

Tom Mochal has been sharing his project management wisdom, strategies, and practical advice since the earliest days of TechRepublic. Here's a collection of some of his tips and articles covering PM issues, ranging from soft skills to risk analysis to scope change management.

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Use this simple process for package or vendor selection

The vendor selection process can be fraught with complications if you're not prepared. The following process can be used in most any selection process—package, vendor, hardware, etc. It's fairly high level and will require some drill-down on the details to make sure that you perform it with appropriate diligence for your particular project.

1. **Gather your requirements.** It's hard to select a vendor if you're not sure what your requirements are. You need to begin with as many vendor requirements as possible. It may be too late to uncover missing requirements after a vendor has been selected.
2. **Determine your selection criteria.** You should have a model for comparing and ranking the vendor proposals. This will include the categories that are important and the weighting factor for each category.
3. **Create vendor long list.** After the requirements are gathered, look for any and all vendors that might meet your needs. You can do this by searching the Web, looking at trade magazines, talking to other companies, and so on. The purpose of this step is to gather a comprehensive (but not exhaustive) list of vendors that you want to consider further, and it helps ensure that there is not an obvious candidate of whom you were not aware.
4. **Create vendor short list.** Perform an initial, high-level evaluation of the long list, looking for obvious reasons to eliminate some of the alternatives. The purpose of this step is to create a short list of potential vendors that look like they will have a reasonable chance of meeting your needs. You should send your Request for Proposal (RFP) to the short list.
5. **Evaluate vendor proposals.** This can be the hardest part of vendor selection. You must map the vendor capabilities against your requirements and weighting factors to determine which vendor most closely meets your needs. You can also interview the vendors and make vendor site visits. Usually, you will make some type of numerical calculation based on how well the vendor meets each requirement, multiplied by a weighting factor. The vendor with the highest score across all requirements should be the one that best meets your needs. When you have completed this step, you should have a prioritized list.
6. **Make final selection and negotiate contract.** In many organizations, the project team makes the final recommendation and then turns the process over to a formal Purchasing or Procurement organization. However, at this point, you should have all the required information to make the choice. If you're selecting only the top vendor, you should have the numbers available to make your recommendation. If you're selecting a number of potential vendors, you can pick as many of the top-ranked vendors as necessary to meet your needs.

When the final selection is made, you may still have to negotiate a contract or license. If that process does not proceed in a satisfactory manner, be prepared to move down to your second choice, and your third, as long as those vendors still meet your minimum requirements.

What event signals the end of your project?

We all know that a project is a temporary endeavor. All projects have some start and end date. However, when I teach project management training classes, I like to ask the participants exactly what they consider to be the end of a project. After some discussion, we realize that there are many candidate events that could signify the end of a project and, in most organizations, the definition is not consistent.

One idea is that an end-of-project meeting could mean the project is officially over. Although ending the project at the end-of-project meeting helps a little bit, it doesn't answer the total question, since you still need to decide when to schedule this meeting. You could hold the meeting after a number of events, for example, after you go live or 30 days after you go live. The ultimate definition of project completion is not resolved by this answer.

The second definition that doesn't help is that the project ends when the money runs out. Although in many projects, this is actually true, it doesn't help you in terms of the basic definition. Ending a project when the budget runs out is a financial answer and it is highly arbitrary. It doesn't answer the more fundamental project management question of how to define the end of a project.

There are a number of events that could signify that a project has ended.

Sign-off

Perhaps the earliest date the project could end is when the client sponsor formally approves the project deliverables. This definition is probably valid for almost all projects. You're building the deliverables for someone or some group. It makes sense that the project has not completed until the people who requested the work are satisfied. This may involve presenting the deliverable for approval and then performing rework based on their feedback. However, for the project to end successfully, the deliverables must be approved. The project could also end if the final deliverables were rejected and no further work is planned.

Implementation

Many projects result in the implementation of a product or service. IT projects are typically this way. In most cases, you need sponsor sign-off before you would implement, and so this implementation event would take place at a later date. Implementation may be a single event, or it may be a complex set of activities. The project doesn't end when implementation starts but when implementation ends. For instance, if you're implementing a solution in multiple locations in close time proximity, the project would end when all of the locations were successfully implemented.

Turnover to support

If your project builds a solution that has a longer term lifespan, at some point the deliverables go from being in "development" to being in "support." Sometimes, this change in status also means that there's a change in the organization that's responsible for the solution. If your project solution is turned over to a support organization, that would also be a typical time to consider that the original project has completed. If there's a point where it's clear that the solution is in support mode, it's at that point the project would officially end.

Implementation plus one production cycle

If your solution has a production cycle, many times it needs to be run in production before the project is considered complete. For instance, if the solution has daily transaction processing and a monthly closeout cycle, the solution needs to be implemented and then supported by the project team for at least one month. This makes sense since the project team knows the solution best and can respond the quickest if initial problems occur. This also helps ensure that the solution is stable before being turned over to the support team.

Implementation plus first year production

This is typically based on the budget cycle rather than a project management definition. There may be some accounting reasons why a project needs to exist until the end of the fiscal year. When the new fiscal year arrives, the project ends and support begins. Again, this would not answer the basic question from a project management perspective, but it may be the way that project end dates are defined at your company. This definition might be especially applicable for large projects.

Some end date options may not make sense for certain types of projects. For instance, if your project results in the creation of a study or recommendation, it would make sense that the project ends when the deliverable is approved. However, on that project, it would not make sense to say that you would run in production for 30 days.

The question of when a project formally ends is one that most people take for granted. However, there is not an easy answer for every organization. There are probably one or two answers that make most sense from a project management standpoint, but there may be cultural or financial factors that cause your organization to define the project boundaries differently. To a certain extent, these dates just need to be understood upfront and agreed to for each project. This agreement will keep you from being in a position where you declare victory only to discover others who think you have more work to do.

Learn how to calculate the cost of a scope change request

When you receive a request for a scope change, you should consider the three basic components of the change management process:

- ◆ The client defines the business value of the change.
- ◆ The project manager (or project team) determines the impact to the project.
- ◆ The project manager takes both the impact and the benefit to the sponsor for resolution.

The project manager and project team are accountable for understanding the total impact to the project. Let's take a look at the most important areas you should evaluate.

Factors that affect scope change

Effort. The first place to look is whether there will be more effort required as a result of the change. Almost all scope change requests result in more effort, unless the change actually implies a reduction of features and functions.

Cost. The scope change request may require additional labor and/or non-labor costs. In many organizations, the internal employees do not have an hourly chargeback to the client, so there is no additional cost (from an accounting standpoint) unless the work is done by contract resources. There may also be non-labor charges. For instance, you may have to buy additional hardware as a result of a scope change.

Duration. It is an overgeneralization to say that all scope changes result in a longer project. The question to ask is whether the additional effort for the scope change is in the critical path. If it is, the project may indeed take longer. If the change is off the critical path, it may take more effort but it may not affect the overall project duration.

Focus / morale. Some scope changes result in more than additional effort, cost, and duration. They can result in the team losing focus or experiencing decreased morale. This is especially true if the changes come late in the project or if there are many, many changes that result in project drift.

Don't overlook this final factor: Deferred benefits

Your project will result in a benefit to the company. The benefit usually starts immediately after (or soon after) the solution is implemented. If a scope change request results in the project being delayed, the impact of the scope change should also include the cost of the delayed benefit.

