

9

Project Communication, Tracking, and Reporting

CHAPTER OVERVIEW

In this chapter, you will learn about developing an effective communications plan to better track, monitor, and report the project's progress. After studying this chapter, you should understand and be able to:

- Identify and describe the processes associated with the Project Management Body of Knowledge (PMBOK) area called project communications management, which includes project communications planning, information distribution, performance reporting, and administrative closure.
- Describe several types of reporting tools that support the communications plan.
- Apply the concept of earned value and discuss how earned value provides a means of tracking and monitoring a project's scope, schedule, and budget.
- Describe how information may be distributed to the project stakeholders and the role information technology plays to support the project communications.

GLOBAL TECHNOLOGY SOLUTIONS

Tim Williams stood in the doorway of Kellie Matthews' office. Kellie looked up from her notebook computer just as Tim was about to knock. "Hi, Tim. Come in and have a seat while I send off this e-mail," Kellie said.

Tim took a seat at the small, round conference table next to the window. Kellie clicked the send button, then got up from her desk and took a seat at the table across from Tim.

"So how are things going?" Kellie asked.

Tim leaned back in his chair. "So far, I think we're doing fine," he said. "We still have to make a few more changes to our revised project plan, but the changes are minor and we should get the final approval from Husky Air's management later this week. Then we can start on the real work."

Kellie smiled, "That's great news, Tim! So what do we have to do before we start development?"

Tim chuckled. "I'm glad you asked. I remember working on a project a few years ago. Everything was going well—the project was achieving its goal and was right on schedule and budget. The problem was that the project sponsor didn't know it. In fact, he thought the project was in trouble and that no one wanted to deliver the bad news."

Kellie sat back in her chair. "I see how one could assume that no news is bad news. So what happened?" she asked.

Tim gazed out the window and said, "It took several meetings with the client to smooth things over. I remember we had to stop in the middle of development to gather all kinds of project information to document what was done, what we were working on currently, and what we had left to finish. It really slowed the project down and we almost missed an important milestone."

Kellie thought for a moment. Then she said, "It sounds like a communication problem—or rather a lack of communication that created a problem. Is there anything I can do to help?"

Tim gave Kellie a sly smile. "It's funny you should ask. I was just going to ask for your help in devising a way for tracking and reporting the progress of the project. Besides, you're great with numbers!"

Kellie laughed, "I just knew you were up to something the minute I saw you standing at my door. I would say the first thing we need to do is develop some kind of communications plan that outlines how we'll communicate with the client. The plan should include a list of the stakeholders and outline what information they will need and when they will need it."

Tim started writing the ideas in his PDA. "That's a great idea," he said. "The project management software package I'm using to create the plan will allow me to benchmark our actual progress to our baseline plan. In fact, there are several *canned* reports that I can create and give to the client and to the team. Perhaps we can even schedule some face-to-face meetings or reviews with the client to let them know not only how things are going, but to address any issues or problems that need to be resolved as well."

Kellie leaned forward to get a better look at what Tim was entering into his PDA. "I think we'll also have to set up some way for the team to communicate with each other and with us. I've been playing around with a couple of software collaboration tools. Maybe I can set something up for the team members to use. They will be able to have online discussions and share documents with each other. They can even use the collaboration tool as a repository to store their learning cycles and lessons learned."

Tim looked up from his PDA and said, "That sounds terrific. I can keep an updated copy of the project plan in the repository. In fact, team members can even put their status and progress reports in the repository so we'll all know how things are going at any given time. Everyone will have access to the same information. Thanks, Kellie, you've been a big help as always."

Kellie smiled and answered, "Why don't you get started on the communications plan, while I start putting together our collaboration and reporting system. I think it would be a good idea to get the team member's input since they're the ones who will be making the most use of this system."

Tim got up from his chair, still entering thoughts in his PDA. "Okay," he said, as he walked to the door. "Why don't we plan on meeting again tomorrow with the team to polish these ideas?"

Both Tim and Kellie said quick good-byes. Kellie returned to her computer.

Things to Think About:

1. Why is communication among project stakeholders so important?
2. What kinds of information will the various stakeholders need?
3. What role does information technology play in supporting a communications plan?
4. When is face-to-face communication more appropriate than communication through e-mail?

INTRODUCTION

Information technology projects historically have demonstrated a poor track record for a variety of reasons. Often unrealistic project plans are created from inaccurate estimates, and, as a result, projects have little chance of achieving their objectives. As you saw earlier, various tools and techniques for estimating IT projects exist; but consistently developing accurate and realistic estimates remains a challenge. Much of an organization's capability to consistently and accurately estimate IT projects lies with well-defined processes, experience, and an information base of past projects.

Still, developing a realistic and effective project plan is only part of the solution. The project manager must also have a clear picture of how the actual progress or work compares to the original baseline plan. Seldom do things go according to plan, so the project manager must have the means to monitor and manage the project. This will allow him or her to make well-informed decisions, take appropriate actions when necessary, or make adjustments to the project plan.

Communication is important for successful project management. The PMBOK area called project communications management includes:

- *Communications Planning*—Communications planning attempts to answer the following questions:
 - How will information be stored?
 - How will knowledge be stored?
 - What information goes to whom, when, and how?
 - Who can access what information?
 - Who will update the information and knowledge?
 - What media of communication is best?
- *Information Distribution*—Focuses on getting the right information to the right people in the right format. Moreover, information distribution should also include organizing minutes from meetings and other project-related documents.

- *Performance Reporting*—Focuses on the collection and dissemination of project information to the various project stakeholders. This should include status reports, progress reports, and forecast reports.
- *Administrative Closure*—Focuses on verifying and documenting the project's progress. This includes organizing and archiving project records and lessons learned.

A project communications plan should include not only the information content for each stakeholder, but also the delivery of this information. Although a great deal of information can be obtained or distributed informally, the communications plan should detail the way data will be collected and the form in which information will be provided. Although an opportunity exists for capturing and disseminating data and information, an IT-based solution may not be practical or effective in all situations. For example, e-mail is a powerful tool for communication; however, richer forms of communication, such as face-to-face meetings, may be more appropriate or effective in certain situations.

Various stakeholders have different roles and interests in the project. For example, the project client or sponsor may be interested in the overall performance of the project. More specifically, is the work defined in the project scope being completed on time and within budget? And what is the likelihood of the project achieving its MOV? On the other hand, members of the project team may be interested in knowing what tasks or activities they should be working on and how their work relates to the activities and tasks being performed by other members of the project team. It is important that the people doing the actual work be empowered to take corrective action so that problems and issues can be resolved sooner rather than later.

Therefore, it is important that everyone associated with the project know what is going on. A project manager can develop an accurate and realistic project plan, but that plan is useless unless it is executed effectively. And, because no project plan is perfect, communication allows timely and intelligent adjustments to be made so it can be executed effectively.

