

## By Tom Mochal

Small projects don't necessarily require much knowledge of project management or much project management discipline. But as a project gets larger, formal processes and techniques become essential. Different project management methodologies organize and structure these processes in various ways, but we're going to focus on these 10 basic areas:

1. Define the project
2. Plan the work
3. Manage the workplan
4. Manage issues
5. Manage scope
6. Manage risks
7. Manage communication
8. Manage documentation
9. Manage quality
10. Manage metrics

In general, if you can master these areas, you can succeed in most projects. You may not have to worry about managing documentation or metrics on a small project, but the larger your project, the more you'll need to focus on all 10 processes.

Notice that the list doesn't include analysis, design, testing, or implementation. Those who have worked on projects probably know that they typically include analysis and testing. However, there is a major distinction to be made. Analysis and testing are part of the actual project work effort (also called a project lifecycle). These phases change depending on the project type. If you have a full lifecycle project, you could perform the full range of analysis, design, construction, testing, and implementation. On other projects, you might do only certain components. For example, if you were performing a research and development project, you wouldn't be doing implementation. If you were performing a study, the project might end after the analysis phase.

## Do you see something missing?

Two processes are sometimes included as a part of basic project management: people management and contract and procurement management. People management is an important skill for project managers, but it's not specific to project management. After all, any management-subordinate relationship requires people management. The distinction is that it's a project "manager" skill, but not necessarily a project "management" skill.

We've also excluded contract and procurement management from our list. In most organizations, project managers need to know about the management of contracts and vendors, but they aren't responsible for it. A legal department and/or procurement department is usually responsible for these disciplines.

## Timing and sequencing of the processes

Except for the first two categories—defining the project and planning the work—the 10 major project management areas don't fall into a sequential path. Processes 3 through 10 can be done in any order, and in fact, are done in a parallel and ongoing manner throughout the project. For example, if a major problem pops up, you must use issues management regardless of what other aspects of project management you're using before, during, or after that time. Let's take a closer look at each process in our list.

## 1. Define the project

As the project manager, you must make sure that the work is properly understood and agreed to by the project sponsor and key stakeholders before the project work begins. You'll work with the sponsor and stakeholders to ensure that the project team and the client have common perceptions of what the project will deliver, when it will be complete, what it will cost, who will do the work, how the work will be completed, and what the benefits will be.

The larger the project, the more important it is that this information is mapped out formally and explicitly. All projects should start with this type of upfront planning to prevent problems caused by differing viewpoints on the basic terms of the project. The major deliverable from this step is the [Project Definition](#) (some companies call this a Project Charter).

At a high level, the purpose of defining the work includes:

- Understanding and gaining agreement on project objectives, deliverables, scope, risk, cost, approach, etc. This is the most important part of defining the work and is where most of the time is spent in gaining common agreement.
- Determining whether the original business case is still valid. For example, a project that requires 10,000 effort hours might make business sense. If the more detailed definition process results in a more refined estimate of 20,000 hours, the project may no longer be feasible.
- Making sure the resources you need are available when you need them.
- Providing a high-level baseline from which progress can be compared and scope can be controlled.
- Gaining agreement with the client on the processes used to manage the project.

The effort required to define the work depends on the amount of information and the level of detail that need to be understood and documented. The duration required to define the work depends on the length of time necessary to discover and document the information, as well as the time required to gain agreement and approval from the client.

It may be difficult to define exactly what the final deliverables look like for large and complex projects. It is also difficult to estimate the total cost and deadline date. If that is the case, you can break the project into smaller projects. The projects that are done first should then be much easier to define. The projects that are to be completed in the future can be defined in detail as they get closer to execution.

At the end of the definition aspect, you should have a Project Definition that defines the expectations of the project in terms of objectives, deliverables, scope, risks, costs, deadline, and roles. This document should be formally approved by the project sponsor and other key stakeholders before the project team proceeds. At times, you can get frustrated because of the difficulty in gaining agreement with the client on scope, timeline, and cost. But that is exactly the reason this definition work is done ahead of time. Think of the problems you would no doubt encounter trying to gain agreement with the client on scope, schedule, or cost when the work had started and the deliverables were actually being produced.

