Project Management: Risks

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This is the last section in a three-part series on Project Management. This edition looks at the role that risk reviews play in project planning and implementation.

Recall from Part 1 that some of the reasons listed for project failure include poor planning, scope creep, ignoring warning signs, etc. Many times, the potential problems that can derail projects are examined at the beginning; or, are addressed as they evolve (i.e. reactionary). While one can never anticipate and plan for any and all problems that *may* arise, a formal, structured risk review can assist in capturing the major issues.

What do we mean by risk? The Project Management Institute defines project risk as:

> *A risk is a possible future event that may affect your project either positively or negatively.*

Basically, all we are trying to do with a risk review is anticipate what problems may develop over the life of our project and develop a strategy, in advance, to reduce or avoid its impact.

Generally, when doing a risk review, we tend to focus on negative risks. An example of a negative risk is: *"Each day that a critical piece of equipment is late in reaching the plant site, it will throw our start up schedule off by three days."* In this example, we know that one "problem" will result in consequences for the entire project.

On the other hand, a positive risk could be: *"If we buy pumps for all our facilities bundled together in one purchase order, we can obtain a volume discount."* In general, we will find that a positive risk is an *opportunity* to be pursued, while a negative risk is an issue to avoid or mitigate. A few key questions that are appropriate at this point include:

> How do I do a risk review? When should I do one? How do I use the results?

How to perform a risk review:

First, a risk review is a project team effort. While you may be a very good team/project leader, it is always better to have three or four heads working together. Here is a simple process to follow:

1. Generate a list of risks/problems that can impact your project
2. Assign a probability and impact rating
3. Prioritize the risks with those most serious at the beginning of your list
4. Develop strategies to minimize or eliminate the risks

As an example, lets assume that, as a team, our project is to change-out a plant process control system. As a team, and by brainstorming, we have generated the following potential problems: (Note that these are not yet prioritized)

- We may have a shortage of qualified technicians—unable to start-up the new system
- Vendor may be late in delivering the system
- The plant manager may change the plant "outage" date, thereby shifting our implementation schedule
- Our internal engineering resources are working on multiple projects and may not be available when needed
- The reorganization at corporate headquarters may affect our project funding

Note that we have a combination of internal and external problems to deal with. With our list now generated, it is necessary to assign probabilities and impacts. In this case we want to determine the probability that the event may occur (High, Medium or Low); and, if so, the impact (High, Medium or Low). We have taken the above list and put into a table format as follows: (Note that these have now been prioritized based on risk probabilities/impacts)

Risk Event	**Probability** (High-Medium-Low)	**Impact** (High-Medium-Low)
1. Our internal engineering resources are working on multiple projects and may not be available when needed	**H**	**H**
2. We may have a shortage of qualified technicians—unable to start-up the new system	**M**	**H**
3. The reorganization at corporate headquarters may affect our project funding	**M**	**H**
4. Vendor may be late in delivering the system	**L**	**H**
5. The plant manager may change the plant "outage" date, thereby shifting our implementation schedule	**L**	**L**

We have now completed the first three steps of our risks review process. The last step is to develop mitigation strategies.

Risk Event	**Probability** (High-Medium-Low)	**Impact** (High-Medium-Low)
1. Our internal engineering resources are working on multiple projects and may not be available when needed **Strategies**: ❑ Provide adequate notice for resource planning ❑ Use vendor/contract engineers ❑ Get commitment from upper management that internal engineering talent will be provided when needed ❑ Reschedule project for better availability of resources ❑ Work/negotiate with various functional managers for their commitment of resources	**H**	**H**
2. We may have a shortage of qualified technicians—unable to start-up the new system **Strategies**: ❑ Use contractor's technicians ❑ Borrow tech's from our other plant facilities during start-up ❑ Ensure that all tech's go through vendor training prior to start-up	**M**	**H**
3. The reorganization at corporate headquarters may affect our project funding **Strategies**: ❑ Ensure that project is past mid-point before reorg occurs ❑ Ensure that senior management team is aware of critical nature of project (impacts on efficiency and profitability) ❑ Get commitment from upper management that funding will be provided	**M**	**H**

❑ Have a contingency plan available if project is put on hold or canceled		
4. Vendor may be late in delivering the system **Strategies**: ❑ Ensure that liquidated damages are in place ❑ Provide bonus incentive if system is delivered early ❑ Ensure that adequate lead time exists between order submittal and delivery date ❑ Obtain commitment from vendor senior management to meet deliverable deadlines ❑ Keep pressure on supplier to deliver and provide status updates regarding their progress	**L**	**H**

Note that Risk No. 5 was eliminated because it was a Low-Low. There is no point in developing strategies for risks that have a low probability of occurring and a low impact even if they do. We have chosen to accept this risk. Always develop more than one strategy for each risk. Also, this type of risk review is a qualitative review because we have not developed a cost impact for each risk. A quantitative risk review would require the project team to have a strong grasp of cost impacts and also takes much longer to conduct. For simplicity, we have used a quantitative review for this article.

When Should I do a risk review? Risk reviews should be done on a continuous basis throughout a project. This is because new risks will evolve as your project unfolds. Typically, you should perform a risk review at the following times:

- ❑ At the beginning of a project
- ❑ When the project goes through a shift from concept to planning to implementation to close
- ❑ Anytime you have a "gate" review scheduled
- ❑ Anytime a major risks event that you have identified is triggered

How do I use the results? Based on the strategies developed for the above hypothetical project, it may be necessary to adjust the schedule or increase the contingency funding. It may be that one should add schedule "milestones" to reflect vendor progress or to be more proactive in resource planning. Remember, the purpose of a risk review is to provide insight about potential project problems and direct where you should spend extra time and effort in preventing them.