award was protested in November 2008; this delayed the program's start of work (SOW) until March 2009.

To increase the PM's confidence that sufficient initial risks had been identified, the risk manager took advantage of the protest period and held *Riskapalooza*, an intensive week-long risk meeting, in January 2009. Because this event was held prior to the SOW, the team used a Risk Management Assessment Structure (RMAS) as a surrogate Work Breakdown Structure (WBS). Each day, one IPT was the focus of the meeting, and its risk lead and representatives presented risks associated with its sections of the RMAS. The program's initial risk register was populated based on the discussions held during this event. Risk descriptions, initial scoring, and subject-matter expert (SME) assignments were determined at this event.

Riskapalooza was useful because it enabled the JLTV team to begin the TD phase of the program with a set of risks clearly identified for monitoring; it also established a "risk mindset" and encouraged individual members

of the team to consider risks and their mitigation as part of their daily duties.

JLTV Program Risk Procedure

The Risk Working Group

During *Riskapalooza* and throughout the balance of the program's TD phase, the team used the following process to identify, assess, mitigate, and monitor risks (See Figure 1).

The risk manager and IPT leads led meetings with the project group to identify risks. During these meetings, each WBS (or RMAS) element was reviewed to determine if performance, cost, or schedule risks were associated with it. A Risk Information Sheet was then completed for each identified risk candidate to allow the risk register to be populated.

Each IPT lead was responsible for identifying the magnitude of each risk candidate. A risk assessment matrix was furnished in the program's RMP to facilitate the consistent scoring of risks for both likelihood and severity.

The risk manager reviewed each candidate risk to ensure that adequate detail was included, that the item was a risk and not an issue (a risk that has been realized), and that the proposed likelihood and consequence ratings were reasonable. If gaps were identified, the risk candidate was referred back to the risk lead for clarification. If the risk already had been realized, this was noted in the "closure rationale" and the risk was closed. Once this review was complete, the IPT risk lead was tasked with entering the risk into the risk register.

The risk manager periodically approved the new risks added to the risk register tool; this triggered a notification to be sent to each RWG member. The RWG served as a screening authority for the RAB and met weekly to review risks. This cadence was later modified to biweekly to allow IPTs to meet on the alternate week to conduct their risk activities.

At the biweekly RWG meetings, its members assess the presented material and subsequently modified, approved, or rejected the candidate risks. Some approved risks were deemed worthy of detailed analysis; each risk lead was expected to complete this action before the formal review of the risk's mitigation plan.

Once the RWG approved a risk, a notification was sent to the IPT risk lead requesting the preparation of a handling/mitigation plan. The lead was given the authority to determine if a rigorous plan was required; development of a detailed risk handling plan consumes significant program resources and it was important to balance the benefits of mitigation against the overall program workload for each IPT.

If a risk was deemed worthy of an in-depth mitigation plan, the IPT risk lead collaborated with appropriate SMEs to develop the plan and enter it into the risk register.

Once the plan was entered into the register, the risk manager verified the content was complete and added it to the RWG's review agenda. The RWG then considered the plan at its next meeting and either requested more information or approved the plan.

Each IPT was scheduled for a fifteen-minute period during the meeting to present its updates to the RWG. This relatively brief period forced the team to stay on cadence

and avoid deep-dives (which were outside the scope and intent of the RWG meetings).

The Risk Advisory Board

Once a risk had passed completely through the RWG process, it was screened for elevation to the Risk Advisory Board (RAB). Yellow and red risks (as specified by the program RMP) were submitted to the RAB, which met every four to six weeks. The RAB reviewed and assessed these risks and modified, accepted, or rejected each candidate and its associated mitigation plan; it occasionally re-assigned risks to new IPT leads based on workload and other considerations.

Risks that were elevated to the RAB were then monitored at subsequent RWG and RAB meetings. Trigger points and metrics established in each mitigation plan were used to drive these reviews and determined which governing body assessed changes in its status. If risk levels were not decreasing according to the proposed mitigation glidepaths, the mitigation plans were reviewed, reassessed, and modified or discarded/replaced as necessary. The RAB was empowered to allocate staff resources, if necessary, to resolve these escalated risk issues.

Once a risk's rating had been successfully reduced or it was no longer relevant (for example, it only applied to certain program milestones), the RAB could retire the risk and remove it from the normal register review process.

Contractor Risk Procedure

The JLTV contract specified that each contractor was required to have a formal risk process and report risks to the program in a specified format. These risk reports were regularly submitted to the program's data repository and were reviewed by each APM team.

APM systems engineers filtered the contractor risk reports and met regularly with the risk manager to identify those risks which were likely to impact the program. A unified document format was developed to streamline presentation to the RWG. During their independent filtering, the APM engineers considered the risk rating provided by the contractors and modified the likelihood and severity (if necessary) to reflect their assessment. If they believed that the rating required alteration, this information was communicated to the risk manager and the contractor.

Risks that were identified by the majority of the contractors were submitted to the program risk register for review, inclusion, and monitoring through the regular RWG and RAB processes. Those that were isolated to one contractor were managed within that specific APM team as part of its normal interaction with its assigned contractor.

Realized Benefits

The risk management process used during the Technology Demonstration phase of the JLTV program had several benefits.