## 2. Plan the work

When you define the project, you make sure that you have an agreement with the project sponsor on what work should be completed in this project. In this stage, you determine how the work will be completed. This involves building the Project Workplan. You'll take different approaches according to the size of the project. For example, the workplan for small projects can be built using a project management package like Microsoft Project, a spreadsheet, or even a piece of paper.

If you don't have a workplan template to use as your starting point, you can use the Work Breakdown Structure (WBS), a technique for looking at the project at a high level and breaking the work into smaller and smaller pieces until you can get the full picture of the work. The entire team can collaborate on this exercise. I recommend breaking down the work into lower levels until each remaining activity is less than 80 hours, and it is clear what is required to complete the activity.

Once all of the work has been uncovered, you can sequence the activities and identify dependencies between them. At this point, the WBS has been converted to a Network Diagram.

Next, you add resources (workers) for each activity. If you know of certain resources, you can add them by name. If not, you can use generic names as placeholders. You then add the effort hours and the beginning and ending dates for each activity.

Your workplan is now ready to go. You'll know what work you have to complete (Project Definition) and how you'll get the work done (Project Workplan).

## **The relationship between defining and planning the project**

You may find that you can't complete the Project Definition without starting to lay out the overall Project Workplan. In many cases, you'll need to work on these two deliverables simultaneously. As you gather information about scope and deliverables, you'll need to start laying out a timeline so that you can get your hands around estimated effort and duration. When the deliverables, scope, assumptions, and approach are complete, you should have enough information in the Project Workplan to estimate the budget, effort, and duration, which you'll use in turn to complete the Project Definition.

## **3. Manage the workplan**

At this point, you've finished defining the project and planning the work. The major deliverables in place are the Project Definition and Project Workplan. Some project managers think that defining and planning the work means that the hard part of managing the project is behind them. That is definitely not the case.

You'll never be a successful project manager if you don't keep the workplan up to date. Remember, the workplan is only a deliverable. It describes the work that needs to occur, the order of the work, how much effort is required, and who is assigned, but it represents only your best guess as to how to complete the remaining work at any particular point in the project.

The more complex your project is, the more change is going to be required in your workplan over time. As the project manager, you must evaluate the workplan on an ongoing basis (perhaps weekly) and determine the current state of the project.

During this weekly review, you'll update the workplan with the current state of work that is completed and in progress. You'll evaluate the remaining work to see if the project will be completed within the original effort, cost, and duration plans. If it can, you are in good shape. If it can't, you must implement corrective action.

Of all of the skills of managing the project, this one is perhaps the most fundamental. Depending on the dynamics of your project, you may be in the position of having to constantly use your experience and creativity to get the project completed within expectations. One week, your project may be on track. The next week, you may have work assignments that are late and issues that have surfaced.

If an activity on the critical path is a week late, you can't sit idly and allow the entire project to be a week late. Instead, you must evaluate the resources and options available and get the project back on track. If you're good at it, managing the workplan can be one of the more challenging and rewarding aspects of project management. If you don't relish the detailed work that is required, you may find it much more difficult to be successful.

## **4. Manage issues**

An "issue" arises when a problem will impede the progress of the project and can't be resolved by the project manager and project team without outside help. If a major problem emerges, you have no choice but to resolve it. The only question is whether you'll actively apply issues management to the situation or flounder through indecision and uncertainty about how the issue should be resolved.

Issues management has two major components. The first is having a process to uncover issues, determine their impact on the project, examine alternatives, and bring in people to make the best decision under the circumstances. This is all part of the project management procedures that should be defined and agreed to ahead of time. These procedures ensure that issues are recognized and resolved as quickly as possible.

The second component of issues management is applying specific problem-solving techniques. This includes some understanding of techniques such as Fishbone diagrams, Pareto charts, and root cause analysis. Having an understanding of one or more of these techniques allows you and your team to understand the nature and cause of the problem, what options are available, and what alternative would be the best course of action.

One important thing that all project managers discover is that having a process to resolve issues doesn't mean you'll successfully resolve every one. Sometimes, there are great alternatives to issues and your job is to help discover the best one. In other instances, there is no good resolution to a major problem. On occasion, your final choice is to pick the solution that causes the least harm or is the best among poor choices. Still, your issues resolution process and your problem-solving techniques will allow you to determine what options are available so that you at least understand the repercussions.