Look at the following example. Let's say your project will result in a business benefit of \$5,000 per month in increased revenue. As the project is progressing, the client makes a change request that will cost \$5,000 and add one more month to the project. The change has an estimated payback value of \$500 per month.

You could go to the sponsor with a change request that states that there is a \$5,000 cost, a one-month project delay, and an estimated benefit of \$500 per month. The sponsor might reason that the change will pay for itself in 10 months.

However, the part that is missing is the deferred benefit cost associated with implementing one month late. In this case, implementing one month later than planned also costs the company \$5,000 in lost revenue, making the total cost of the scope change request \$10,000 and requiring 20 months to receive a payback. The sponsor may still approve the change. However, taking into account the deferred benefit associated with a project delay should be a part of the scope change impact estimate for the sponsor to evaluate.

Use this simple process for estimating project duration

If everyone worked eight hours per day on your project and was absolutely 100 percent productive for all eight hours, you could easily calculate duration by taking the number of effort hours, divided by the number of resources, divided by the number of hours they work per day. For instance, if an activity were estimated at 80 hours, and you had one person assigned, and that person worked eight hours per day, the duration would be $(80 / 1 / 8) = 10$ days. Likewise, if four people were assigned full time, the duration would be $(80 / 4 / 8) = 2.5$ days.

However, as we all know, those perfect circumstances don't reflect how work is actually performed. There are many reasons why the duration of the work is different from the effort hours divided by 8. You need to use the following process and techniques if you want to make your schedule estimate as realistic as possible.

1. **Estimate the productive hours per day.** The first step is to determine how many productive hours of work you can count on each person working per day over time. The rule of thumb is to use a factor of 6.0 to 6.5 productive hours per day. This takes into account socializing, ramping up in the morning, going to the bathroom, etc.
2. **Factor in multitasking productivity loss for part-time resources.** If one person is working on multiple projects or perhaps a combination of projects and support, you need to take into account a further

reduction in productivity. This reflects the fact that if a person is shared on two or more unrelated efforts, it takes time to stop one and start up another. For instance, if a person is on two projects for 20 hours each week, this might result in a 10% loss of productivity on both projects.

3. **Determine how many resources will be applied to each activity.** In general, the more resources you can apply to activities, the quicker they can be completed. Obviously two resources may be able to complete an activity faster than one person (but it may not be twice as fast).
4. **Factor in available workdays.** Take into account holidays, vacations, and training. This was not included in the productivity factor in the first item, since this non-project time can be scheduled and accounted for in advance.
5. **Take into account any resources that are not full time.** If you have a resource 50 percent of the time, it will take that resource at least twice as long to do any individual activity.
6. **Calculate delays and lag times.** Some activities have a small number of effort hours, but a long duration. For instance, if you're counting on vendor resources, you may need to wait until the vendor is ready before you can begin. Another example is the duration required to get a deliverable approved. You may estimate the effort at only a few hours, yet it may take a number of days or weeks to gain the actual approval.
7. **Identify resource constraints.** When you build your initial workplan, you identify the activities that can be done sequentially and those that can be done in parallel. If you have enough resources, all of the parallel activities can, in fact, be done in parallel. However, if you don't have enough resources (you rarely do), you'll find that some of the parallel activities need to be done sequentially, since the same resource needs to be assigned. This results in extending the duration further than you might initially expect.
8. **Document all assumptions.** You will never know all the details of a project, so it's important to document all the assumptions you're making along with the estimate.

Gathering detailed requirements is the first part of the project lifecycle

Project managers are expected to present a detailed estimate of project work when the charter and schedule are created. However, since the detailed requirements have not been gathered, how are you supposed to estimate the work? It seems like a valid question. Yet when we talk about gathering detailed requirements, we're usually talking about the Analysts Phase of a project lifecycle, not the upfront project management work of defining and planning the project.

It's not really practical to hold off committing to an estimate for the work until you have the detailed requirements. Here's why: Let's say you have a typical IT development project. The project might last six months and the requirements gathering process might last six to eight weeks (or more) of that overall timeframe. If you hold off on the project estimates until the requirements are gathered and approved, the project might be one-third complete before you're validating the overall project costs and deadline. If the project doesn't make sense from a cost-benefit perspective, you might have already spent a significant amount of money. In my opinion, this is much too late, and it's the reason most project management methodologies don't include the gathering of detailed business requirements.

Also, if you use this same argument, you might say that you still are not confident to estimate the work without first doing the design, and then you are not confident to estimate the work until you have the construction work done, etc. You see that this same logic can be taken to an extreme.

I think the following options make the most sense. (I am very aware of agile and iterative techniques where you gather the requirements in an iterative manner. But let's assume for now that you are doing traditional waterfall project model where you are gathering the requirements upfront.)

- Estimate the work to within 10 percent when you charter and schedule the project. To me, this is the traditional approach, and I believe in most cases it is still viable. However, there is an underlying assumption that the project manager and/or the project team have done this kind of work before and are therefore able to estimate the work within 10 percent based on the high-level requirements that were gathered as a part of creating the project charter. The caveat to this approach is that if you discover that

you have estimated incorrectly after the requirements are gathered, you have to raise a flag at that time and ask for more money. Of course, this same check needs to be done at the end of every project phase regardless of the techniques used.

- ◆ Break the work down into smaller pieces. If you don't feel comfortable providing an overall project estimate within 10 percent, you can break the larger project into multiple smaller projects. When you use this technique, you usually end up chartering a project for gathering the requirements. You should be able to estimate this requirements gathering project to within 10 percent. After this requirements project is complete, you can use the information to charter a second project to perform the rest of the work. Hopefully, now you are able to estimate the remainder of the work to within 10 percent. When you're finished, the final deliverables will have been created through two projects, each of which was estimated and managed to within 10 percent of budget and schedule.
- ◆ "Guestimate" the schedule and budget first and then firm up after the requirements are gathered. This is a variation on the first technique above. In this approach, the project manager provides a best-guess estimate of the work at the same time the charter and schedule are created. However, based on the rules of the organization, this is not the estimate for which the project manager is accountable (unlike the first option above). This estimate is just the best guess given the information at the time. After the requirements are completed, the project manager provides a more detailed estimate of the work within 10 percent. This is the number that the project manager is held accountable for.

As I mentioned earlier, many of you may think that the best approach is to gather the requirement iteratively. However, the iterative lifecycle does not provide the answer in terms of how you estimate the project to within 10 percent. In fact, iterative approaches might make this level of accuracy even harder to estimate, while agile techniques usually don't address the estimating at all—preferring instead to deliver working code in iterative sprints until the customer is satisfied with the end result or runs out of money.

