

Systems Engineering Process Office **COLLABORATIONS**

Inside Knowledge for MITRE's Systems Engineering Community

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How to Do Risk Management as a Group 5 Insights from a Risk Management Veteran

By Joe Duquette

Why can it be so difficult to do risk management as a group? Is it the people that make it difficult? Paradoxically, the secret to success is in the people themselves, from the top of the organization to the bottom. Without the proper involvement of the organization's



people, no “magic process” or “magic tool” will be able to offer success. The magic—if there is any magic in a risk management activity—is in the *people*.

In my years with the government and in industry, I've worked with many groups and organizations that attempted risk management on a collaborative basis. Some were successful; some weren't. When I started looking at the successful groups, I discovered that, in most cases, their senior leadership initiated risk management. Then, I noticed that everyone in the organization had played a role in the success. In the end, I was able to identify five ways to achieve successful risk management in groups and organizations. Here they are:

Get senior leader commitment.

The leader has the most to gain from a good risk management program, and the most to lose if risks aren't identified and managed. Further, most successful risk

management activities are those in which the senior leader has a personal commitment and hands-on engagement. In fact, we have seen this to be the case for all

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our customers. The opposite situation is also true. If the senior leader is not personally involved, the result is a failed or ineffective risk management program. Commitment by the senior leader is the most essential element for success.

Involve the right participants (stakeholders).

Another element for success is getting the right participants. If risk management is considered an “additional duty” and assigned to a single individual, then the result is usually disappointing. We have discovered that the most effective risk management programs have been those that involved a multi-disciplinary group. This includes the engineering, business, support elements, user, contractor, and other product and service providers of a program. The perspectives of the various stakeholders provide a broader and more complete view of the risks, and generally, a more effective management of organizational risks.

This Issue of Collaborations

For the past two years, the collaborative efforts of MITRE's Systems Engineering Process Office (SEPO) and Center for Acquisition and Systems Analysis (CASA) have generated several disciplined systems engineering processes that are readily tailorable to an organization's environment and objectives. This issue discusses Program Risk Management as a collaborative process that should be integrated into the daily management of a program, and highlights the supporting risk management tools and resources available in MITRE.

Integrate risk management.

When there's a combination of leadership commitment and stakeholder participation, the organization begins to integrate risk management into its own daily management and produce a positive change in the way the organization does business. A culture of risk management begins to form. Risk management is no longer viewed as an “additional duty” or another “bolt on” process. Members of the organization realize that risk management doesn't create extra work; instead, it uses the work done in the normal course of managing the organization.

For example, risk assessment/review meetings become larger than the act of identifying and analyzing risks. These meetings become a forum at which the

CONTINUED ON PAGE 4



RiskNav®: A Systems Engineering Tool for Collaborative Risk Management

By Charlene McMahon, CASA

No *tool* can manage risks for you. But there are tools that can help you manage your risks. RiskNav® is a “prototype” tool developed by MITRE to facilitate the risk *process* and help program managers manage their risk space.

You can’t manage your risk space if you don’t know what it is. RiskNav lets you collect, analyze, prioritize, monitor, and visualize risk information collaboratively. It was developed to provide features missing in commercially available tools: mathematical rigor in prioritization/ranking of risks, and the ability to view the consequence, probability, and status of managing each risk, in a single location.

The developers of RiskNav wanted to move risk identification beyond water cooler discussions, sticky notes, brainstormed lists, and management plans on shelves. They recognized that risk identification has to be more than simply preparing for program reviews. Instead, it needs to be integrated into routine management practices (and not be another burden). The goal for RiskNav is to give managers, technical leaders, contractors, and staff an opportunity to identify tomorrow’s problems before they become a crisis. It provides current risk information in one single, accessible location—not with an individual person or in a dated PowerPoint™ presentation routed through the organization—but in a resource available at the desktop of every user. Because a risk in one program element can affect the ability of another program element to achieve success, having a forum for identifying, collecting and taking such risks is imperative to the efficiency and success of the overall program.

RiskNav is a tool that requires tailoring to a program to ensure it addresses a program’s unique needs. This tailoring of RiskNav has contributed to its successful implementation and use on significant CHS, CAASD, and CAF programs.