## 5. Manage scope

Scope describes the boundaries of the project and defines what the project will deliver, what data is needed, and which organizations are affected. Given a set of resources and time, an infinite number of things can be delivered.

Scope change management starts with scope change definition. If the project manager hasn't done a good job defining scope, it will be difficult to manage scope during the project. The purpose of scope change management is to protect the viability of the current, approved Project Definition. When the project was defined, certain expectations were set for what the project was going to produce for a certain cost and in a certain timeframe. Both you and the project sponsor have those expectations in mind when the Project Definition is developed and approved.

During the life of a project, there may be a need for items that are different from, or not included in, the original Project Definition; this is to be expected. If this occurs, the client should not expect that these items can be delivered using the previously agreed on resource and time constraints. The project team will identify the new requirements and determine the impact to the project if the new requirements are included. The information is then taken to the sponsor for approval.

Remember, the sponsor is the one who approved the funding of the work to begin with. Therefore, he or she is the one who should approve any changes to the original agreement. If the business value of the change is high enough, the sponsor should approve adding the new requirement to the project, as well as the incremental budget and timeline needed to complete the work. Everyone will then be in agreement and everyone's expectations will have been reset.

Of course, sometimes it doesn't happen so smoothly. Common problems include:

- **Scope creep.** Large scope changes are easy to spot. However, when the changes are small, sometimes you find that you're including them without realizing it. Scope creep means that you're accepting small changes that end up having a significant cumulative effect on the project. You and the entire team must be diligent to guard for all scope changes—big and small.
- **End-user scope approval.** The project sponsor is the person paying for the project. However, once the project begins, the team spends more time with lower-level clients and end users. Some project team members believe that scope changes are fine if the end user approves them. This is not the case. Unless the sponsor has specifically delegated the approval authority, these people can't approve scope changes. They can raise scope change requests, but only the sponsor has the funding authorization to approve incremental work.
- **Team members not being accountable.** A common cause of missing deadlines is that the team members end up doing more work than required. For example, a team member may be asked to create a report. As he or she is creating it, the client asks for new information. The team member tries to accommodate the client, and the work ends up being late. This happens when team members think that only the project manager needs to worry about scope change management. They need to understand that it's everyone's responsibility.

The root cause of many unsuccessful projects is poor scope change management. Defining and managing scope effectively will increase the chances that your project will meet expectations.

## 6. Manage risk

Risk refers to future conditions or circumstances that exist outside the control of the project team and that will have an adverse impact on the project if they occur. In other words, whereas an issue is a current problem that must be dealt with, a risk is a potential problem. Reactive project managers resolve issues when they arise. Proactive project managers try to identify and resolve potential problems before they occur. This is the science and art of risk management.

Since smaller projects usually don't have long durations, there is less opportunity for problems to develop. Larger projects usually have risks lurking just over the horizon. Risk management involves identifying all potential risks to the project, determining how likely they are to occur, and understanding the impact on the project if they occur.

With that information, the project team can determine which risks should be actively managed. For example, a risk with a high probability of occurring and a large impact on the project should definitely be managed proactively. On the other hand, a risk that has a high likelihood of occurring but a marginal impact on the project can probably be ignored.

Once you identify which risks you want to actively manage, you can invoke five general responses:

1. **Leave it.** You would leave a risk if you determined that your project would not be harmed if the risk occurred or if there was nothing that could be done to address the risk and you're willing to take the chance that it won't occur.
2. **Monitor the risk.** In this case, you don't proactively mitigate the risk but you monitor it to see whether it's more or less likely to occur as time goes on. If it looks more likely to occur later, the team must address it at that time.
3. **Avoid the risk:** Avoiding the risk means eliminating the condition that's causing the problem. For example, risks associated with a particular vendor might be avoided if another vendor is used.
4. **Move the risk:** In some instances, the responsibility for managing a risk can be removed from the project by assigning the risk to another entity or third party.
5. **Mitigate the risk:** In most situations, this is the approach to take. If a risk has been identified and is a concern, you can develop a proactive plan to ensure that it doesn't occur.

