



TenStep Supplemental Paper

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The Top Ten Aspects of Project Management

Projects are a way to organize work. Some people say that all work is a project, but that is not totally accurate. There are really two kinds of work - routine work (support) and project work.

Routine work covers the normal things you do as an ongoing part of your job. In many organizations, this is called support work. In others it is called "operations." It is basically the day-to-day work that gets done on an ongoing basis to keep the business functioning. For IT people, support work consists of answering questions, going to regularly scheduled meetings, fixing problems in the production systems, etc. For accounts receivable workers, this could include calling overdue accounts, answering billing questions from customers and matching customer payments to invoices. The key thing is that the work is an ongoing, and routine, part of your job. This is the work you do today, tomorrow and a month from now.

Defining Projects

On the other hand, projects are not routine. The biggest difference is that projects, by their definition, have a defined start and end-date. There is a point in time when the work did not exist (before the project), when it does exist (the project), and when it does not exist again (after the project). This is the key determinant of whether a piece of work is a project. Other characteristics of a project include a defined scope, finite budget, specific end results (or deliverables) and assigned resources. Another characteristic of a project is that the work is unique. Even if a project is similar to another one, it is not exactly the same because circumstances change and because things are always different when you are dealing with people.

The Top Ten Aspects

One of the primary roles of managers is to manage work processes. The process of managing a project is called project management, and the person responsible for the project is called a project manager. Small projects don't necessarily require much knowledge of project management, and they do not require much project management discipline. However, as a project gets larger and larger, there is more and more need to utilize formal processes and techniques. Different project management methodologies have different ways that these processes are organized and structured. The approach for this overview is to look at ten basic aspects of project management, as follows.

1. Define the project
2. Plan the work
3. Manage the workplan
4. Manage issues
5. Manage scope



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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 any sized project.

Project Work versus Project Management

Notice that the list does not include analysis, design, testing or implementation. All of you that have worked on projects probably know that projects typically include some type of analysis and some type of testing. However, there is a major distinction to be made. Analysis, design testing, etc. are all part of the actual project work effort. (This is also called a project life-cycle.) These phases change depending on the type of project you have. If you have a full life-cycle project, you could perform the full range of analysis, design, construction, testing and implementation. On other projects, you might just do certain components. For instance, if you were doing research and development, you would not be doing implementation. If you were performing a study, the project might end after the analysis phase.

Project management, on the other hand, consists of a set of processes used to manage the work. The same basic set of project management processes can be used for IT projects, building a house or managing a Marketing campaign. As mentioned earlier, you may not practice all of the processes on every project, but that has to do mostly with the size and complexity of the project being managed. For instance, you may not have to worry about managing documentation or managing metrics on a small project. However, the larger your project gets, the more you will need to focus on all of these ten aspects.

Do You See Something Missing?

There is one additional caveat to mention at the beginning. There are two processes that are sometimes included as a part of basic project management. One is people management and the other is contract and procurement management. There is no question that people management is an important skill of project managers. However, it is also a skill that is required for all managers. As such, it is not a specific skill that needs to be associated with project management, as much as it is a skill that is applied in any management – subordinate relationship. The distinction is that it is a project “manager” skill, but not necessarily a project “management” skill.

Contract and procurement management is also not a skill included in this top ten list. In most organizations, the management of contracts and vendors is something that project managers need to know about, but not something they are responsible for. In most companies, there is a specific Legal Department and Procurement Department that are responsible for these disciplines.

Timing and Sequencing of the Processes



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The ten major project management areas described previously do not fall into a sequential path. The only order that you will see is that the first two categories need to be done first. That is, the project needs to be defined and planned first, and then the project needs to be managed. The third through the tenth aspect can be done in any order, and, in fact, are done in a parallel and ongoing manner throughout the project. For instance, if a major problem pops up, you must proactively utilize issues management, regardless of what other aspects of project management you are using before, during or after that time.

Aspect 1: Define the Project

Before the project work begins, the project manager must make sure that the work is properly understood and agreed to by the project sponsor and key stakeholders. The project manager works 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 done, and what the benefits will be. The larger the project, the more important it is that this information be mapped out formally and explicitly. All projects should start with this type of upfront planning to prevent future 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 a common agreement.
- Validating whether the original business case is still valid. For instance, 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 not make business sense any more.
- 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 needs 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 very 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 down into smaller projects. The projects that are done first should then be much easier to define all the way through. The projects that are done in the future can be defined in detail as they get closer to execution.



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At the end of the definition aspect, the project manager should have a Project Definition that defines the expectations of the project in terms of objectives, deliverables, scope, risks, costs, deadline, roles, etc. This document should be formally approved by the project sponsor and other key stakeholders before proceeding with the work of the project. At times, the project manager 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 will encounter trying to gain agreement with the client on scope, schedule or cost when the work has started and the deliverables are actually being produced.