When it comes to projects, no one likes surprises. Nothing can diminish a project manager's credibility faster than the surfacing of unexpected situations that should have been identified some time before. The unexpected does, however, happen, and no one can anticipate every conceivable contingency in a project plan. Senior management or the client will feel much more comfortable with a project manager who identifies unexpected problems, challenges, or issues early on and then suggests various alternatives. The project manager's credibility will rise if the project sponsor is confident that someone knows what the problem is and knows how to fix it. Conversely, confidence will diminish if problems surface that should have been identified earlier.

MONITORING AND CONTROLLING THE PROJECT

Let's begin with a story about a project manager. This particular project manager developed a detailed project plan and had several experienced and skillful members on the project team. The estimates were realistic and reasonably accurate. About two months into the project, one of the key team members left the project to play lead guitar in a country-western band. Although the team member/lead guitarist gave the usual two weeks notice, the project manager could only recruit and hire a less experienced replacement. The learning curve was steep. The other team

members were asked to help this new person (in addition to doing their other work). As a result, many of the tasks and activities defined in the project plan took longer than expected. The schedule was in trouble. With a deadline looming in the near distance, the team began to take short cuts in an attempt to keep the project on track. The original project plan, for example, called for one month of testing. That seemed like a lot of time, so maybe the system could be tested in two weeks. As more and more tasks began to slip, testing was cut to one week, and then two days—okay, maybe the team could test the programs as they write them. Then they would just have to keep their fingers crossed and hope everything worked when the system was implemented!

On the day the system was supposed to be delivered, the project manager had to confess to senior management that the system was "not quite ready." Senior management then asked when the system *would* be ready. The project manager then sheepishly explained that there were a few *minor* setbacks due to unforeseen circumstances out of the project manager's control. Senior management once again asked when the system *would* be ready. After some hemming and hawing, the project manager explained that the project would take twice as long and cost twice as much to complete if the originally agreed upon scope was maintained. Needless to say, the *new* project manager kept senior management informed about the project's progress.

The moral of this story is that project sponsors do not like surprises. Regardless of how well a project is planned, unexpected situations will arise. These unexpected events will require adjustments to the project schedule and budget. In fact, many cost overruns and schedule slippages can be attributed to poorly monitored projects (Van Genuchten 1991). The project plan gets thrown out the window as slippage in one task or activity causes a chain reaction among the other interdependent tasks. If that task is on the critical path, the problem can be especially serious. You know you're in trouble if a project sponsor asks, Why didn't you tell me about this earlier?

The problem may gain strength and momentum as the project manager attempts to react to these unexpected events. For example, resources may be reassigned to different tasks or processes and standards may be overlooked. The wiser project manager, on the other hand, will try to be more proactive and recognize the impact of these unexpected situations in order to plan and act in a definite and timely manner. As our story points out, many times things happen on projects that are out of our control. If the project manager had identified this problem earlier and analyzed its impact, he or she could have apprised senior management of the situation and then laid out several alternative courses of action and their estimated impact on the project's schedule and budget. Although senior management may not like the news, they probably would respect the project manager for providing an early warning. Moreover, having a feeling that someone is in control will give them a sense of security.

A project manager *will not* lose credibility because an unexpected event or situation arises. He or she *will*, however, lose (or gain) credibility in terms of how they handle a particular situation. By addressing the problem early, the chain reaction and impact on other project activities can be minimized. There will be less impact on the projects' schedule and budget.

Therefore, planning and estimating are not sufficient. A project needs an early warning system to keep things on track. This early warning system allows the project manager to control and monitor the project's progress, identify problems early, and take appropriate corrective action.

The baseline plan acts as an anchor, allowing the project manager to gauge the project's performance against planned expectations. Once the baseline plan is approved, actual progress can be benchmarked to what was planned. This process is

often referred to as comparing *actual to plan* performance, and the comparison is relatively easy and straightforward when using a project management software package. Project control ensures that processes and resources are in place to help the project manager monitor the project. Although one might believe control has a negative connotation, it provides the capability to measure performance, alerts the project manager to problem situations, and holds people accountable. Controls also ensure that resources are being utilized efficiently and effectively while guiding the project toward its MOV. Controls can be either internal to the project (i.e., set by the project organization or methodology) or external (i.e., set by government or military standards). The control and monitoring activities of a project must be clearly communicated to all stakeholders. Everyone must be clear as to what controls will be in place and how data will be collected and information distributed.

THE PROJECT COMMUNICATIONS PLAN

The project communications plan can be formal or informal, depending on the needs of the project stakeholders and the size of the project. Regardless, communication is vital for a successful project. It is important that all of the project stakeholders know how their interests stand in relation to the project's progress.

Developing a communications plan starts with identifying the various stakeholders of the project and their information needs. Recall that stakeholder analysis helps the project manager and project team determine the different interests and roles of each of the stakeholders. Although some of the information contained in the stakeholder analysis may not be suitable for general dissemination, it provides a starting point for identifying who needs what information and when. Keep in mind that even stakeholders who may have a vested interest in the project *not* succeeding must be kept informed. Otherwise, a lack of communication and information can result in an attitude that "no news must be bad news," or speculation and frivolous assumptions that the project is in trouble.

The project communications plan can be in a table format similar to Figure 9.1. The idea behind this analysis is to determine:

- Who has specific information needs?
- What are those information needs?
- How will a particular stakeholder's information needs be met?
- When can a stakeholder expect to receive this information?
- How will this information be received?

This format helps clarify what all of the stakeholders know and what they still need to know. The following describes each of the areas for developing the communications plan:

<i>Stakeholder</i>	<i>Information Requirements</i>	<i>Type of Report/Metric</i>	<i>Timing/Availability</i>	<i>Medium or Format</i>

Figure 9.1 The Project Communications Plan

Stakeholders—Communication requires a sender, a message, and a receiver; however, we often focus mainly on the first two (Neuendorf 2002).

Stakeholders are individuals or groups who have a "stake" or claim in the project's outcome and, therefore, are the receivers of the project information we send. In general, this group would include the project sponsor or client, the project manager, and the project team because each would have a specific interest in the project's performance and progress. Other people, such as senior managers, financial and accounting people, customers, and suppliers, may have a special interest in the project as well. Therefore, it is important that we keep these special interests informed.

Information Requirements—A diverse group of stakeholders will result in diverse information requirements. Identifying the information requirements of the various stakeholders allows the project manager and project team to better determine the information reporting mechanisms, timings, and delivery medium for each stakeholder. Instead of a single report that may or may not meet the needs of each stakeholder, a particular report or metric can be designed to meet an individual stakeholder's needs and, therefore, improve communication with that stakeholder. In general, these information requirements will focus on scope, schedule, budget, quality, and risk. Depending on the needs of the stakeholder, the requirements and level of detail may be different.