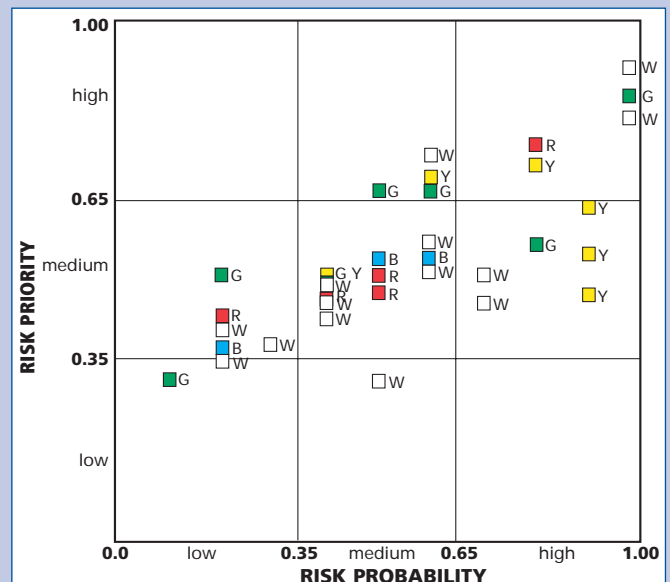
Regardless of whether or not you use a tool, you have a choice: either manage your risks, or they will manage you.

RiskNav was created by, and is being managed by, a collaboration of three MITRE centers. Members of the RiskNav team are from W800, D500, and G068. For more information, contact: Charlene McMahon at cmcmahon@mitre.org. Or visit: http://sepo.mitre.org/kits/risk/tools/TOOL_RiskNav.html

Principal Benefits of RiskNav

- ◆ Lets all stakeholders visualize risk information—priority, probability, and status of management action—for all risks on one single web-enabled graphic available at each person’s desk.
- ◆ Fosters communication and collaboration among team members. (Is not a single-user system.)
- ◆ Enables management oversight. Managers can quickly review program risks and mitigation status, and allocate resources accordingly.
- ◆ Provides a structure for analysis—applies common definitions of impact ratings for all program elements.
- ◆ Enables users to filter through risk information.
- ◆ Includes timeframe information. The prioritization schema takes timeframe into consideration (and lets you know how much time you have to react to a risk).
- ◆ Based on sound risk management theory.

How RiskNav Helps You Visualize Your Risk Environment



RiskNav’s Active Interface: Data points represent risks, and the color of a box indicates the status of the mitigation action (White: no plan; Red: plan not working; Yellow: may not work; Green: most likely successful; Blue: completed successfully; Black: actions will be started at a later date). You can select data points to see the analysis, who is working the management actions, the status, and other information.

Is Your Organization Ready to Implement Process Improvement?

As a Leader:

- Are you dissatisfied with current state?
- Are you willing to publicly support process improvement?
- Are you willing to commit resources to improvement?
- Do you have the power and resources for improvement?
- Are you willing to review efforts to ensure that progress is made?
- Are you aware of the personal, organizational, and political cost of change?

Culture

- Does the teamwork necessary for improvement exist in your organization?
- Do you want to change the way goals, tasks, and role assignments are made?

Resistance

- Does your workforce see a need for improvement?
- Do your managers see a need for improvement?
- Are there communication problems between the workforce and managers?
- Do you think the cost of improvement in time and personnel is reasonable?
- Is your workforce confident your managers will support improvement?
- Do you think the impact of the effort on budget and schedule is reasonable?
- Does your organization have a history of success in making changes?
- Does your workforce trust you and your managers?
- Does your organization trust the facilitators and think they're effective?
- Do your managers think any past performance in improvement will help?

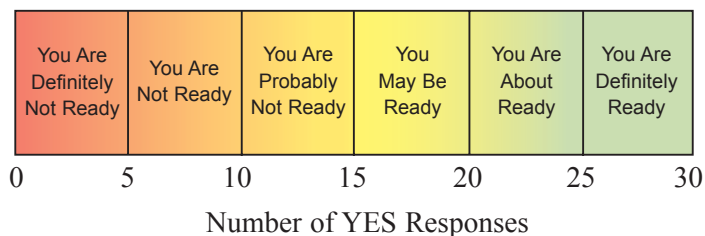
Organizational Issues

- Is the stress from daily workload low enough to manage process change?
- Are there clear lines of responsibility and authority in your organization?
- Do your managers get results rather than protect their turf?
- Do you encourage your workforce to take reasonable risks?
- Are there negative consequences for not supporting changes?
- Do you reward the workforce for supporting changes?
- Does your organization act to implement new strategic direction?
- Does decision making within your IPTs involve true consensus?
- Do your mission goals have priority over individual goals?