Aspect 2: Plan the Work

In the first aspect, we made sure that we had an agreement with the project sponsor on what work should be completed in this project. In this aspect, the project manager determines how the work will be completed. This involves building the project workplan. The workplan is a vital tool to ensure that the project team knows what they need to do. Different approaches should be taken in this step according to the size of the project. The workplan for small projects can be built without a lot of formality. It is possible to use a project management package like MS Project, or a spreadsheet, or a piece of paper.

If you do not have a workplan template to use as your starting point, the Work Breakdown Structure (WBS) technique can be used. The WBS is a technique for looking at the project at a high level, and then subsequently breaking the work into smaller and smaller pieces until you can get the full picture of the totality of work that needs to be performed. The entire team can collaborate on this exercise. The work can be broken 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, the activities are sequenced to determine what work is done first, second, third, etc. Dependencies between each activity are also identified. At this point the WBS has been converted to a Network Diagram.

Next you add resources for each activity. If you know 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 now know what work you have to complete (Project Definition), and how you will get the work done (project workplan).

The Relationship Between Defining and Planning the Project

You may find that you cannot complete the Project Definition without starting to lay out the overall project workplan. In many cases, these two deliverables need to be worked on in parallel. As you gather information around scope and deliverables, you will need to start laying out an overall timeline so that you can get your hands around estimated effort and duration. As you get more information, fill in more detail on the workplan. When the deliverables, scope, assumptions and approach are complete, you should have enough information in the workplan to estimate the necessary budget, effort and duration - which in turn are used to complete the Project Definition.



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Aspect 3: Manage the Workplan

At this point, you have completed 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 will never be a successful project manager if you do not keep the workplan up to date. Remember that the workplan is only a deliverable. It describes the work that needs to occur, the order of the work, how much effort is required, who is assigned, etc. However, it only represents 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 “best guess” workplan over time. That is why this is such an important project management skill. The project manager must evaluate the workplan on an ongoing basis (say weekly) and determine the current state of the project. Based on the current state of the project and your current understanding of the work remaining, the project manager needs to re-plot a course that will allow the work to be completed within the original budget and deadline, if at all possible.

For the most part, the workplan will need to be reviewed on a weekly basis. During this review, the project manager updates the workplan with the current state of work that is completed and in-progress. The remaining work should be evaluated to see if the project will be completed within the original effort, cost, and duration. If it can, then you are in good shape. If it cannot, then the project manager must implement corrective action.

Of all of the aspects for managing the project, this one is perhaps the most fundamental. Depending on the dynamics of your project, the project manager may be in a position of having to constantly utilize his or her 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, the project manager cannot sit back idly and allow the entire project to be a week late. Instead, he or she must evaluate the resources and options available and get the project back on track. If you are good at it, managing the workplan can be one of the more challenging and rewarding aspects of project management. If you do not relish the detailed work that is required, you may find it is much more difficult to be successful.

Aspect 4: Manage Issues

Another key aspect of project management is the ability to manage issues. On many projects, problems come up on a day-to-day basis. Most of these are resolved fairly quickly. Other problems are such that you have time to spend resolving them, because they do not have a large impact on the project.

However, an 'issue' arises when a problem will impede the progress of the project and cannot be resolved by the project manager and project team without outside help. Issues management is one of the fundamental processes of project management because you do



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not have any choice as to whether you need to apply it. If you have a major problem come up, you have no choice but to resolve it. The project manager cannot sit back and say that issues management is not one of the project management processes being applied on this project.

Problems have to be resolved. The only question is whether the project manager applies proactive issues management to the situation, or whether the project manager flounders through indecision and uncertainty as to how the issue should be resolved.

There are two major components of issues management. The first is having some process to surface issues, determine the impact to the project, look at alternatives, and get the proper people to make the best decision under the circumstances. This is all a part of the project management procedures that should be defined and agreed to ahead of time. These procedures ensure issues are recognized and resolved as quickly as possible.

The second component of issues management is to be able to apply specific problem solving techniques to resolve the issues. This includes some understanding of techniques such as Fishbone Diagrams, Pareto Charts, root cause analysis, etc. 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 note that all project managers discover at some point is that having a process to resolve issues is not the same as being able to successfully resolve every one. Sometimes there are great alternatives to issues and your job is to help discover the best one. However, other times there is not good resolution to a major problem. Sometimes your final choice is to pick the solution that causes the least harm, or is the best amongst 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 know what the repercussions are.