Make time for these four hidden areas in your project estimate

Most people understand they have to try to uncover all the executable work in a project estimate. The problem is, some areas are hidden at first. It is only after you start the project that you begin to see their impact. These areas include:

- ◆ **Project meetings.** Meetings that are project-related should be included in the workplan and should be added to the estimated effort of the project. This is because meetings of this type are within the control of the project team. You should allocate time every week for a project status meeting, and in some cases you will have multiple meetings. If you have eight people on your team, you need to account for eight effort hours in your estimate for each team meeting you schedule.
- ◆ **Team collaboration.** Try to account for the total time required for all participants in any collaborative project-related meetings. For instance, if you're planning deliverable walkthroughs, you might allocate one hour for the meeting. However, remember that if there are three people at the review meeting, you should allocate three hours to each occurrence. Likewise, when you're circulating documents for approval, include some review time for each person you think will be involved. Many project managers include an hour for a document review. They forget that a document might be circulated to five people for their review and feedback. You must make sure that you allocate the full time for all the team members that are involved.
- ◆ **Project management.** This refers to the effort required to successfully and proactively manage a project. This time includes planning the work, managing the schedule, managing scope, communicating effectively, etc. A good rule of thumb is to add 15 percent of the effort hours for project management. For instance, if a project estimate is 10,000 hours, the project management time is 1,500 hours. If the project estimate is 1,000 hours, the project management time would be 150 hours.
- ◆ **Client time.** Client effort includes the time to review and approve deliverables, provide requirements, attend meetings, participate in training, etc. Some companies want to understand the total effort and cost of a project, including both the direct project team and the client resource requirements. In other companies, the project costs include only the direct project team. Whether you include client hours and cost in your estimate is an area you should discuss with your manager and your sponsor. If your project estimate includes client hours and cost, the hours need to be kept separately. You might be surprised how many projects would get delayed if your sponsor better understood the effort and costs required from the client side in addition to the time and cost associated with the direct project team.

Use a Communication Plan for your larger, complex projects

In a large project, all communication should take place in the context of an overall communications strategy and plan. Status meetings and status reporting are required, just as for all projects. In addition, many other types of proactive communication need to be considered. This creative and proactive Communication Plan is created using the following process:

1. **Identify the project stakeholders.** In some cases, there are groups of stakeholders with similar communications needs, such as a Project Steering Committee. In other cases, there may be a single person, such as a sponsor.
2. **Determine the communication needs for each stakeholder.** Each stakeholder group may have some similar and some unique communication needs. The Communication Plan helps you get the right information to the right people.
3. **Brainstorm how to meet the needs.** For each stakeholder, brainstorm how to fulfill the communication need. Determine the information each person needs to know, how often he or she needs an update, and the best manner to deliver the information. At this point, be creative in looking for ways to communicate to the project stakeholders. For instance, all stakeholders still need an updated project status. The Steering Committee may need to get together for an executive briefing and to provide strategic direction every other month. The Project Sponsor may need a personal briefing on a monthly basis. A quarterly newsletter may need to go out to the entire client organization for informational and marketing purposes.
4. **Implement mandatory communication.** Regardless of the prioritization, implement any communication options that are mandatory for the project or for the environment. This will definitely include project Status Reports, but there may also be government required reports, legal reports, etc.
5. **Prioritize the other communication options.** Determine the effort required to create and distribute each of the identified communication options outlined in step 3. Also determine the potential benefit of the communication to the recipient and the project team. Use this information to prioritize the communication options that were established above. Implement the communication options that provide high value and require low effort from the project team. Also evaluate those options that have high value and require a high level of effort from the project team. Some of these might make sense to implement while others may not. Discard those that require high effort for marginal benefit. Also discard those that provide marginal benefit even though they may take little effort from the project team.
6. **Add the resulting communication activities to the schedule.** If the communication work is not added to your schedule, it will never get done. This will include assigning frequencies, due dates, effort hours and a responsible person(s) for each communication option implemented.

Use periodic audits to validate project status

The project manager is responsible for establishing a viable project workplan (schedule) and making sure that the project is progressing appropriately against this schedule. However, in many cases, it makes sense to have an outside party double-check to make sure the project is progressing as expected. This is especially true with large, critical projects. If you have a two-month project that takes twice as long as expected, you may be upset, but it won't materially affect your organization. On the other hand, if a two-year program budgeted at 100 million dollars takes twice as long and double the budget to complete, it could have a devastating impact on your organization.

It's not unusual for larger projects to be subject to periodic audits. The sponsor might call for a project audit if there's a concern about the state of the project. In some cases, periodic audits may be called for as a part of the overall charter. (In some organizations, these audits are referred to as IV&V—Internal Verification and Validation.)

For larger projects, the person performing the audit should be an experienced project auditor—either internal or external to the company. A project audit focuses on quality assurance—asking questions about the processes used to manage the project and build the deliverables. The audit can follow the following process:

1. **Notify the parties.** The auditor notifies the project manager of the upcoming audit and schedules a convenient time and place.

2. **Prepare for the audit.** The auditor may request certain information upfront or ask the project manager to be prepared to discuss certain aspects of the project. This ensures that the actual meeting time is as productive as possible.
3. **Initial meeting.** The auditor asks questions to ensure the project is on track. These questions are quality assurance related, verifying that good processes are being used, and then checking some of the outcomes of those processes. For instance, after verifying that the project manager is using good processes to update an accurate schedule, the auditor could review the actual schedule to validate the current project status against the schedule.
4. **Further analysis.** On many projects, the investigative aspect of the audit might culminate after one meeting with the project manager. If the project is large or complex, the auditor might need to meet with other team members and clients and review further project documentation.
5. **Document the findings.** The auditor documents the status of the project and the processes used on this project. The auditor should also make recommendations on areas that can be improved to provide more effective and proactive management of the project.
6. **Review draft audit report.** The auditor and the project manager should meet again to go over the initial findings. This auditor describes any deficiencies and recommendations for changes. This review also provides an opportunity for the project manager to provide a rebuttal when necessary. In many cases, the initial findings of the auditor might be modified based on specific, targeted feedback from the project manager.
7. **Issue final report.** The auditor issues a final report of findings and recommendations. The project manager may also issue a formal response to the audit. In the formal response, the project manager can accept points and discuss plans to implement them. The project manager may also voice his or her disagreement with certain audit points and explain why.

Project audits offer a good way to get an outside opinion on the status of a larger project. In many cases, experienced auditors can point out potential problems with projects much quicker than the project manager might communicate them.

Follow this simple scope change management process

Scope is defined at a high level by describing the boundaries and deliverables of your project. You add more detail to that definition through the gathering of your business requirements. Once these items are agreed to by your sponsor, you can manage overall scope change through a simple process. Remember that having your scope and business requirements approved doesn't mean that nothing can change from that point on. It means instead that you will manage the overall change process from that point forward using a good scope change management process.

Here's a simple scope change process that you can use on your project:

- ◆ Solicit potential scope change requests from any project stakeholder, including the project team, clients, sponsors, etc.
- ◆ Smaller projects can document the scope change in a short form or an e-mail. For larger projects, the scope change request should be formally documented using a Scope Change Request Form. The important thing is that you need to document the scope change in writing. Don't act on scope change requests you receive verbally.
- ◆ Enter the request into the Scope Change Log for tracking purposes.
- ◆ The person making the scope change request should define the business value to the project. The sponsor will need this information to make a final decision.
- ◆ The project manager will assign the scope change request to a team member for further investigation. (The project manager could assign it to himself.) The team member will first determine how much time it will take to investigate the scope change request. If the time required to perform the analysis will cause deliverable dates to slip, the request must first be taken to the sponsor to determine whether the request should be investigated or not. If the sponsor gives the initial approval to proceed, the workplan and

budget may need to be updated to reflect this new work. If the sponsor does not agree to investigate the change request, the request should be placed closed as "not approved" on the Scope Change Log.

- ◆ Take the scope change request, alternatives, business value, and project impact to the sponsor for a resolution (yes we do it or no, we don't do it).
- ◆ Document the resolution or course of action.
- ◆ Document the resolution briefly on the Scope Change Log. If the Sponsor does not agree to the change request, the request should be closed as "not approved" on the Scope Change Log.
- ◆ If the scope change request is approved, the appropriate activities are added to the workplan to ensure the change is implemented. The project budget should also be updated, if necessary.
- ◆ The current Project Definition (Charter) should be updated if an approved scope change results in a substantial change to the project.