Type of Report or Metric—Depending on the information needs of a particular stakeholder, a specific report or reporting mechanism can be identified. These may include specific *canned*, or template, reports that are provided by a project management software tool or a custom report with specific metrics. In addition, reporting mechanisms may include formal or informal reviews of deliverables, milestones, or phases. Other reporting mechanisms, such as newsletters and other public relations tools, can serve a general population of stakeholders.

Timings/Availabilities—The timing and availability of the reports sets expectations for the stakeholder. Some stakeholders may feel they need up-to-the-minute or real time access to the project's performance and progress. Other stakeholders may have an almost casual interest. Set timing and availability let people know when they will know. They also allow the project manager and team to stay focused by minimizing demands for ad hoc reports and status updates by powerful stakeholders.

Medium or Format—The medium or format defines how the information will be provided. Possible formats include paper reports, face-to-face, electronic files, e-mail, or some other electronic format, such as the Web. Defining the format also sets expectations and allows the project manager to plan the resources needed to support the communications plan.

PROJECT METRICS

The communications plan described in the previous section is the output of the communications planning process. However, a project metric system must be in place to support the information requirements for all of the stakeholders. In general, project metrics should focus on the following key areas:

FYI (FOR YOUR INFORMATION)

Although the project budget, schedule, and resource assignments are in place, you can still have angered and frustrated stakeholders unless a comprehensive communications plan is in place. Rob Hennelly, a senior manager of financial processes and systems at Sears, Roebuck and Co. in Hoffman Estates, Illinois, points out that "communication goes to the heart of a lot of IT projects because it can ease the pain of change for end users." An effective communications plan should contain these principles:

1. *Identify your audience and their communication needs.* It is important to talk to the project's stakeholders and ask them what they need to know and how often they need to know it. For example, senior managers may want detailed reports, while end users may only want short messages.
2. *Determine the most effective means for communicating with this audience.* The basic question is how do the project stakeholders want to receive this information. In general, the most effective way to communicate is face-to-face, followed by

phone conversations. Although talk is fine, a project's official mode of communication should be in written form.

3. *Decide who should deliver the message.* It is important to assess how well, or how poorly, the IT project team members communicate with the business people. Business people tend to listen better to their own, while technical people tend to focus more on the technology. Getting the corporate communications people involved may be a good idea, especially when stakeholders outside the organization (i.e., customers, suppliers, unions, or stockholders) must be kept informed. In addition, timing is critical. It's a good idea to make important announcements, such as letting users know when their workstations will be replaced, before the impact.

SOURCE: Adapted from Rick Saia, One Project, One Voice, *Computerworld*, February 8, 1999. <http://www.computerworld.com/news/1999/story/0,11280,33846,00.html>

- Scope
- Schedule
- Budget
- Resources
- Quality
- Risk

Data to support these metric categories can be collected in a number of ways. For example, project team members may be asked to submit periodic reports or even time cards that describe what tasks they worked on, the time spent working on those tasks, and any other resources that they may have used on those tasks. In addition, the project team could report lines of code, function points, or even feature points. Data can be collected using expense reports, invoices, purchase orders, and so forth. Moreover, information can be provided informally through day-to-day contacts with various individuals or groups.

Collection of this data allows the project manager to compile a set of metrics that can be used to create the various reports for the stakeholders defined in the communications plan. A **project metric** may be defined as a qualitative measurement of some attribute of the project. This metric should be obtained from observable, quantifiable data (Edberg 1997). In addition, these metrics can be useful for developing a measurement program that allows the team and other stakeholders to gauge the efficiency and effectiveness of the work being done. Edberg suggests that a good project metric must be:

- *Understandable*—A metric should be intuitive and easy to understand; otherwise, the metric will be of little value and will most likely not be used.

- *Quantifiable*—A quantifiable metric is objective. A metric should have very little bias as a result of personal influence or subjectivity.
- *Cost Effective*—Data must be collected in order to produce a metric. Subsequently, a metric should be relatively easy and inexpensive to create and should not be viewed as a major disruption.
- *Proven*—A metric should be meaningful, accurate, and have a high degree of validity in order to be useful. The metric must measure exactly what one wants to measure. "What gets measured gets done!"
- *High Impact*—Although the efficiency of computing a metric is important, the metric must be effective. Why measure something that has little impact on the project?

Meyer (1994) suggests that trying to run a team without a good measurement system is like trying to drive a car without a dashboard. He suggests the following principles as a guide (Meyer 1994):

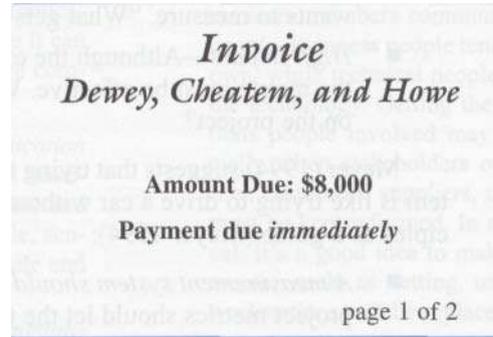
- *A measurement system should allow the team to gauge its progress.* The project metrics should let the team know when to take corrective action rather than waiting for the project manager to intervene. Instead of using a measurement system to control a team, it should be used to empower the team to solve problems on its own.
- *The team should design its own measurement system.* The people actually doing the work know what metrics are best suited. However, a team should not develop project metrics or a measurement system without the aid of the project manager or other members of the organization because independent action could result in inconsistencies and parochial interests being served.
- *Adopt only a handful of measures.* The old saying, "what gets measured gets done," can be an opportunity if the right metrics and measurement system are in place. Adding more and more measures as a means of encouraging team members to work harder can have the opposite effect. Collecting data to support a measurement system takes time and can interfere with the planned work. Having a few key measures keeps the team focused and creates minimal interference. In addition, these measures create a common language among team members and the other project stakeholders.
- *Measures should track results and progress.* Using the metaphor of a car's dashboard, Meyer suggests an array of graphic indicators and easy-to-read gauges can be useful in helping a project team measure and track its own progress and in letting it know when to take corrective action. For example, a relative measure could be used to track the remaining project budget, as illustrated in Figure 9.2. As you can see, Figure 9.2 vividly shows that the project is consuming its budget faster than planned.

Earned Value

Suppose that you hired the infamous consulting firm Dewey, Cheatem, and Howe to develop an information system for your organization. The project is expected to cost \$40,000 and take four months to complete. To keep things simple, let's also assume that the project requires twenty activities or tasks that are evenly divided over the four-month schedule. Since each task is expected to take the same amount of time, the expected cost per task is \$2,000. By the way, the contract that you just signed

also stipulates that four payments must be made at the end of each month. Therefore, your planned payments each month would be \$10,000. This \$10,000 a month that you plan to spend is called the **budgeted cost of work scheduled (BCWS)**. If we were to graph the BCWS expenditures, the planned budget of cumulative cash flows would look like Figure 9.3.