As with scope changes, there is nothing inherently wrong with having risks on a project. Clients don't expect that a project will be risk-free. What matters is the project management response. If risks are identified and actively managed, the project has a much better chance of success. If risks are ignored, the project will be negatively affected when the risks turn into issues. At that time, there may be fewer options for resolution without impacting the project.

## **7. Manage communication**

Properly communicating on a project is critical for managing the clients and the shareholders. If they're not kept well informed of the project progress, there is a much greater chance of problems and difficulties due to differing expectation levels. In fact, in many cases when conflicts arise, it's not because of the actual problem, but because the client or manager was surprised.

There are two levels of communicating on projects. First, all projects should communicate status. Second, if your project is larger, more complex, or more politically charged, you need a higher and more sophisticated level of communication defined in a [Communication Plan](#).

### **Status meetings and status reports**

All projects need effective communication from the project team to the project manager and from the project manager to the rest of the stakeholders. Status reports and status meetings need to do more than just say whether the project is on track. This is the time you communicate everything you think needs to be known about your project. You communicate about adherence to the project's budget and schedule, accomplishments from the last reporting period, planned accomplishments for the next period, new risks, current issues, and current scope change requests.

The information and presentation must be communicated with the audience in mind. Therefore, you would expect that a weekly status meeting with your team would include discussions at a fairly low and detailed level. Status reports you send to the sponsor and management stakeholders will necessarily be brief and high-level.

### **Communication Plan**

Large initiatives, especially the kind that require organizational change, must include an overall Communication Plan that takes a multifaceted approach to communication. The process for building this plan includes defining all your stakeholders, determining what information they need, brainstorming ways to deliver that information, and then deciding on a set of communications that cover as many stakeholders as possible in the most resource-efficient manner.

Depending on the audience, the communication falls into one of three areas.

- **Mandatory.** This includes status reports, budget reports, and legal and auditing requirements.
- **Informational.** This is communication that provides extended information for people with a need to know more. Examples include a document library, frequently asked questions (FAQ), and a project Web site that contains relevant project information.
- **Marketing.** This is communication designed to build enthusiasm for your project. Examples include publishing success stories, building a positive image, distributing management testimonials, and using a project logo.

Communication must be handled proactively by the project manager and must be planned and executed with a purpose in mind. If you communicate effectively and proactively, you'll find that the entire project runs more smoothly and with less conflict and frustration.

## 8. Manage documents

Many project managers take document management for granted until they're inundated with hundreds of documents. It's better to estimate the volume of project and project management documentation you think the project will produce, establish the proper processes and rules to organize the documentation, and then manage the documentation during the project to ensure that it doesn't get out of control.

Project managers on smaller projects don't need to give as much thought to managing documentation. As projects get larger, the documentation definitively needs to be actively managed. Problems at their simplest include documentation that gets lost or is hard to find and work that ends up being duplicated. At its worst, document versions get out of order, document updates get over-posted and lost, and confusion and uncertainty reign.

This is an aspect of project management that may be supported by a tool, such as a document repository. However, tools can be just as confusing if proper techniques aren't used to store documents in a manner that allows them to be easily retrieved.

Document management involves simple and complex tasks. A simple activity, for example, is a document-naming convention. If you have 10 people on your team and each one submits a status report each week, it's not long before you have hundreds of documents. It's easier to organize the documents if everyone uses a common naming convention. Should the name of the document start with each person's name? If so, then each person's historical status reports will sort together and be easier to find.

Or perhaps you'll want to search for status reports from particular points in time. In that case, the status reports should start with the date. Then all the status reports for a particular reporting cycle will sort together.

Another part of document management is understanding the types of document tools you'll use. For example, you might define Microsoft Word as your standard document editor. If your team is cross-functional and includes clients, vendors, and suppliers, these types of document management rules become more vital.

Other factors must be considered to successfully manage documents. These include where you'll store the documents, how they'll be organized, access and security rules, keywords/indexing, naming standards, versioning, completion status, retention/purging, backups, and standard template formats.

## 9. Manage quality

Quality is represented by how close the project and deliverables come to meeting the client's requirements and expectations. In other words, quality is ultimately measured by the client.