Throughout the process, make sure that you communicate all scope change status and resolution to project team members and other appropriate stakeholders. This is usually done by attaching your current Scope Change Log to your Status Report. This helps manage expectations and shows how approved scope change requests are affecting the project end date and budget.

Bring in the right team members by interviewing well

The process of acquiring staff is an important one for the project manager and the other team members. After all, the people you bring in will have a direct bearing on the overall success of the project. You want these people to be well qualified and you need to make sure that you can get along with them.

Sometimes these are employee positions. Just as often they may be contractors. Here are a few simple rules to remember if you've been asked to participate in the interviewing process.

- ◆ **Understand the position.** Sometimes, people interview a candidate and afterward wonder what position the candidate was being interviewed for. This doesn't make sense. You need to understand the position and the skills required for the position if you're going to be an effective interviewer.
- ◆ **Understand your role.** The interview coordinator should assign different people to focus on different aspects of the interview. For instance, you might be asked to comment on whether the candidate is a good personality fit for the team. You might be asked to perform a technical interview. You might be asked to determine whether the candidate has the right business expertise for the project. Each interviewer should know whether he or she has specific interview expectations.
- ◆ **Be prepared.** Make sure that you have reviewed the candidate's resume ahead of time. You should jot down some questions that will allow you gain insight into the person's background and ability, even if your company has a standard interview template you use as a starting point.
- ◆ **Clear your mind.** You will be most effective if you go into the interview thinking about the actual interview and the candidate. Don't go into the interview thinking about the program that will not execute or the production problem you need to fix. While you are in the interview, focus on the discussion at hand.
- ◆ **Ask and listen.** Have you been to an interview where the interviewer did all the talking? That's not what you're there for. Instead, ask questions and listen to the responses. The first questions you ask should be general and then you should probe down into the details from there.

The overall format of the interview

It's good if multiple members of your team are part of the interview process. In this case, there are two main formats. The first is the "revolving door." You get the candidate in a room and bring in the interviewers one at a time. This method gives everyone a chance to gain an independent opinion of the candidate from different perspectives and using different questions, but it does require a longer time commitment from the candidate.

The second format is the "Spanish Inquisition." You get the interview team in one room with the candidate. This approach lets everyone hear the same story one time and is the most efficient use of the candidate's time. One drawback is that it can be very intimidating. You need to go out of your way to maintain a friendly and casual atmosphere.

Your company is relying on you to help ensure that qualified candidates are hired. This is an important job and should be taken seriously. This increases the value you provide into the interview process and helps your company make good, long-term hires (or good, short-term contractor hires) for the future.

See the effects of dependent risk by using a decision tree

Most of the risks we face on a project are independent of other risks. These types of risks are easier to identify and easier to manage. However, there are times when risks are connected. That is, it's possible that certain risks will appear only as a result of actions taken to manage another risk. That's where the decision tree is used. A decision tree is a technique for determining the overall risk associated with a series of related risks.

For example, let's say your project is going to need to place a large equipment order. You think there is a 20 percent risk that your primary hardware supplier may not be able to provide all the equipment you need for a large order in a timely manner. This could be Risk A. As a part of the risk response plan, you decide to talk to a second vendor to see if it can help fulfill the equipment order on short notice. It normally has the equipment in stock. However, you also discover that there is a 25 percent possibility that there may be a disruption in its plant because of a potential strike. This is Risk B.

Do you see how the two risks are related? Risk A is the primary project risk. If you can successfully manage Risk A, there will be no reason to work with the second vendor and therefore Risk B will never enter into the project. However, if Risk A comes true, your risk plan will need to deal with a second Risk B.

Of course, what you really want to know is what the chance is that Risk A will come true (your primary vendor cannot fulfill the entire order) AND Risk B will also come true (the backup vendor goes on strike). That would be the worst-case scenario for you. The total risk is calculated by multiplying the individual risks. Since there is a 20 percent chance of Risk A, and a 25 percent chance of Risk B, the probability that both risks will occur is 5 percent ($.20 * .25$).

You can use risk trees to come up with financial implications as well. **Figure A** shows a generic decision tree that is slightly more complex.

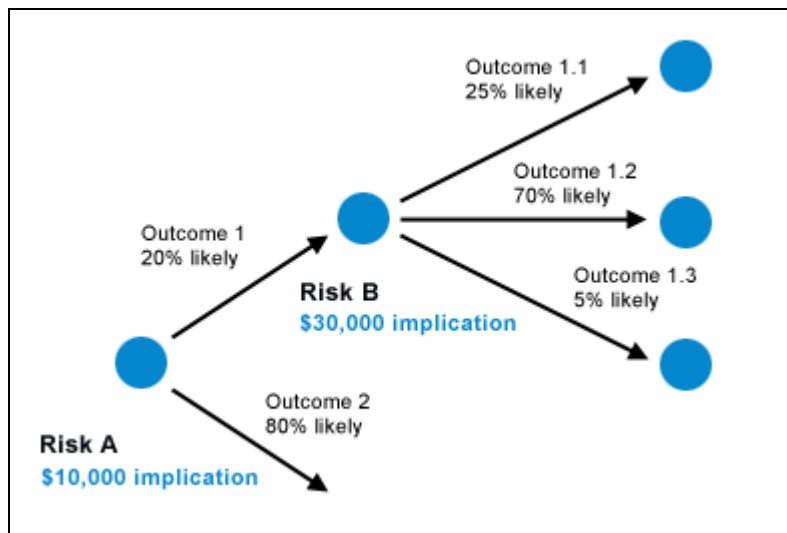


Figure A

This decision tree shows two risks—A and B. Risk A has two outcomes. Outcome 1 is 20 percent likely to occur and outcome 2 is 80 percent likely to occur. The monetary value of Risk A is \$10,000. If Outcome A occurs, a second Risk B is introduced and there are three likely outcomes, 1.1, 1.2 and 1.3. The monetary value of Risk B is \$30,000. Using the decision tree, you see that the financial risks of the various outcomes are as follows:

- ◆ Outcome 1.1 has a financial risk of \$9,500 ($\$10,000 * .2$) + ($\$30,000 * .25$)
- ◆ Outcome 1.2 has a financial risk of \$23,000 ($\$10,000 * .2$) + ($\$30,000 * .70$)
- ◆ Outcome 1.3 has a financial risk of \$3,500 ($\$10,000 * .2$) + ($\$30,000 * .05$).
- ◆ Outcome 2 has a financial risk of \$8,000 ($\$10,000 * .8$)

What this tells you is that we should try to achieve Outcome 1.3 if possible. It has the smallest financial risk impact. If you don't think you can achieve Outcome 1.3 (and there is only a 1 percent chance you can ($.2 * .05$)), you should try for Outcome 2. There is an 80 percent chance you can hit Outcome 2.

You can see that this process can get complicated. Fortunately, most risks on your project are independent of each other. However, when you discover that one risk leads to another dependent risk (and perhaps more dependent risks), the decision tree can help you determine the probability and impact of each risk combination.

Use standard roles to avoid confusion on projects

All projects have people who perform different roles and responsibilities. On small projects, understanding the roles is pretty easy. There's a project manager, sponsor, and project team.