At the end of the first month, let's say that you receive the following invoice for \$8,000.



This actually sounds like good news! If you take a look at Figure 9.4, you planned to spend \$10,000 at the end of the first month, but the invoice you just received states that you only have to pay \$8,000. It would appear that you are spending less money than you originally had planned. The \$8,000 you must pay to Dewey, Cheatem, and Howe has another fancy name and is referred to as the **actual cost of work performed (ACWP)**. That must mean your project is ahead of budget by \$2,000, right?

Actually, all we are doing is staying within our budgeted or planned outlays of funds. To understand what's really happening, we need to take a look at the second page of the invoice.

Figure 9.2 Dashboard Metric

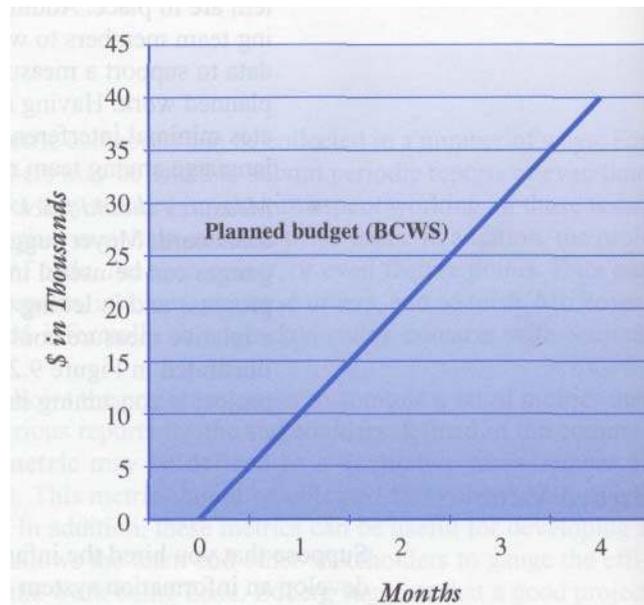
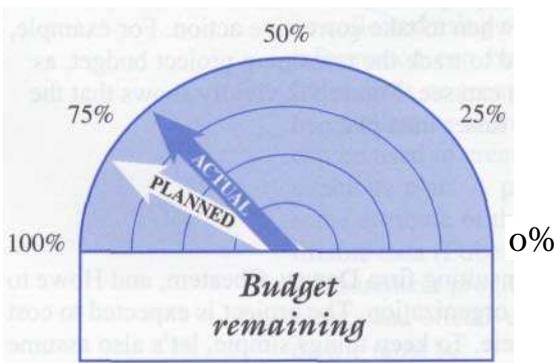
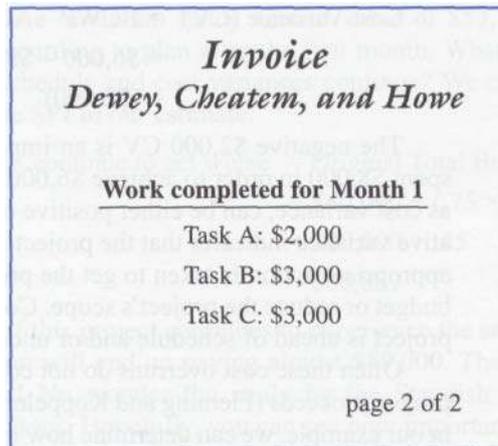


Figure 9.3 Planned Budget—Budgeted Cost of Work Scheduled (BCWS)



It looks like the consultants from Dewey, Cheatem, and Howe are only charging us \$8,000, but they only completed three out of the five tasks that were expected to be completed by the end of the first month. In fact, since we estimated that each task would cost \$2,000, we have really spent \$8,000 in actual costs to achieve only \$6,000 of actual work. This \$6,000 is called the **earned value** and tells us how much of the budget we really should have been spent for the amount of work completed so far. Earned value is often referred to as budgeted **cost of work performed (BCWP)**, and Figure 9.5 shows the relationship of earned value to budgeted and actual costs.

Using these basic values, we can extend our analysis and see how the earned value metric incorporates scope, budget, and schedule. For example, we can determine a true **cost variance**, which is the difference between a task's estimated cost and its actual cost.

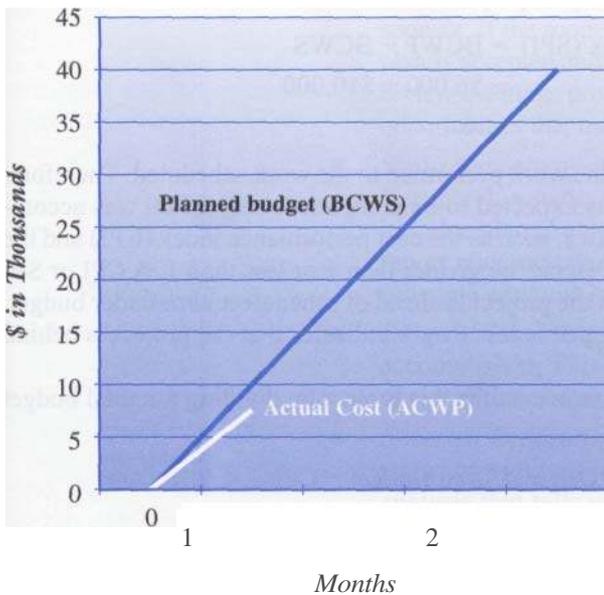


Figure 9.4 BCWS Versus ACWP

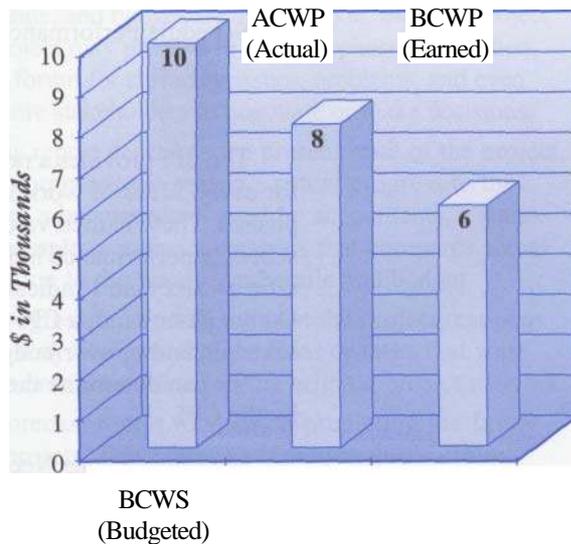


Figure 9.5 Comparison of BCWS, ACWP and Budgeted Cost of Work Performed (BCWP)

$$\begin{aligned}\text{Cost Variance (CV)} &= \text{BCWP} - \text{ACWP} \\ &= \$6,000 - \$8,000 \\ &= (\$2,000)\end{aligned}$$

The negative \$2,000 CV is an important metric because it tells us that we have spent \$8,000 in order to achieve \$6,000 worth of work. Earned value indicators, such as cost variance, can be either positive or negative. As you can see from above, a negative variance indicates that the project is over budget and/or behind schedule. Unless appropriate action is taken to get the project on track, you might have to increase the budget or reduce the project's scope. Conversely, a positive variance indicates that the project is ahead of schedule and/or under budget.