First, the early focus on risk (and the *Riskapalooza* event) enabled the program team to have a robust list of program risks identified before SOW. This provided individual APM teams with a solid appreciation of risk and enabled them to ask pointed, relevant questions at the Start of Work (SOW), Preliminary Design Review

(PDR), Critical Design Review (CDR), and Test Readiness Review (TRR) meetings.

Second, the development of program risks enabled the APM teams to drive discussions with each contractor by asking leading questions derived from carefully-sanitized risks surfaced by the other contractors. This allowed the teams to determine if a contractor had simply overlooked the risk or was truly immune to it due to specific attributes of that contractor's effort (for example, its vehicle's architecture and design, its internal practices, or other some other factor).

Finally, the risk process has had significant impact on the program's preparations for the Engineering and Manufacturing Development (EMD) phase. It is driving the development of the EMD Statement of Work and is impacting ongoing reviews of the EMD Capability Development Document (CDD) and Purchase Description (PD). These regular requirements reviews capture recent TD lessons learned and current risks that will also apply to the next contracting phase.

The key enabler to the robust risk process enjoyed by the JLTV program was the PM's placement of risk as a topic on his Sync meeting. At this weekly meeting, IPT leads were scheduled to present relevant topics to maintain the team's situational awareness. The risk manager was tasked with giving a risk assessment at each of these meetings. The high level of visibility of the risk process drove the IPT leads to treat risk management as a critical, ongoing task rather than something to be completed, bookshelved, and ignored as early as possible. This regular management review maintained the vitality of the risk process.

REFERENCES

[1] Risk Management Guide for DOD Acquisition, http://www.acq.osd.mil/sse/docs/2006RMGuide4Aug06finalversion.pdf.

[2] DOD Directive 5000.1 Defense Acquisition.

[3] DOD Regulation 5000.2R Mandatory Procedures for Major Defense Acquisition Programs and Major Automated Information System Acquisition Programs

[4] Risk Management Plan, version 4, Joint Light Tactical Vehicle Program

Appendix

Table 1: Roles/Responsibilities:

The following table provides a brief summary of the responsibilities for each of the risk roles in the program

Role	Responsibility
Product Manager / Deputy Product Manager	• Decides how major resources are spent for risk handling/mitigation across the program • Reports high level risks to Program Executive Office Leadership • Review/approve all red & high yellow level risk handling/mitigation plans for the program • Chairs the Risk Advisory Board (RAB) • Reviews and approves Risk Management Plan
Risk Manager	• Chair the Risk Review Group (RWG) • Facilitate RAB meeting • Reminds Risk Review Board to meet and update risks prior to PEO Reviews • Maintains the Risk Management Plan • Monitor compliance to risk management process & ensure due diligence • Coordinate & monitor risk activities across the IPTs & program • Validates initial risk assessment values • Assigns risk to the appropriate IPT for review • Reviews mitigation timing with IPT Risk Leads • Facilitate activities for identification & assessment of risks for next phase of the program • Initiate, develop and oversee risk management training • Develop and track risk management metrics
Risk Advisory Board	• Review red and yellow risks elevated by the RWG • Review risk levels and risk trends and projections • Resolve conflicts • Confirms closeout recommendations from RWG • Review mitigation plans, fallback positions,& resource decisions for approval • Meet at least monthly to review risks
Risk Working Group	• Review initial program risks. Includes Risks from the Work Breakdown Structure (WBS) or the Next Phase Initial Risk Process • Conduct ongoing reviews of newly opened risks or changed risks • Resolve conflicts and consolidate similar risks • Review approved risks & determine if changes are necessary • Review mitigation plans, and confirm staffing resources for action plan • Close and archive risks • Review risks for closure approval • Meet at least once every 2 weeks • Approve initial risks for next phase of the program

Role	Responsibility
IPT Risk Leads	• Gather initial risks from SMEs based on WBS or from the close risk register of the previous program phase. • Gather new risks regularly from the SMEs & assign SMEs if applicable • Review and define the risks and mitigation plans with the SME • Review all risks for IPT approval and determine if changes are necessary • Present their IPT risk registers to the RWG and review the risks & mitigation plans • Maintain their IPT risks in the Risk Registers • Conduct detailed review of open risks for their IPT • Conduct risk review meetings for IPT at least once every 2 weeks, & ensure due diligence • Assist Risk Manager in collecting, reviewing, & presenting initial risks for next phase of the program
Subject Matter Expert (SME)	• Identify & report new risks to the Risk Manager & Risk IPT Lead via Risk Information Form • Monitor approved risks for changes in rating and/or definition • Assign action owners for mitigation steps • Support IPT Risk coordinator during RWG meetings • Analyze new risks & develop suggested mitigation strategies • Coordinate & report the status of mitigation activities approved by RAB • Present risks to the IPT Risk Coordinator • Identified by peers & program as expert in the area of responsibility for the risk • Helps set the first rating of the risk
JLTV Member	• Identify new risks • Analyze new risks and develop mitigation strategies
APM Risk Leads	• Identify new risks • Attend & support the contractors risk meetings to assist in their risk management process • Support risk assessment and appropriateness for JLTV program • Assist in comparison of contractors risks for program risk trends • Identify and assess program risks based on risk commonality between contractors • Provide support to meetings and SME as needed

Figure 1: Risk Management Process Workflow for Current Program Phase