As your project gets larger, however, there is generally more confusion about who is in each role. You also need more specialty roles to focus on certain areas of responsibility. Not understanding who is in what role is a major headache for larger projects. One of the important responsibilities of the project manager is make sure you know who is fulfilling these roles on your project. Here are some of the common roles:

- ◆ **Client(s).** These are the people (or groups) who are the direct beneficiaries of the products (or deliverables) that the project produces. They are the people for whom the project is being undertaken. In some organizations, these people are called *customers*.
- ◆ **Project director.** This is the person who is the functional manager of the project manager. However, this role recognizes that in most organizations, the project manager is not totally responsible for a project. Typically, the functional manager of the project manager has a role to play as well. This role includes helping to provide resources, helping resolve difficult issues, and dealing with organizational politics.
- ◆ **Project manager.** This is the person with authority to manage a project. This includes leading the planning and the development of all project deliverables. The project manager is responsible for managing the budget, workplan, and all project management procedures.
- ◆ **Project team.** The project team consists of the full-time and part-time resources assigned to work on the deliverables of the project. They are responsible for understanding the work to be completed and completing assigned work within the budget, timeline, and quality expectations.
- ◆ **Sponsor (executive sponsor and project sponsor).** The sponsor is the person who has ultimate authority over the project. The executive sponsor provides project funding, resolves issues and scope changes, approves major deliverables, and provides high-level direction. He or she also champions the project within the organization. Depending on the project and the organizational level of the executive sponsor, he or she may delegate day-to-day tactical management to a project sponsor. If assigned, the project sponsor represents the executive sponsor on a day-to-day basis and makes most of the decisions requiring sponsor approval. While the project manager is responsible for the success of the project execution, the sponsor is responsible for delivering business benefit to the organization.
- ◆ **Stakeholder(s).** This is the specific person or people with a stake, or an interest, in the outcome of the project. Normally, stakeholders are from within the company and might include internal clients, management, employees, and administrators. A project may also have external stakeholders, including suppliers, investors, constituents, community groups, and government organizations.
- ◆ **Users.** These are the people who will actually use the deliverables of the project. Sometimes, these people are also heavily involved in the project, through activities such as defining business requirements and being involved in the testing process.

Resolve quality problems in six steps

Quality problems can arise on any project and can take on many forms. Many of the problems are minor irritants that keep you from implementing the most optimal solution but nevertheless can be tolerated. Many need to be resolved before you can implement your solution. A few of them are show-stoppers. All of these problems can be resolved using similar techniques. Obviously, the larger the problem, the more complex the solution might be. However, the same basic problem-solving approach can be applied to each situation.

When you have problems, guessing the cause of the problem rarely works. A structured approach works much better. You want to not only resolve this particular problem, but you also want to understand the problem well enough to ensure that it does not occur again.

Use the following general process to identify and resolve quality problems.

1. **Identify the problem or symptom.** You shouldn't assume that everyone knows the problem already. Take the time to document the problem in clear terms that everyone can understand. Make sure to also explain the impact of the quality problem to the project. The first rule of problem resolution is that if you can't define the problem, you can't resolve it.

2. **Identify the root cause.** Try to identify the root cause of the problem and explain how the root cause ultimately results in the problem that has arisen. If you can't track the root cause to the perceived problem, you haven't taken your investigation far enough. There are a number of problem-solving techniques you can utilize, including root cause analysis and Fishbone Diagrams.
3. **Determine alternatives and impacts.** Once the cause is identified, you should look at the alternatives and the impact of each alternative. Although it's best to try to solve the root cause of the problem, sometimes it's not possible and sometimes it's not cost effective. In these instances, you might need to look at alternatives that resolve the symptoms of the problem. Sometimes there's a very obvious solution that needs to be implemented. However, in many cases there are a number of potential alternatives. For each alternative, they should also address the impact to the project in terms of costs, benefits, and risks. It's worthwhile to make sure you look at the solutions as holistically as possible, so that you can make select the best alternative.
4. **Select the best alternative.** Depending on the severity of the problem, the project team may be able to choose the best alternative to the problem. If the problem is large enough, your sponsor and management stakeholders may need to be involved as well.
5. **Execute.** A mini-plan is put into place to address the quality problem and implement the chosen alternative. These activities should be moved into the project workplan to ensure that they are performed.
6. **Monitor.** The resolution plan needs to be monitored to ensure that the quality has improved as expected. If the quality has improved or is moving in that direction, you may allow the plan to continue. However, if the quality is not improving as expected, further corrective action may be required.

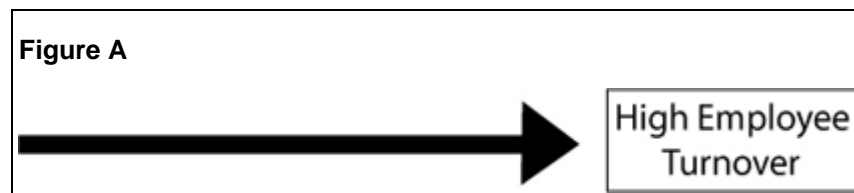
Use a Fishbone Diagram to attack complex problems

Problems arise on many projects. A proactive project manager should have a set of problem resolution techniques that can be applied in different instances. One technique for analyzing complex problems that appear to have many interrelated causes is called a "cause and effect" diagram. Because of its shape, this diagram is also called a Fishbone Diagram. (Another name you might hear for this technique is an Ishikawa Diagram. This is named for Professor Kaoru Ishikawa, a Japanese professor who pioneered the diagram in 1943.) The technique offers several benefits, including:

- ◆ It allows various categories of causes to be explored.
- ◆ It encourages creativity through a brainstorming process.
- ◆ It provides a visual image of the problem and potential categories of causes.

The following description and examples show how the problem-solving technique works. First, describe the problem on the far right side of the diagram. This may be the actual problem or it may be a symptom—at this point you're not exactly sure.

Draw a long horizontal arrow pointing to the box. This arrow will serve as the backbone from which further major and minor causes will be categorized and related. (See **Figure A.**)



Identify potential causes and group them into major categories along the "bones" of the Fishbone Diagram. You should brainstorm to identify the major categories; that means that at this point, you shouldn't be concerned if there's disagreement about whether a category holds the potential cause. Just put them all up. Be sure to leave enough space between the major categories on the diagram so that you can add minor detailed causes later. (See **Figure B**.)

Continue to brainstorm the causes by looking at more detailed explanations for each of the major cause categories identified above. The team should ask whether each category is a cause or a symptom. If it's a symptom, try to identify the more detailed causes on slanted lines that hook up to the appropriate major category lines. (See **Figure C**.)