Often these cost overruns do not correct themselves and actually get worse as the project proceeds (Fleming and Koppelman 1996). In fact, if things continue as they are in our example, we can determine how much the project will really end up costing. You planned on spending \$40,000, but given how things are going, is this still realistic? To answer this question, we compute a **cost performance index (CPI)** as follows:

$$\begin{aligned}\text{Cost Performance Index (CPI)} &= \text{BCWP} \div \text{ACWP} \\ &= \$6,000 \div \$8,000 \\ &= .75\end{aligned}$$

A CPI of .75 tells us that for every dollar we spent, only \$0.75 was really completed. In addition, we can also see the impact on the project's schedule by taking a look at the **schedule variance**, which shows the difference, in terms of cost, between the current progress and our originally scheduled progress.

$$\begin{aligned}\text{Schedule Variance (SV)} &= \text{BCWP} - \text{BCWS} \\ &= \$6,000 - \$10,000 \\ &= (\$4,000)\end{aligned}$$

Using this information, we can create a schedule efficiency metric. A **schedule performance index (SPI)** can be computed as follows:

$$\begin{aligned}\text{Schedule Performance Index (SPI)} &= \text{BCWP} \div \text{BCWS} \\ &= \$6,000 \div \$10,000 \\ &= .6\end{aligned}$$

The SPI provides a ratio of the work performed to the work scheduled. Therefore, for every \$1.00 of work that was expected to be completed, only \$0.60 was accomplished. These earned value metrics, such as the cost performance index (CPI) and the schedule performance index (SPI), can be greater than 1 or less than 1. A CPI or SPI ratio greater than 1 indicates that the project is ahead of schedule and/or under budget. On the other hand, a CPI or SPI that is less than 1 indicates that the project is behind schedule and/or over budget.

We can determine the minimum cost for this project by dividing the total budget by the CPI.

$$\begin{aligned}\text{Minimum Funds Needed} &= \text{Original Total Budget} \div \text{CPI} \\ &= \$40,000 \div .75 \\ &= \$53,333.33\end{aligned}$$

If nothing changes (i.e., the project's performance does not get any better or any worse), it appears that the project will end up costing over \$13,000 more than

expected. However, the minimum funds needed value of \$53,333.33 assumes that everything will go according to plan after the first month. What if things do not get better? What if the schedule and cost variances continue? We can estimate this scenario by including the SPI in our estimate.

$$\begin{aligned}
 \text{Funds needed if things continue to get worse} &= \text{Original Total Budget} \div (\text{CPI} \times \text{SPI}) \\
 &= \$40,000 \div (.75 \times .60) \\
 &= \$40,000 \div .45 \\
 &= \$88,889
 \end{aligned}$$

As you can see, if this project continues to experience the same level of cost and schedule slippage, you will end up paying almost \$89,000. That's 125 percent over your original budget! No wonder the study by the Standish Group described in Chapter 1 is called *Chaos*. Hopefully, you can see how important it is to plan a project well and also how important controls and a monitoring system are to a project.

REPORTING PERFORMANCE AND PROGRESS

Once the project data have been collected, the project manager can use it to update the project plan. An example of an updated project plan using Microsoft Project 2000 is illustrated in Figure 9.6.

The project manager has a wide variety of software tools at his or her disposal, and these include project management software, spreadsheets, databases, and so forth.

In addition, project reporting tends to fall under one of the following categories:

- *Reviews*—Project reviews may be formal or informal meetings that include various project stakeholders. These reviews may focus on specific deliverables, milestones, or phases. The purpose of a review is to not only show evidence that the project work has been completed, but also that the work has been completed according to certain standards or agreed upon requirements. For example, the project team may present the project plan to the project sponsor. If the scope, schedule, and budget are agreed upon, then the project plan is accepted and the project may proceed to the next phase. In addition, review meetings provide a forum for surfacing issues, problems, and even opportunities that may require stakeholders to negotiate or make decisions.
- *Status Reporting*—A status report describes the present state of the project. In general, a status report compares the project's actual progress to the baseline plan. Analogous to a balance sheet used by accountants, a status report may include, for example, a variance analysis that compares actual schedule and cost information to the baseline schedule and budget.
- *Progress Reporting*—A progress report tells us what the project team has accomplished. This report may compare the activities or tasks that were completed to the activities or tasks outlined in the original project network.
- *Forecast Reporting*—A forecast report focuses on predicting the future status or progress of the project. For example, it may include a trend analysis that tells us when the project is most likely to finish and how much it will cost.

Many project management software tools, such as Microsoft Project 2000, provide a variety of *canned* reports or templates. The categories of reports found in Microsoft Project 2000 are illustrated in Figure 9.7.