The project team should strive to meet or exceed the client's requirements and expectations. Sometimes there is a tendency to think that "quality" means the best material and equipment and zero defects. However, in most cases, the client doesn't expect, and can't afford, a perfect solution. If there are just a few bumps in the project, the client can still say that the project delivered to a high level of quality.

On the other hand, a flawlessly designed, defect-free solution that doesn't meet the client's needs isn't considered high quality. The purpose of the quality management step is to first understand the expectations of the client in terms of quality and then put a plan and process in place to meet or exceed those expectations.

Because quality is defined by the client, it may seem that it is completely subjective. However, plenty about quality can be objective. This requires first breaking down the generic term of “quality” into a number of areas that define the characteristics of quality.

For example, you can think of a quality computer application in terms of response time, look-and-feel, ease of understanding, level of help documentation, and absence of defects. Once you’ve defined the more tangible characteristics of quality, you can look at each of them to determine how they can be measured with more objectivity.

Quality management is not an event: It is a process and a mindset. A consistently high-quality product can't be produced by a faulty process. You need a repetitive cycle of measuring quality and updating processes.

Collecting metrics is vital to making the quality management process work. So, the ninth and tenth aspects of project management, managing quality and managing metrics, are closely tied. If you want to do a good job of managing quality, you must measure.

When the project is initially defined, the project team must understand the expectations of the client in terms of quality and plan the activities to meet those expectations in a [Quality Plan](#). The Quality Plan contains completeness and correctness criteria so that the project team knows what the quality expectations are.

The Quality Plan also contains the two general quality processes: quality control and quality assurance. Quality control activities ensure the deliverables produced by the project meet client expectations. An example of a quality control activity is an inspection of each component that will be used to complete a final deliverable. Quality assurance activities ensure that the processes used to create the deliverables are of high quality. An example of a quality assurance technique is a checklist that contains all of the steps that a deliverable must complete before it reaches final acceptance.

One of the purposes of quality management is to find errors and defects as early in the project as possible. Therefore, a good quality management process will end up taking more effort hours and cost up-front in the project. However, focusing on quality early has a large payback as the project progresses. For example, it is much more efficient to spot problems with the business requirements during the analysis phase of the project than to redo work to add missing requirements during the product testing. It's also much cheaper to find a problem with, for example, a computer chip when the chip is manufactured than to replace it when a client brings the product in for service after a purchase.

## **10. Manage metrics**

Gathering metrics on a project is the most sophisticated project management process and can be the hardest. Because metrics can be difficult to define and collect, they're usually ignored or handled poorly. All projects should be gathering basic metric information regarding cost, effort, and cycle time. However, you must also collect metrics that determine how well the deliverables satisfy the client's expectations and how well the internal project delivery processes are working. Depending on the results, you can undertake corrective action or process improvement activities to make the processes more efficient and effective.

Managing metrics and managing quality are related. It is difficult to improve the quality of your deliverables or your processes if you're not gathering metrics. Metrics are used to give some indication of what the beginning state of quality is and whether quality is increasing or decreasing.

Many metrics can be gathered on a project. The project team should identify and collect a balanced set that provides the most value. To determine the right metrics for your project, you:

- Identify the project success criteria in terms of product deliverables and project execution. That is, determine what your deliverables need to look like for the project to be successful. Also determine how your project needs to be completed to be considered successful—for example, budget and deadline expectations.
- Brainstorm a set of metrics that provides an indication of the state of each success criterion.
- Look for a balanced set of metrics that provides indications of success in terms of cost, delivery, quality, and client satisfaction.
- Prioritize the potential metrics to come up with a list that provides the most value in the most cost-effective manner.

*Master these 10 processes to sharpen your project management skills*

- Set targets to allow you to determine success. Metrics are rarely of value alone. The value comes in measuring where you are against a preferred state or agreed on target.
- Add collection activities to the workplan to ensure that people are responsible for the metric collection and analysis process.

In general, metrics management is of less value on smaller projects because there isn't enough time to capture the data, analyze the results, and make appropriate process improvement changes. Longer projects give you time to use a feedback loop. The most value is gained if the metrics are used to drive improvements on an organization-wide basis.

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