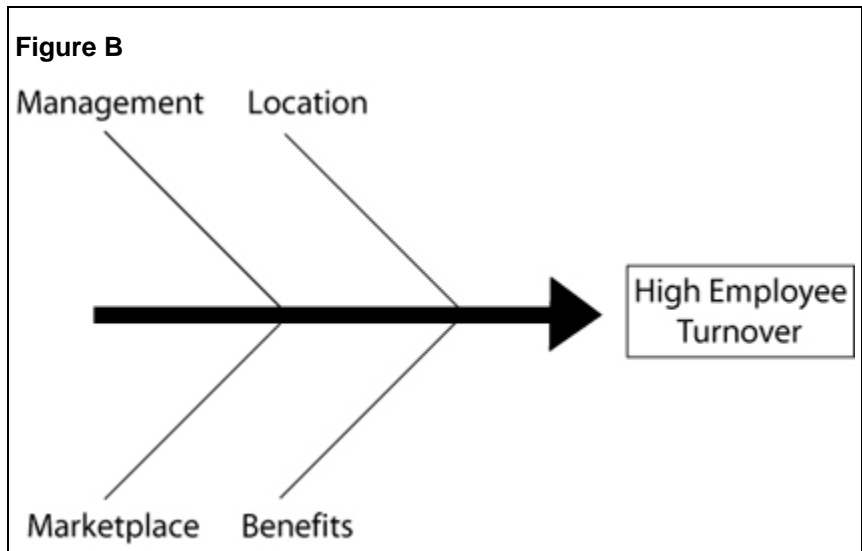
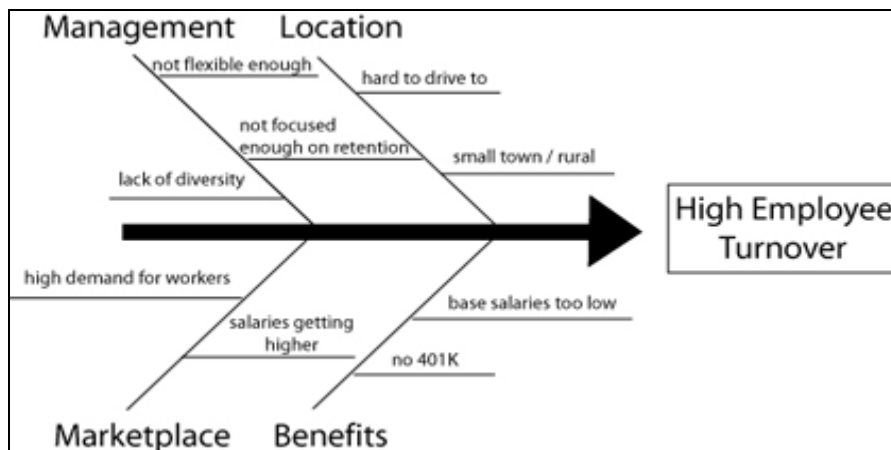


Figure C



Sometimes, the detailed causes will have other, more granular causes coming off of them. If so, connect additional lines to the detailed lines. Three levels of detail is usually the practical limit for this diagram.

When you've finished brainstorming major causes/symptoms and more detailed causes and symptoms, the team can begin analyzing the information. Evaluate each major cause and the potential detailed causes associated with it. Remember that the original list was compiled by

brainstorming where all ideas are included. Now, you must determine which items seem like they are more likely to be the cause (or one of the causes). Circle the items that are most likely and need to be investigated further.

If there's not an obvious consensus on the top areas to investigate, use some sort of voting system to formally narrow down the top choices with the biggest chance of success. For each item circled, discuss how the item affects the problem.

Once you have circled the causes that appear to be the most likely, you should create an action plan for attaching these causes. This will most likely involve some high-level actions and assigning the cause to a team member to be analyzed outside of the meeting.

Look for inherent risks before starting your project

When you are defining a project, you want to perform a complete assessment of project risk. The risk assessment is done in two parts. First, look at the risks that are inherent to your project based on its general characteristics. Second, after you identify inherent risks, spend time looking at risks that are specific to your project.

Inherent risks are the place to start. The logic behind inherent risks is as follows:

- ◆ A project that is estimated to take 10,000 effort hours is inherently more risky than one that is estimated at 100 effort hours.
- ◆ A project that has 20 people is inherently more risky than one with three people.
- ◆ A project that is using new technology is inherently more risky than one that is using technology your team is comfortable with.

Notice that in each of these examples, you don't know the specifics of the project. Inherent risks are based on the characteristics of the project—regardless of the specific deliverables being produced.

None of the inherent risks mean that the project is definitely in trouble. Even if you identify some inherent risks as high, other project factors will come into play as well that may mitigate the risk. If your project has many inherent risks that fall into a high-risk category, it doesn't mean you won't be successful. It only means that you should put plans into place to manage the risks.

The table below identifies characteristics that may imply risk, as well as criteria for knowing if it is high-risk and low-risk. Depending on where your project characteristics fall, you can evaluate your project to determine whether each risk is high, medium, or low. (Medium risks fall in between the extremes.) The inherent risks need to be customized for each company or organization. For instance, one company might consider a project over 2,000 hours to be high-risk (for that category). However, if your organization normally deals with large projects, you may change the criteria to state that all projects over 20,000 hours would be high risk.

Characteristic	High risk	Low risk
Duration	Longer than 12 months	Less than three months
Number of clients or client organizations	More than three	One
Project scope / deliverables	Poorly defined	Well defined
Project team and client business knowledge	Neither the project team nor the client have solid business knowledge	Both the project team and the client have solid business knowledge
Dependency on other projects or outside teams	Dependent on three or more outside projects or teams	No more than one dependency on an outside project or team
Client commitment	Unknown, passive	Passionate
Changes required to existing procedures, processes, and policies	Large amount of change	Little change
Project manager experience	Little experience on similar projects	Similar experience on multiple projects
Use of formal methodology	No formal methods or processes	Standard methods in use

If your project has many inherent risks rated highly, you might consider the entire project as high-risk. A "high-risk" project might trigger extra scrutiny on the part of management to make sure that the project receives the attention it needs to be successful.

Use this framework to manage expectations on your project

Managing expectations is important on all projects, and it's the major purpose of your status report. But managing expectations requires more than just sending out an accurate status report on a monthly basis. When expectations are managed well, all parties feel good about the outcome of the project, even if there are a number of challenges. On the other hand, when expectations are not managed well, even a project that comes in on time and on budget might be seen as less than successful.

Managing expectations means keeping the client informed as to how the project is going and the changes, if any, that are made to previous agreements and understandings. When there is major friction between the client and the project manager, it's usually not because of the underlying problem—it's because the client was surprised. The following process helps set an overall framework for successfully managing expectations:

1. **Establish an agreement.** This is probably the most overlooked, yet obvious piece of the process. It is impossible to manage client expectations if you don't have some agreement to begin with. There are two major places to gain the original agreement: Project Definition (Charter) and business requirements. The Project Definition sets expectations at a high-level and the business requirements help set expectations at a more detailed level.
2. **Manage change.** Once an agreement has been reached, the project team and the client will proceed within those expectations. It should make sense that any changes to the agreement should be documented and agreed to by the client and the project team. If the client makes changes to requirements or other aspects of the agreement, scope change management should be invoked. If the project team can't deliver against expectations, risk management and issues management should be utilized.
3. **Communicate proactively.** The project manager should communicate proactively through the status reporting process or as part of a broader Communication Plan—especially if there are any problems meeting the expectations. The main motivation is to avoid surprises.
4. **Deliver against the expectations.** Again, this may seem obvious. However, once an agreement has been put into place, make sure that you deliver as expected. Many project managers establish an agreement and then they don't deliver successfully. And even worse, in many cases, the project manager doesn't communicate proactively. This results in the client being surprised, which can cause all sorts of problems.
5. **Reset expectations if necessary.** If you determine that the original agreement can't be satisfied, you should identify the causes, propose alternatives, and reach a new agreement. This may be painful, but it's your only alternative if you can't meet the original expectations.
6. **Complete the agreement.** Review the completed work with the client to ensure that the terms of the agreement have been fully met. If not, negotiate what will be required to fulfill the agreement.

This process may seem simple, but how many of you manage expectations this way? Yet this simple process can save you a lot of aggravation and can result in your making sure that you meet your client's expectations for your project.

Use milestones to check on the health of your project

A milestone is a scheduling event that signifies the completion of a major deliverable or a set of related deliverables. A milestone, by definition, has zero duration and no effort. A milestone is a marker in your schedule. You don't place milestones in your schedule based on a calendar event. In other words, you don't schedule a milestone for the first Friday of every month.