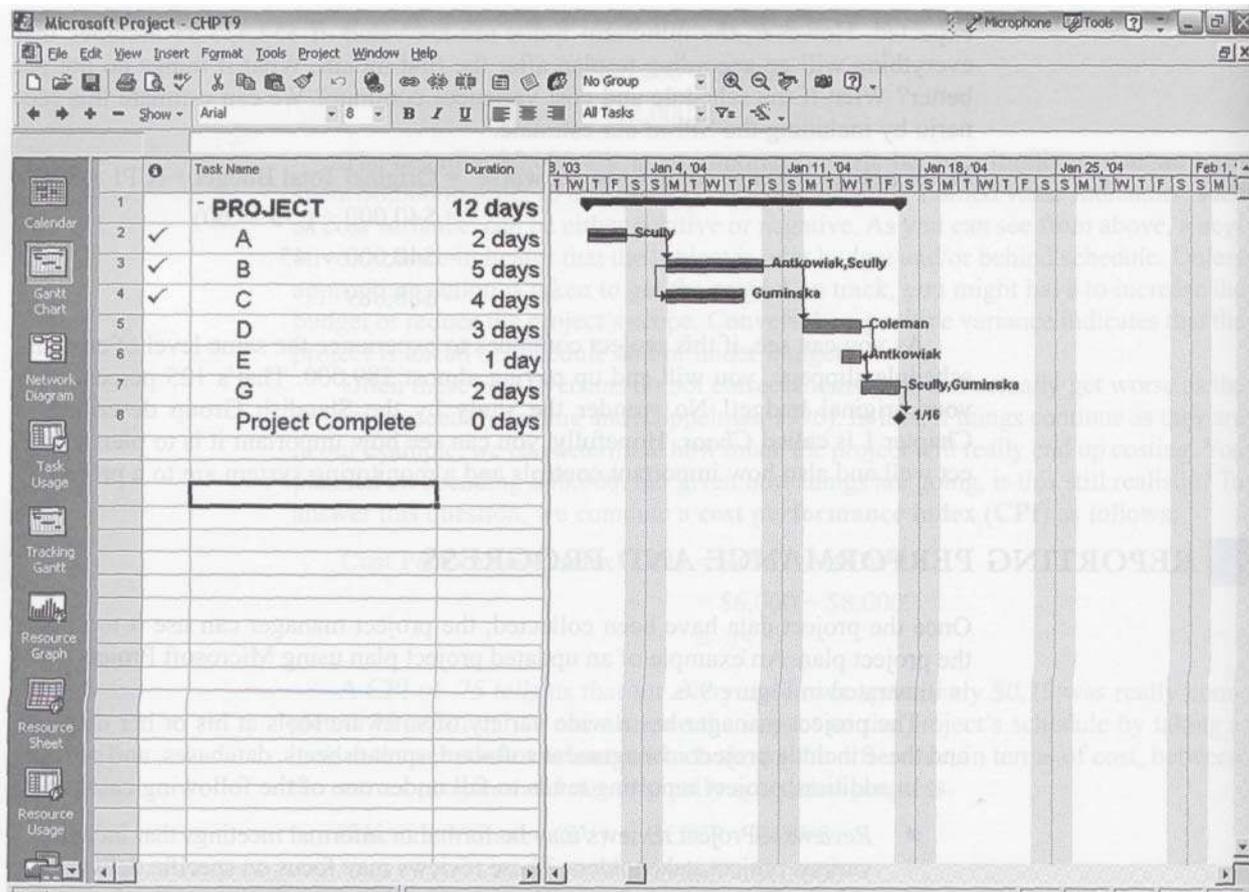


Figure 9.6 Updated Project Plan

INFORMATION DISTRIBUTION

To complete the project communications plan, the project manager and team must determine how and when the required information will be provided to the various stakeholders. Although a variety of media exist, most communication will involve:

- Face-to-Face Meetings*—A great deal can be learned from face-to-face meetings. Such meetings may range from informal conversations to more formal meetings and presentations. The advantage of face-to-face meetings is that one can see other people's expressions and body language. Sometimes the way someone says something can be more expressive than what they say. On the other hand, face-to-face meetings require arranging schedules and additional costs if travel is involved. Certain issues and problems, of course, require people to meet face-to-face. For example, firing (or dehiring?) a person should only be done face-to-face. There are a number of war stories in the business world about people who found out they were let go by e-mail. The general consensus is that this is an insensitive and tactless way to treat people.
- Telephone, Electronic Mail, and other Wireless Devices*—It appears that we are in the midst of a wireless and mobile revolution. Cellular phones,

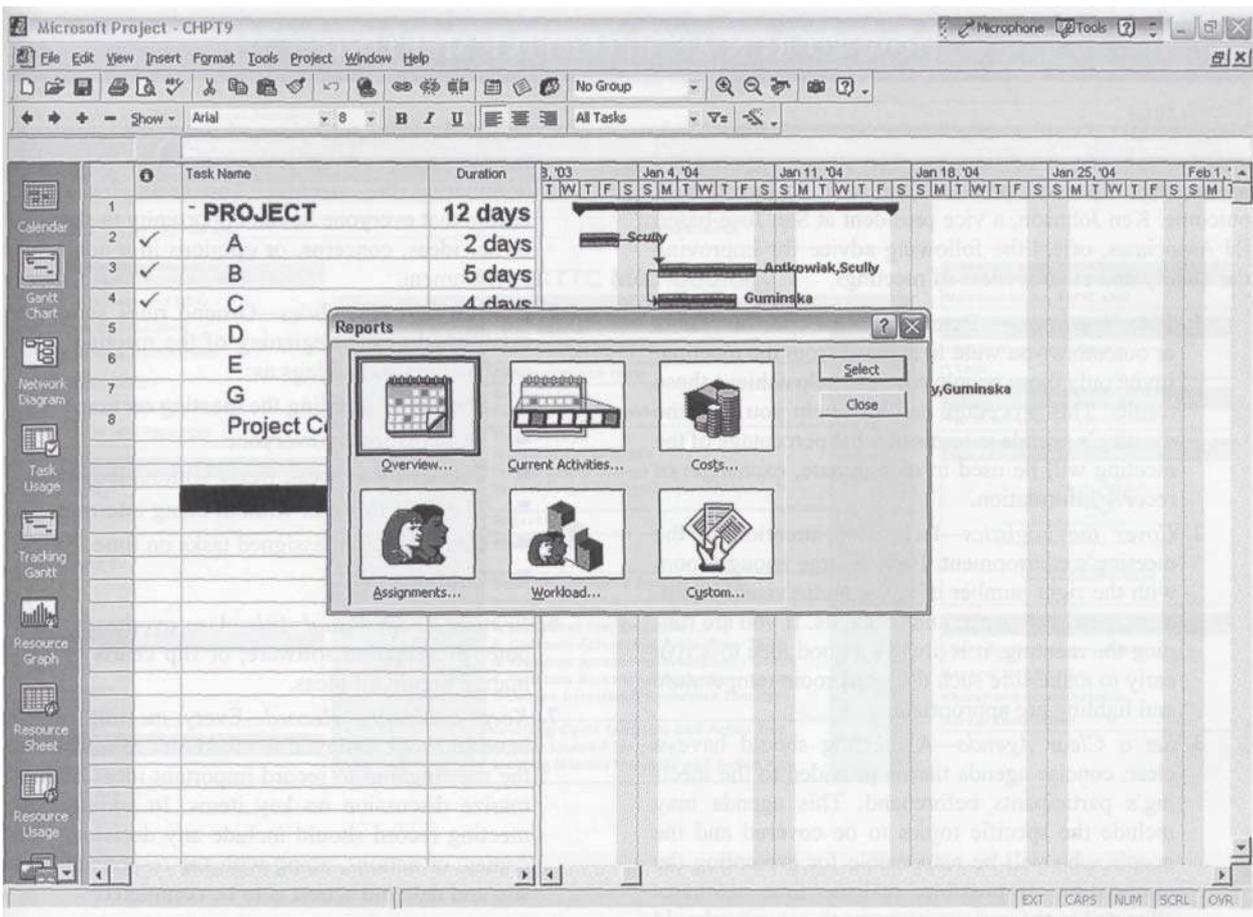


Figure 9.7 Project Report Categories

paggers, and other wireless devices are commonplace and have increased our mobility and accessibility. Although these communication devices are not as personal as face-to-face meetings, they certainly make communication possible when people cannot be at the same place at the same time. The communications plan (and project budget) should also include electronic means for the project team and other stakeholders to communicate.