Aspect 5: Manage Scope

Scope is the term used to describe the boundaries of the project. It defines what the project will deliver and what it will not deliver, what data is needed and what is not needed, what organizations are affected and which are not, etc. Given a set of resources and time, there are an infinite number of things that can be delivered. The scope of the project is where you describe what will be delivered.

Scope change management starts with scope change definition. If the project manager has not done a good job defining scope to begin with (Aspect 1: Define the Project), he or she will have a difficult time managing 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 as to what the project was going to produce for an agreed upon cost and within an agreed upon timeframe. The project manager had those expectations in mind, and the project sponsor had those expectations in mind, when the Project Definition was developed and approved.



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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 and is not a bad thing. If that situation occurs, the client should not expect that they can be delivered within the previously agreed upon resource and time constraints. The project team identifies the new requirements and determines the impact to the project if the new requirements are included. The information is then taken to the sponsor for approval. Remember that the sponsor is the one who approved the funding of the work to begin with. Therefore, they are the ones 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 is then in agreement and everyone's expectations have been reset.

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

- **Scope creep.** Large scope changes are easy to spot. However, when the changes are small, sometimes you find that you are including them without realizing it. Scope creep means that you are accepting small changes over time that end up having a significant cumulative effect on the project. The project manager and the entire team need to 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 cannot approve scope changes. They can raise scope change requests, but only the sponsor has the funding authorization to approve incremental work.
- **Team members aren't accountable.** A common cause of missing deadlines is that the team members assigned end up doing more work than required. For instance, a team member may have a report assigned to him or her. As he/she is creating the report, 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 scope change management is only something the project manager needs to worry about. They need to understand that scope management is everyone's responsibility.

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

Aspect 6: Manage Risk

Risk refers to future conditions or circumstances that exist outside of the control of the project team 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 that has not yet occurred. Reactive project managers resolve issues when they arise.



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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 do not have a long duration, there is not as much opportunity for future problems. However, larger projects usually have risks lurking over the horizon. Risk management involves identifying all potential risks to the project, determining how likely they are to occur and understanding the impact to the project if they occur. With that information, the project team can determine which risks should be actively managed. For instance, a risk with a high probability of occurring and a large impact to the project should definitely be managed proactively. On the other hand, a risk that has a high likelihood of occurring and a marginal impact on the project can probably be ignored.

Once you identify which risks you want to proactively manage, there are five general responses you can invoke.

1. **Leave it:** You would just leave a risk if you determined that your project would not be harmed if the risk occurred, or if there was nothing that can be done to address the risk and you are willing to take the chance that it will not occur.
2. **Monitor the risk:** In this case, the project manager does not proactively mitigate the risk, but monitors it to see whether it is more or less likely to occur as time goes on. If it looks more likely to occur later, then the team must address it at that time.
3. **Avoid the risk:** Avoiding the risk means that the condition that is causing the problem is eliminated. For instance, risks associated with a particular vendor might be avoided if another vendor is used instead.
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. For instance, outsourcing a risky activity to a third party specialist might remove the risk from the project team.
5. **Mitigate the risk:** In most cases, this is the approach to take. If a risk has been identified and is a concern to the project, a proactive plan is developed to ensure that the risk does not occur.

Just as with scope changes, there is nothing inherently wrong with having risks on a project. Clients do not 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 impacted when the risks turn into issues. At that time there may be fewer options for resolution without impacting the project.

Aspect 7: Manage Communication

Properly communicating on a project is a critical success factor for managing the expectations of the client and the stakeholders. If these people are not kept well informed of the project progress, there is a much greater chance of problems and difficulties due to



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differing levels of expectations. In fact, in many cases where conflicts arise, it is 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. However, 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 that you communicate everything that you think the readers need to know about your project. You communicate whether the project is on budget and schedule, accomplishments from the last reporting period, planned accomplishments for the next period, new risks, current issues, current scope change requests, etc.

The information and presentation must be presented with the audience in mind. Therefore, you would expect that a weekly status meeting with your team is going to include discussions at a fairly low and detailed level. However, status reports that the project manager sends to the sponsor and management stakeholders will necessarily be much more brief and high-level.

Communication Plan

Many projects need much more proactive communication than just status meetings and status reports. Large initiatives, especially the kind that require organizational change, must define an overall Communication Plan that takes a multi-faceted 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 settling 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, 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 website that contains relevant project information.
- **Marketing.** This is communication designed to build enthusiasm and positive feelings toward your project. This includes publishing success stories, building a positive image, distributing management testimonials, using a project logo, etc.

Communication must be managed proactively by the project manager, and needs to be planned and executed with a purpose in mind. If you communicate effectively and



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proactively, you will find that the entire project runs more smoothly and with less conflict and frustration.