Milestones are great for managers and the sponsor because they provide an opportunity to validate the current state of the project against the overall schedule. Since each milestone signifies that some set of underlying work has been completed, your sponsor should know immediately that your project is behind schedule if a milestone date is missed. The sponsor does not need to know the individual status of all the activities in the workplan. He just needs to keep track of the status of the milestones to know whether a project is on schedule.

In addition to signifying the status of the project against the workplan, milestones also provide a great way to take a step back and validate the overall health of the project. In particular, the following types of activities can be scheduled for (or at) each major milestone.

- ◆ Make sure that the sponsor has approved any external deliverables produced up to this point.
- ◆ Check the workplan to make sure that you understand the activities required to complete the remainder of the project. You did this when the project started, but each milestone gives you a chance to re-validate that you still understand what is required to complete the project.
- ◆ Double-check the effort, duration, and cost estimates for the remaining work. Based on prior work completed to date, you may have a much better feel for whether the remaining estimates are accurate. If they aren't, you'll need to modify the workplan. If it appears that your budget or deadline will not be met, raise an issue and resolve the problems now.
- ◆ Issue a formal status update and make any other communications specified in the Communication Plan.
- ◆ Evaluate the Risk Management Plan for previously identified risks to ensure the risks are being managed successfully. You should also perform another risk assessment to identify new risks.
- ◆ Update all other project management logs and reports.

These activities should be done on a regular basis, but a milestone date is a good time to catch up, validate where you are, get clear on what's next, and get prepared to charge ahead.

Manage your people by due dates, not percent complete

If you are an inexperienced project manager, you've probably gone down the "percent complete abyss" at some point. Here's how it goes: The project manager assigns a piece of work to a team member and asks that it be done by Friday. The team member agrees but sure enough, on Friday the work is not done. The project manager asks how close it is and the person responds "90 percent complete." The project manager walks away, confident the work is almost done. The next Tuesday, the project manager asks if the work is done and the person says no, but he is 95 percent done. The project manager is satisfied that progress is being made and walks away. On Friday, the work is still not done, but the team member is now 99 percent done. The next Tuesday he is 99.9 percent done.

You get the picture. If you're the project manager, what have you learned when a person says he is 90 percent, 95 percent or 99 percent done? In fact, you haven't really learned a thing. When a person tells you that an activity is 90 percent complete, what the heck does that mean? Why not 85 percent complete or 93 percent complete? It's all just a subjective guess.

(I understand that percent complete may have value on a project basis if you're using earned value calculations. But it's meaningless on individual activities. Even in earned value, you usually care only about precision with three values: 0 percent—not started, 50 percent—started, 100 percent—completed.)

The better way to manage the work is to ask "When will the work be done?" If the schedule shows an activity should be completed on Friday and the work is not done, don't ask the team member for the percentage complete. Instead ask the team member "When will the work be done?" Asking when the work will be completed gives you concrete information you can place on your workplan, while also getting the team member to make another commitment to the new end date.

Here's how that scenario plays out in the prior example with our team member, named Joe.

Project manager: "Joe, your assignment was due today and I see you're not done. Let's discuss why." (They discuss the reasons.)

Project manager: "When will the work be done? Next Tuesday. Okay."

(Next Tuesday arrives. Work is still not done.)

Project manager: "Joe, this work was due last Friday. Then you told me it would be done Tuesday. The work is still not done. Why?" (They discuss the reasons.)

Project manager: "When will the work be done?"

Again, you see how the scenario plays out. Asking when the work will be done requires Joe to re-commit. After missing two deadlines, Joe should feel a genuine obligation to get the work done—a level of commitment that doesn't exist in the 90 percent, 95 percent, 99 percent scenario. This also gives the project manager information in terms of Joe's ability to manage his time, estimate his work correctly, and meet his commitments.

Managing by due date is the only way to proactively manage the project workplan.

Process skills are most important to successful project managers

I often get asked whether it is better for a project manager to have good people skills, have good process skills, or be a subject matter expert. My answer might surprise you. First, of course, the more experience, knowledge, and skills a person has, the more likely it is he or she will be successful. In other words, the perfect project manager would probably have a combination of strong people and process management. He or she would also be an expert in the actual technology and business area of the project.

But if you are in the position of prioritizing project management candidates, I would rank people in the following order.

1. Project management process skills
2. People skills
3. Business/technology skills

Here's my logic: The main responsibility of a project manager is to manage the processes associated with project management. This doesn't mean that project managers must do all this work themselves. For instance, there may be an entire team of people helping to create the Project Definition and workplan. However, if something goes wrong, the project manager is accountable. Once the project starts, the project manager must successfully manage and control the work, including issues management, risk management, scope change management, and communications management.

Therefore, I think the key to being a good project manager is understanding the processes associated with managing a project and then proactively applying the processes on the job. Further, I have observed how the following combinations of skills worked and did not work on a project:

- ◆ **Good process skills and weak business/technology skills.** The project manager may not be able to perform activities outside of project management, but that's what the rest of the team is for. One concern is that this type of project manager may not be able to validate quality, but that's okay. The project manager needs to have a process in place to manage quality and validate that the process is executed. I believe a pure project manager can win in this situation.
- ◆ **Good process skills but weak people skills.** This can make a project much more difficult for team members, but I think that very good process skills can still make the project successful. A good project manager can keep a project on-time and on-budget, which will go a long way toward keeping up morale. I believe a pure project manager can win in this situation.
- ◆ **Good people skills but poor process skills.** This is the project manager who's a nice guy but doesn't quite know what he is doing. These types of project managers have difficulty on projects. Everyone likes them, but they're not successful.
- ◆ **Good business/technology skills but poor process skills.** This happens all the time. People are placed into the project management role because of their strong technical skills or strong business knowledge. Unfortunately, the traits that make a person a strong technologist usually don't translate directly into the project management arena, and this combination is generally a recipe for failure.

I truly believe that having good project management process skills can make up for deficiencies in people and technology/business skills. I have seen many examples of successful projects utilizing pure project managers and many instances of the technologist and the "good guy" failing miserably.

Manage the documents on a project before they manage you

Early in my career, I was assigned to two large projects. As you might expect, the project team struggled with scope, risk, communications, etc. However, what I remember as the most troubling was document management. Both of these projects generated a lot of documents and, very early on, it became apparent that things were getting out of control. We had duplicate documents and documents we couldn't find at all. Some documents were located on team members' hard drives, and everything was in a different format. In other words, we had a mess!

That experience taught me that the management of documentation is a fundamental part of larger projects, and it's why document management is one of the core components of our TenStep Project Management Process.

Document management is totally practical. The project manager should think ahead of time about how documentation will be managed so that he or she does not end up in a situation where storing and finding documents is an obstacle to completing a project successfully. Imagine the embarrassment of missing your end-date and having to tell your sponsor it was because no one could ever find the documents they were looking for.

The larger the project, the more rigorous structure is needed to manage documents. The following areas should be considered part of an overall document management plan:

- ◆ **Determine where to store documents.** This is a no-brainer. The project team should have a common area, or repository, for storing documents.
- ◆ **Define a logical and physical document organizational structure.** Once you know where you will store documents, you should also determine the directory or folder structure and define what types of documents go where.
- ◆ **Define naming standards.** Don't let everyone call documents anything they want. Provide the naming conventions so that you can instantly tell what type of information is in each document.
- ◆ **Determine whether some documents need versioning.** The project manager should determine whether multiple versions of documents will be saved or if just the latest version will be saved. If multiple versions are saved, you'll need some type of versioning technique to make sure people know what version they're reading.
- ◆ **Determine whether (and how) you will track document approval status.** This lets you know if a document has "final," "draft," or "awaiting approval" status. Again, if you don't manage the documents, people will read drafts and think they have the final version.
- ◆ **Define standard document formats.** It's easier to read and create documents if they all have a standard format, fonts, headers, footers, etc.