Collaboration Technology—There are a variety of information technology tools to support communication and collaboration. For example, a project team could use Internet or Web-based technologies to develop an Internet, intranet, or extranet application. The difference between Internet, intranet, or extranet really depends on who has access to the information stored on the server. For example, an Internet application would be available to anyone who has access to the World Wide Web or Internet. An intranet, on the other hand, may be developed using the same technology, but access is limited to the project team by means of passwords or firewalls. An extranet may include others outside the immediate project team or organization, such as the project sponsor or client. Similar to an intranet, access may be limited through the use of passwords or firewalls. Figure 9.8 provides an example of an extranet application developed by several

HOW TO RUN AN EFFECTIVE MEETING

Many people consider meetings a waste of time. And, unfortunately, many meetings are. Too often we are trapped in meetings that seem pointless and have no direction or outcome. Ken Johnson, a vice president at San Jose-based RJ Associates, offers the following advice for improving the quality and effectiveness of meetings.

1. *Plan in Advance*—Determine what specific results or outcomes you want to achieve from the meeting. Invite only those people who can help achieve those results. This procedure can also help you plan the meeting's agenda in terms of what percentage of the meeting will be used to disseminate, exchange, or receive information.
2. *Cover the Logistics*—Pay close attention to the meeting's environment. Have a large enough room with the right number of seats, audio/visual equipment, pens and paper, and handouts. If you are running the meeting, it is always a good idea to arrive early to make sure such things as room temperature and lighting are appropriate.
3. *Set a Clear Agenda*—A meeting should have a clear, concise agenda that is provided to the meeting's participants beforehand. This agenda may include the specific topics to be covered and the people who will be responsible for presenting the information. If possible, realistic time estimates allocated to the various items on the agenda should be provided. One may even indicate whether the specific items on the agenda require discussion, need a decision, or are just simply supplying information.
4. *Select a Facilitator*—A facilitator should be selected before the meeting to keep the meeting focused and moving along. The facilitator should be

knowledgeable, credible, and respected in order to be objective and tactfully prevent anyone from dominating the meeting. The facilitator should ensure that everyone has an opportunity to share his or her ideas, concerns, or opinions in a nonhostile environment.

5. *Establish Ground Rules*—Ground rules should be established at the beginning of the meeting. They may include such things as:
 - Starting and ending the meeting on time
 - Participation by everyone
 - The ability to speak freely without judgment
 - The right to speak without being interrupted
 - Competition of assigned tasks on time
 - Confidentially
6. *Reinforce with Visual Aids*—Use overheads, computer presentation software, or flip charts to summarize important ideas.
7. *Keep a Meeting Record*—Every meeting should have someone assigned to take notes or minutes of the meeting and to record important ideas or summarize discussion on key items. In addition, the meeting record should include any decisions, outcomes, or actions, along with the responsible person and date the action is to be completed.
8. *Evaluate*—Each meeting should be evaluated to provide feedback to the facilitator. This evaluation should focus on the efficiency of the meeting and its effectiveness in meeting the planned objectives.

SOURCE: Ken Johnson, Running Effective Meetings, *High Technology Careers Magazine*, 1998. <http://www.hightechcareers.com/docs/effective.html>

project teams under the Business Information Technology Transfer Center (BITTC) at Northern Illinois University¹ to support communication, collaboration, and the sharing of knowledge.

Using this application, project teams can store, check out, and archive all project documents, as well as link to other resources. In addition, a search capability allows stakeholders to search for specific documents and lessons learned. Figure 9.9 provides an example of a learning cycle that is stored in the repository.

¹ The project was called the BITTC Knowledge Management Project. Three teams of students each developed a component of the KMS application over three semesters. The application now supports all of the project teams and the various stakeholders under the Center.

Phase	Deliverables	Time
Initiation & Conceptualization	Team Charter Team Charter Example	Week 1
	Communication Plan	Week 2
	Business Case Business Case Example	Week 3
Planning	Project Scope Project Scope Example Project Scope Change Log Form Project Scope Change Request Form	Week 4
	Project Plan	Week 5
	Plan Execution	Week 6-14
Execution	Plan Execution	Week 6-14
Closure	Final Presentation & Product Transfer	Week 15
	Final Evaluation 1. Individual Peer Evaluation 2. Outcome Assessment Evaluation - Team 3. Outcome Assessment Evaluation - Coach 4. Outcome Assessment Evaluation - Sponsor Outcome Assessment Evaluation Template	Week 16
Other Documents	Learning Cycle Template and Action Plan Lessons Learned Template Meeting Minutes Template and Action Plan	All Semester

Figure 9.8 The BITTC KMS Extranet

In summary, the sharing of information includes support for communication, collaboration, and the sharing of knowledge among the various project stakeholders. Then, the project communications plan must focus on supporting communication for people working in different places and at different times. Figure 9.10 provides an example of how people communicate and interact today and some examples of how they may be supported.

CHAPTER SUMMARY

Project planning and estimation are critical processes. To be useful, the project plan must be accurate and realistic. But, even the best plans will fall short if the project manager and team do not follow the plan or know when to take corrective action. It is almost impossible to plan for all contingencies that may arise during a project, so the project plan should be revised and updated on an as-needed basis. For example, estimates made early in the project life cycle may be based on limited information. As new information comes to light, the project

manager should revise his or her estimates and project schedule and budget to ensure that the project plan is accurate and realistic. In addition, a project manager must be in control of the project and identify problems, issues, and situations that will impact the project schedule and budget. A measuring and reporting system allows the project manager to identify these situations early so that various alternative courses of action can be assessed and recommended. Although project sponsors may not like bad news, it is better for a project manager

The screenshot shows a web browser window with the following content:

Learning Cycle - 3

What do we know?	What do we think we know?	What don't we know?
Project Scope Business Case Communications Plan Data Sources and Dates Digital Images by end October	ArcGIS Police Data will be available	Project Charter (Schedule & Budget) - format - deadline When data will arrive What data will look like 89 classifications summarized into 5/6 When/How much ancillary data

Action Plan - 3

Who	What	By When
Heena	Today's Minutes on Groove	4pm Tuesday
Sadiya	Finalize Communications Plan	4pm Tuesday
	Lessons Learned II	4pm Tuesday
	Learning Cycle III	4pm Tuesday
Heena	Update Background for Business Case	Midnight Tuesday
Shashi	Finalize Business Case	10 am Thursday
All	Draft Project Budget & Schedule	10 am Thursday
Hui	Business Case Executive Summary	4:30 pm Friday
Heena	Post Lessons Learned II and Learning Cycle III on web	Midnight Friday
	Post Business Case & ES on website and e-mail Dr. M.	Midnight Friday
Shashi	Draft Project Scope	Midnight Saturday
Sadiya	Talk to County Clerk & Police about data	10 am Tuesday
	Find out about Classifications & Ancillary data	10 am Tuesday
All	Finalize Project Scope	Tuesday (Meeting)
	Discuss Project Charter (Schedule & Budget)	Tuesday (Meeting)

Figure 9.9 BITTC Project Team's Learning Cycle

to deliver problematic news early than to have upper management unaware of the situation. Hoping that the problem will go away is not an effective action.