Synergy

- Do your workforce groups communicate with few misunderstandings?
- Do your managers create an open and collaborative atmosphere?
- Do your IPTs generate creative ways to reach consensus on alternatives?

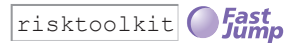
Your YES answers indicate your organization's readiness to implement process improvement:



Successful Process Improvement Requires the Personal Commitment of the Senior Leader.

The Risk List:

Explore the Possibilities at



If you're relatively new to risk management, the risk taxonomy in the SEPO Risk Toolkit is an excellent place to discover common risks in systems development and acquisition. In the taxonomy, you can find risks you never considered—all organized in a matrix according to role (who needs to worry about it) and program phase (when they need to worry about it). Links in the matrix lead to the actual risks (what they, or you, need to worry about).

After you open the toolkit, the link to taxonomies is in the right-hand column, under "Tools and Techniques." This takes you to a page which gives an overview of risk taxonomies. In the text, the link "consolidated risk taxonomies" takes you to the role-vs.-phase matrix. When you click on one of the 75 cells in the matrix, you'll see the types of possible risks for that group of people at that phase of the program—for example, categories such as cost, schedule, and testing. Then, if you click on "cost," for example, you'll get a list of possible risks involving cost.

On the other hand, if you just want to see the entire list of risks from "acquisition" through "training," click on the link "risk areas" in the text on the overview page. Jennifer Anderson, who built the risk toolkit, compiled this list of risks from many sources—MITRE, government, and industry. You can view the bibliography by selecting the link "risk taxonomies" in the text on the overview page. Then, you can view source documents such as the Navy's *Top Eleven Ways to Manage Risk* and the Air Force's *Pocket Guide to USAF Operational Risk Management*.

organization's teams can synchronize their efforts on the overall organization's activities. They establish a common view and understanding of the organization's planning horizon. This proactive approach to managing the program results in better communication, more coordination, and stronger goal orientation.

Meet the needs. Maintain integrity.

Risk management must be tailored to meet the needs of all the organizational elements and still maintain the integrity of an organization standard. The risk management activity has to be integrated into the organization's business model. If the need for flexibility is not recognized early, then a large segment of the organization may end up implementing risk management inappropriately. This will cause frustration and may create "push back" that can have serious impacts on the implementation. Bottom line: "one

size fits all" is not an appropriate paradigm for implementing risk management in a multi-product organization.

Integrate the tool into the process.

Make the tool a part of your overall process. We found that when a risk management activity begins, there is a lot of focus on the risk management tool, with only some attention given to the process. To shift this emphasis, risk management training must focus on how the tool will fit into the process. The training must emphasize that the people exercising the process have the answers, and that the tool provides a place to house and use the information that the people possess.

This will offer a big payoff during the initial risk assessments.

Also related to tools, risk management teams need to understand when and how the tool fits into the process and be able to practice good process discipline. In addition, the organization's risk management teams should use the tool as an enabler. It is likely that at the initial assessment meetings, teams will decide to not use a tool at all. As the teams form their risk statements, the tool will be brought on line to perform the analysis and prioritization needed when developing the mitigation strategies and management actions.

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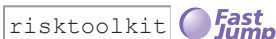
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Opportunity: The Other Side of Risk

In the systems-acquisition community, it's easy to get overcome by "risk paranoia" and weighed down by "risk overload"—to the point where we get so focused on risk avoidance that we ignore opportunities to realize big payoffs from small risks. If we're willing to accept and control some risks—not eliminate all risks—then we're in a position to enhance our sponsors' acquisition of timely, cost-effective systems.

Your Risk Management Toolkit:

A SEPO resource for process, tools, training, and lessons learned



The first page of the toolkit gives you a picture of the assets available and an overview of a seven-step risk management process. A substantial amount of information is already available, and more is being added. You're invited to contribute to the kit, especially if you have a lesson learned or a suggestion for improvement.

Portions of the toolkit have been incorporated into an Operational Risk Management web site, <https://escen.mitre.org/ORM>, that serves MITRE and the Air Force's Electronic Systems Center.