This type of work may sound tedious, and some of it is. However, all large projects need to work through these areas, and more. If you are a proactive project manager, you will set up these standards ahead of time. If you are reactive, you'll still set up these standards, only you'll have to do it after you and your team become overwhelmed by documentation during the project.

Proactively manage your workplan using this 10-step process

One big mistake I see on some projects is that the project manager is diligent about creating an initial workplan (schedule) but then does not proactively manage the workplan during the project. Obviously, doing one without the other is a big mistake. The initial workplan will help you launch your project, but most projects are too dynamic to utilize the original workplan throughout the project. Many issues that come up will require the workplan to be modified and updated.

Like much of project management, updating the workplan requires discipline and habit. On most projects, you can follow this simple 10-step process"

1. **Update and review the workplan with progress to-date.** This is probably a weekly process. For larger projects, the frequency might be every two weeks. A simple routine is to have the team members send you status updates on Friday with progress on the activities assigned to them during the week. The project manager then would update the workplan on Monday morning to reflect the current status.

2. **Capture and update actual hours (optional).** If you are capturing actual effort hours and costs, update the workplan with this information.
3. **Reschedule the project.** Run your scheduling tool to see if the project will be completed within the original effort, cost, and duration estimates.
4. **Review your schedule situation.** See if you are trending past your due date. If you are, you will need to determine how you can get back on schedule.
5. **Review your budget situation.** Review how your project is performing against your budget. Because of how financial reporting is done, you may need to manage the budget on a monthly basis.
6. **Look for other signs that the project may be in trouble.** These trouble signs could include team morale problems, quality problems, a pattern of late work, etc. Look for ways to remedy these problems once you discover them.
7. **Adjust the workplan and add more details to future work.** When the workplan was created, many of the activities that are further into the future may have been vague and placed into the workplan at a high level. On a monthly basis, this work needs to be defined in greater detail. You should always maintain a rolling three months of detailed activities on your workplan.
8. **Evaluate the critical path of the project and then keep your eye on it.** It is possible for the critical path to change during the project.
9. **Update your project forecast.** After you've updated your workplan to reflect the work remaining to complete the project, you should also estimate the cost of the remaining work. This is usually referred to as "forecasting."
10. **Communicate any schedule and budget risk.** If you are at risk of missing your budget or deadline, communicate this risk to the sponsor and management stakeholders. You do not have to state that you will miss your estimates for sure. However, you should start to communicate the risk while you implement actions to try to get the project back on track.

That's it. If you do this weekly, you will probably find that this review and update process takes less than one hour per week—maybe only 30 minutes or so.

If you're going to be a project manager, be a proactive one

There are three types of project managers. The first type is the "accidental" project manager. Usually, this project manager comes up through the ranks. For instance, a strong programmer becomes the project manager on a development project. Or a strong network technician becomes the project manager on a large network upgrade. These people understand the types of projects they are managing, they can build a workplan, and they can assign work to other team members. However, they don't have a lot of project management discipline.

The second type of project manager understands that successful project management requires them to manage issues, scope, communication, risk, etc. But they may not be strong enough project managers to understand that project management discipline needs to be proactive.

The third type, the proactive project manager, has made the mental transition to apply his or her discipline on a proactive and ongoing basis. Look at the following examples of how this works:

- ◆ A good project manager completes the initial Project Definition (charter) because it's required by the organization. A proactive project manager understands that the project must be defined ahead of time, and if it isn't, the team won't have a clear picture of the work that must be done.
- ◆ A good project manager creates a monthly status report for sponsors and managers. A proactive project manager completes this same status report but also understands that a status report is the minimum requirement for communicating. A proactive project manager handles communication in the context of an overall Communication Plan. This allows the project manager to proactively determine and fulfill the various communication needs of the project stakeholders.
- ◆ A good project manager identifies risk at the beginning of the project. A proactive project manager identifies risk at the beginning of the project and then manages and monitors risk throughout the project.

- ◆ A good project manager figures out how to resolve issues as they occur. A proactive project manager has an issues management process in place to deal proactively with all major problems when they occur.
- ◆ A good project manager builds a quality solution because of pride and knowing it is the right thing to do. A proactive project manager determines the client's expectations for quality and puts a plan in place to meet that level of quality.

Do you see the difference? The merely "good" project manager understands the basic responsibilities of a project manager. The very good, proactive project manager has internalized these project management responsibilities and makes them a normal part of the project work. Proactive project managers don't perform these duties just because they're required. They perform the responsibilities because they understand that these project management processes give them a much better chance for success.

Avoid these common causes for project failure

It's true that every project is unique. However, it's also true that all project failures can be assessed using the same generalities. It helps to understand these because you can then be proactive in avoiding the problems to begin with.

1. **Poor upfront planning.** This is probably the most common problem. If you have ever been on a troubled project, chances are you looked back and said, "We should have spent more time planning." Projects that start execution without fully understanding the work to be done (and getting the sponsor to agree) are usually destined for problems. By the time you realize that you are not in synch with your sponsor, it's usually very difficult to get back on track within the allocated budget and timeframe.
2. **Incomplete or vague project workplan.** Your workplan is the roadmap that describes how you are going to complete the work. You'll have problems if your workplan is at too high a level, incomplete, or not up to date. You may get away with it on a small project, but it will be fatal on a larger effort.
3. **Weak ongoing project management discipline.** Some managers do a great job in the upfront planning process but then don't manage the project effectively from that point on. This includes having problems managing scope change, resolving issues, communicating proactively, and managing project risks.
4. **Inadequate resources.** This covers a lot of areas. You may not have the right level of resources because you didn't estimate the work correctly. You might have estimated the work correctly, but your management has not allocated the proper level of staffing. It's possible that you have enough bodies, but you don't have people with the right skill mix. All of these may lead to major project failures.
5. **People problems.** In my experience, people tend to get along fine when the project is on track. However, if the project gets into trouble, people start to work longer hours, feel more stress, get more edgy, and have more personality conflicts. While it is certainly possible that these problems are actually causing the project to slip, it is also likely that other problems are causing the problem and that the people problems are a later symptom.
6. **Lifecycle problems.** There are a lot of opportunities for problems throughout the lifecycle. Many of these will cascade as the project progresses, leading to major trouble. Examples of lifecycle problems include:
 - ◆ A failure to clearly and completely define the requirements results in building the wrong features or leaving gaps in the features needed.
 - ◆ New or state-of-the-art technology is causing unanticipated problems.
 - ◆ A poor technical design doesn't allow the solution to be easily modified or is not scalable.
 - ◆ Requirements are not frozen late in the project, and continued change requests start to cause the project to drift.
 - ◆ Technology components do not fit together as designed.
 - ◆ Poor initial testing techniques cause repeated errors and rework in later tests.

All of these problems will cause projects to struggle. If problems occur toward the end of the project, you may have no choice but to do whatever is required to push the project to completion. The problems that appear earlier will cause the most trouble over time and are more likely to be the ones that require a full project rescue.

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