Risk Identification and Assessment

By Sam Anderson, PMP, CSSBB

Projects have risks. While this may be a simple (and obvious) statement, one of the most difficult activities in project management is determining what those risks are, and how they should be prioritized. The first step in developing a sound Risk Management Plan is to identify risks and determine their potential impact on a project. The purpose of this paper is to investigate why this activity is so difficult, and to suggest a systematic approach to risk identification and assessment.

As a project manager, your responsibility is to achieve project success. While this success may be defined only by the end result of the project, the process of project execution will also have risk, and this risk which may well impact the end result. Furthermore, in non-projecticized environments, your project must not negatively impact the primary purpose of the organization. Your first goal is to assure that flawed project execution does not become a factor in the project’s end result.

Initial Actions
Let’s say that you are assigned as Project Manager early in a project, soon after the Project Charter has been written. If a Project Charter has not been written – make certain that you do so. Failure to use a defined and proven process immediately increases risk! You have started your team, have representatives from the critical functions, and have a good definition of scope, time, and cost. Your first inclination is to get this team together and to ask them to brainstorm a list of risks. This approach often does not work too well. You have asked a question that is too large, and your team members may apprehensive about being perceived negatively. The risks that are identified with this approach are usually either very unlikely to occur, or only involve issues for which the solution is easy. A better approach is to break the question into smaller components, followed by team discussion and training on what these components of risk are.

Risk Identification
Any project can be viewed from multiple perspectives, and in fact it must be to fully capture as many risk factors as possible. Normally, a project team is cross functional, with representatives from different stakeholder groups. This is preferred, as the team members will obviously hold different perspectives. For instance, a team developed to acquire capital equipment in a manufacturing environment might include operations, design, marketing, maintenance, customer service, accounting, and purchasing personnel. Each will bring their unique perspective, and may also have important experience from prior projects.

One way to “deconstruct” a project is to consider each element of the Iron Triangle (scope, time, and cost) separately. Some of the questions which could be asked are:

Scope: What are the risks associated with the project result? Will it achieve the goals established in the scope statement? Customer expectations? Technological issues or unproven technology?

Time: What are the risks associated with the project schedule? Is sufficient time available from critical...
Cost: What are the risks associated with project costs? Will consistent processes for quoting, selecting, and ordering purchased items and contract work be followed? Is a change control process in place? What communication and control mechanisms are in place?

Further divisions of a project can be accomplished by determining which activities are to be accomplished internally and which are to be achieved externally. For the purposes of this paper, internal activities are those in which the labor and resources are directly connected to the organization. External activities are those which must be accomplished using labor and resources from another company. In either case, the communication system must be capable, however, those systems may be different. External communications must have a more formalized structure, and may require the involvement of Purchasing.

Safety concerns are significant risk factors in many types of project. Particularly in the middle of project execution, when everything is going as fast as possible, we frequently lose sight of basic Safety principles. It is very easy to get caught up in the heat of the action and forget to keep a constant lookout for unsafe conditions or practices. However, taking the time to consider Safety concerns, both in project execution and in project result, is essential.

Risks associated with Quality must also be considered. Are the project expectations and specifications known, communicated, and understood? One element of Quality in project execution is whether the normal and approved methods for initiating action are utilized. On larger complex projects, the Project Manager will have situations arise that require immediate action, often involving a commitment of resources. This action must be taken quickly, and there may be insufficient time for normal procedures. How frequently this happens is an indicator of how well the project was planned. Quality issues associated with the project result will not be covered in depth in this paper. A significant amount of literature is available on this subject. However, if the team has an extraordinary concern about Quality, it is appropriate to build the project plan with extra safeguards.

Another tool available to determine risk factors is the history of past projects. This history may be available in project wrap-ups, but it might also be necessary to poll the more experienced team members for their knowledge.

Finally, in many environments we must determine what impact the project has on ongoing operations. Does the project require resources critical to the business? Will the implementation require a shutdown? As a corollary issue, is there any way that the project could cause a “customer visible” issue?

Now that the project has been “deconstructed”, and the team understands the different elements of the project, it is time to brainstorm risk factors. This brainstorming needs to follow normal team building practices, in which it is clear that participation and involvement are recognized, and will not be punished.