The Project Management Body of Knowledge defines a set of processes to support project communications management. This area of knowledge includes communications planning, information distribution, performance reporting, and administrative closure. The output of these processes is to develop a project communications plan. This plan may be formal or informal, depending on the size of the project and number of project stakeholders, but it must support an effective and efficient means of communication among the various project stakeholders. The development of this plan focuses on identifying the various stakeholders and their information requirements. In addition, the plan also sets

expectations in terms of how and when this information will be made available.

The project communications plan must include a variety of ways for project stakeholders to communicate. More specifically, project stakeholders should be able to communicate:

- Same time-Same place
- Same time-Different places
- Different times-Same place
- Different times-Different places

Today, a number of IT-based tools and technologies are available to support the different needs of the project stakeholders; however, richer forms of communication, such as face-to-face meetings, are important and more appropriate in certain situations.

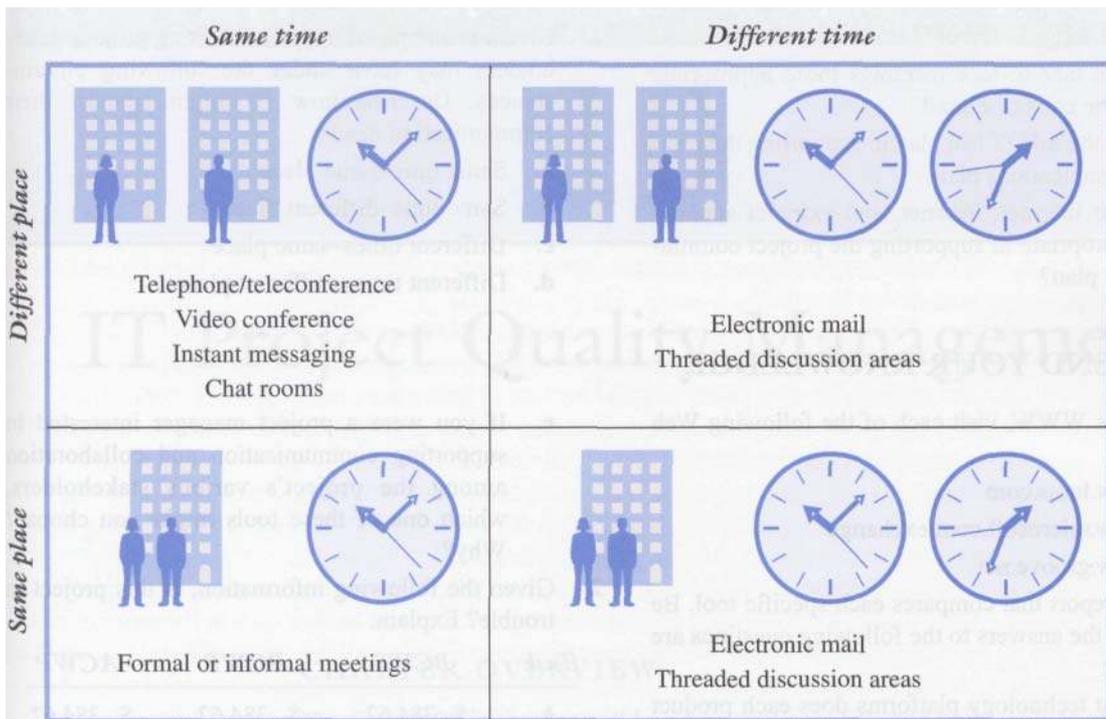


Figure 9.10 Communication and Collaboration Matrix

REVIEW QUESTIONS

- Why should a project manager be concerned with monitoring a project's progress?
- Describe the PMBOK area called communications planning.
- Compare the information requirements of a project sponsor to those of a project team member. How are they similar? How are they different?
- What kinds of contingencies would be difficult for a project manager to anticipate when developing the project plan?
- What is the purpose of a project communications plan? What kinds of things should this plan address?
- Why is effective and efficient communication vital to a project?
- What are project metrics?
- Describe the qualities of a good project metric.
- Why should a project have a good measurement system in place?
- Discuss why a good measuring system should guide the progress of the project team rather than management alone.
- What are the advantages of having the project team design its own metrics and measuring system?
- If "what gets measured gets done," why should a project team not be accountable to numerous project metrics?
- Describe the concept of earned value.
- What is BWCP?
- What is ACWP?
- What is BCWS?
- Describe how the SPI and CPI can be used to forecast the final cost of a project.
- What is a project review and what purpose does it serve?
- What is a status report?
- What is a progress report?

21. What is a forecast report?
22. When are face-to-face meetings more appropriate than phone calls or e-mail?
23. Describe the role IT can play in supporting the project communications plan.
24. When are Internet, intranet, and extranet applications appropriate in supporting the project communications plan?
25. Give an example of a type of meeting project stakeholders may have under the following circumstances. Describe how IT might support their communication needs
 - a. Same time-same place
 - b. Same time-different places
 - c. Different times-same place
 - d. Different times-different places

EXTEND YOUR KNOWLEDGE

1. Using the WWW, visit each of the following Web sites:
 - www.lotus.com
 - www.microsoft.com/exchange
 - www.groove.net

Write a report that compares each specific tool. Be sure that the answers to the following questions are included:

- a. What technology platforms does each product require?
- b. Describe the functionality of each particular tool.
- c. Can you download and try each product before buying it?
- d. How well would each particular tool support communication and collaboration among project stakeholders?

- e. If you were a project manager interested in supporting communication and collaboration among the project's various stakeholders, which one of these tools might you choose? Why?

2. Given the following information, is this project in trouble? Explain.

<i>Task</i>	<i>BCWS</i>	<i>BCWP</i>	<i>ACWP</i>
A	\$ 384.62	\$ 384.62	\$ 384.62
B	\$ 576.92	\$ 576.92	\$ 576.92
C	\$1,461.54	\$1,461.54	\$1,096.15
Total	\$2,423.08	\$2,423.08	\$2,057.69

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