Aspect 8: Manage Documents

Project managers on smaller projects don't need to give much thought to managing documentation. However, as projects get larger, the documentation definitely needs to be managed proactively. 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 get just as confused if proper techniques are not used to store documents in a manner that they can be easily retrieved.

Document management involves simple and complex tasks. A simple activity, for instance, is a document naming convention. If you have ten people on your team and each one submits a status report on a weekly basis, it is not long before you have hundreds of historical documents. It is 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 they will be easier to find. However, perhaps you really will want to search for status reports at particular points in time. In that case, the status reports should start with the date. Then all of the status reports for a particular reporting cycle will all sort together.

Another example of document management is to understand the types of document tools you will use. For instance, you might define MS Word to be your standard document editor, at release Word XP. If your team is cross-functional and includes clients, vendors, suppliers, etc., these types of document management rules become more vital.

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

Document management is an aspect of project management that many project managers take for granted – until they are inundated with hundreds of documents. That is usually the time that they realize they are in trouble. It is better to estimate the volume of 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 does not get out of control.

Aspect 9: Manage Quality

Quality is ultimately defined by the client, and represents how close the project and deliverables came to meeting the client's requirements and expectations. The old adage about quality being in the eyes of the beholder is true. Quality is ultimately measured by your client. The project team should strive to meet or exceed the client's requirements and



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expectations. This is a critical point. Sometimes there is a tendency to think that 'quality' means the best material, the best equipment and absolutely zero defects. However, in most cases, the client does not expect, and cannot 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 does not meet the client's needs is not 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 proactive plan and process in place to meet or exceed those expectations.

Since quality is defined by the client, it may seem that it is completely subjective. However, there is a lot about quality that can be made objective. This requires first breaking down the generic term of 'quality' into a number of areas that define the characteristics of quality. For instance, you can think of a quality computer application in terms of response time, look-and-feel, ease of understanding, level of help documentation, free of defects, etc. Once you have 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 cannot be produced by a faulty process. There needs to be a repetitive cycle of measuring quality, updating processes, measuring, updating, etc. To make the quality management process work, collecting metrics is vital. So, the 9th and 10th aspects of project management, managing quality and metrics, are closely tied. If you want to do a good job managing quality, you need to be measuring.

When the project is initially defined, the project team must first 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 instance, it is much more efficient to spot problems with the business requirements during the analysis phase of the project, rather than having to redo work to add missing requirements later during the product testing. It is also much cheaper to find a problem with a computer chip when the chip is manufactured, rather than to have to replace it when a client brings the product in for service after a purchase.



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Aspect 10: Manage Metrics

Gathering metrics on a project is the most sophisticated project management process, and can be the hardest. Because metrics can be hard to define and collect, they are 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 to determine how well the deliverables satisfy the client's expectations, and how well the internal project delivery processes are working. Depending on the results, corrective action or process improvement activities can be undertaken to make the processes more efficient and effective.

Managing metrics and managing quality are related. It is very difficult to improve the quality of your deliverables or your processes if you are 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.

There are many metrics that can be gathered on a project. However, the project team should identify and collect a balanced set that provides the most value. The way you determine the right metrics for your project is to:

1. Identify the project success criteria in terms of product deliverables and project execution. In other words, 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 – i.e. budget and deadline expectations.
2. Brainstorm a set of metrics that provide an indication as to the state of each success criteria.
3. Look for a balanced set of metrics that provide indications of success in terms of cost, delivery, quality, client satisfaction, etc.
4. Prioritize the potential metrics to come up with a list of metrics that provides the most value in the most cost effective manner.
5. Set targets to allow you to determine success. Metrics are rarely of value on their own. Their value comes in measuring where you are at against a preferred state or agreed upon target.
6. Add collection activities to the workplan to ensure that people are responsible for the metrics collection and analysis process.

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

Summary

The term "project" is used to describe work with certain characteristics – the most important of which is that it has a definite beginning and end. Projects require a certain



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set of skills and competencies, especially as the project gets larger. There are ten major components of project management, starting with defining and planning the project, and then managing the work to completion. These aspects focused on process management. There are also many aspects of project management that require people management skills. These include areas such as leadership, listening, and providing good performance feedback. However, these skills are common to all people managers, not just project managers.

Some of these aspects of project management, such as defining the project and managing issues, can be utilized on all projects. Others, such as managing documentation and metrics, are more important on large projects. Large projects require excellent project managers precisely because of this complexity. Not only is there more people and work to manage, but the project manager also has more aspects of project management that must be practiced. If you can master these ten aspects of project management, you will have a much better chance of success on any type of project you are assigned to.