**Risk Assessment**

Failure Mode and Effects Analysis (FMEA) is a technique developed to assess risks and provide a comparative factor to rank them. We will not get into all of the particulars of FMEA, as much is available in current Quality literature. For the purpose of project risk assessment, a shortened version can be used that documents an estimated index number for the probability of a risk occurring, and the severity of the impact in the event that the risk does occur. The product of these two numbers will provide a means of ranking risk factors.

The mathematical result of FMEA is a sound ranking mechanism. However, experience and judgment also need to be applied. Generally, there are a few issues which, if they occur, are showstoppers. The Project Manager must have the authority to increase the “weight” of a given risk factor accordingly. Safety concerns in a construction project, for instance, must be handled as a special case. The probability of occurrence may be considered low; however, the impact of a catastrophic accident is simply unacceptable.

**Team Issues**

One of the greatest difficulties in completing a risk assessment is that you, and your team, can fall into a “black hole.” This is when all that you see are risks, and you begin to believe that the project is impossible. In addition, it is easy to fall into analysis paralysis, in which you want to identify every possible risk, the possible impact, and all possible resolutions. It can be discouraging. The first thing to do is to recognize that you will not identify every possible risk. The intent here is to identify as many as possible, and build plans for those risks that have the greatest impact on the success of the project. Your goal is to avoid the big problems, have contingency plans in place for those that do occur, and put yourself in a position from which you can manage those unforeseen risks that will...
arise. Truly high-performance teams, with results-oriented team members, will seldom have difficulty accomplishing a realistic risk assessment, even under time constraints.

**Cultural Issues**

Most projects start with great optimism and attention. Generally, the stakeholders are not particularly interested in considering risk at this point in time. Some of the participants will perceive risk assessment as negativity, and others will see any mention of risk as a failure to be perpetually positive. While a positive outlook on the project, both in result and execution, is essential, it must not exclude risk assessment. Some participants may be practicing what can best be described as “survivor game show” tactics, in which they will use any and all situations to advance themselves. The failure, or even the perceived failure, of your project is of no concern to this type of player. Personal advancement is the only concern of these players, and their advancement justifies any sort of behavior. Communicating a list of risks is simply giving these people ammunition, and must be done with caution.

In the best of worlds, you will have a mature and knowledgeable management, a capable and committed project team, and an understanding and performance-based organization. Management will support your efforts, particularly when you have defined actions necessary to avoid or mitigate risk. These actions are not always clearly justified, and are usually based upon events that might not happen. In addition to being committed and capable, team members are able to set aside their optimism (temporarily) and consider the question of “What can go wrong?” Further, you will have reasonable confidence that the organization can achieve their functions and will do so when necessary.

If your world does not meet these ideals, you can still perform basic risk assessment. You might need to limit the number of participants in the risk analysis group, or even limit your investigations to one-on-one meetings with key stakeholders. Communication of the risk factors might also be limited, although it is best if your immediate management

**Risk as a Tool**

Let’s say that you have a project that is behind schedule. You can make things move faster by the immediate release of resources. Also, you do not have time to use existing check and control systems. For all practical purposes, you have increased risk in response to a need. In order to do this, it is necessary to have a good understanding of your risk exposure, as well as your (and your organization’s) risk tolerance. The decision to increase risk exposure in order to resolve other problems must not be taken lightly.

**Summary**

Projects have risk. The identification and assessment of those risks is the first step in developing a risk management strategy, and it may well be the most difficult. The use of Failure Mode and Effects Analysis methods provides a framework in which to document and rank risk factors in a professional and unemotional manner, and provide a sound basis for forming risk management strategies.

Your purpose is to manage a successful project. Recognizing risks, and determining which of the risks must be addressed, will be critical to achieving success.

**About the Author**

Sam Anderson has 35 years of experience in manufacturing, industrial operations, facility and construction management, teaching, and consulting. He has a Bachelors degree in General Engineering from the University of Illinois, and a Masters degree in Industrial Operations from Bradley University. In addition to certification as a Project Management Professional (PMP®), he has American Society of Quality certification as a Six Sigma Black Belt. You may e-mail him at sander210@netzero.com.