A project is complete when it starts working for you, rather than you working for it.
— Scott Allen

Mistakes are made; the unexpected happens; conditions change. In organizations that have several projects going on concurrently, it is prudent to have periodic reality checks on current and recently completed projects and their role in the organization’s future. The project audit includes three major tasks:

1. Evaluate if the project delivered the expected benefits to all stakeholders. Was the project managed well? Was the customer satisfied?
2. Assess what was done wrong and what contributed to successes.
3. Identify changes to improve the delivery of future projects.

The project audit and report are instruments for supporting continuous improvement and quality management. We learn from past mistakes and what we did right.

Unfortunately, it is estimated that about 90 percent of all projects are not seriously reviewed or audited. The most common reason given is “we’re too busy to stop and assess how well we manage projects.” This is a big mistake. Without reflective assessment, valuable lessons learned are forgotten and mistakes are repeated. Sadly, those projects that are audited tend to be major failures or disasters. This is another big mistake. One tends to learn only what not to do from failures, not what to do. By examining both successes and failures, better practices can be incorporated into the project management system of an organization.

We have observed that organizations that seriously audit their projects are leaders in their fields. These organizations are vigorously committed to continuous improvement and organizational learning.

This chapter begins by discussing different kinds of project audits as well as the audit process. The emergence of maturity models to benchmark the evolution of project management practices is addressed next, followed by issues related to project closure. The chapter concludes by discussing the evaluation of team and individual performance on a project.

Project Audits

Project audits are more than the status reports suggested in Chapter 13, which check on project performance. Project audits do use performance measures and forecast data. But project audits are more inclusive. Project audits review why the project was selected. Project audits include a reassessment of the project’s role in the organization’s priorities.
Project audits include a check on the organizational culture to ensure it facilitates the type of project being implemented. Project audits assess if the project team is functioning well and is appropriately staffed. Audits of projects in process should include a check on external factors that might change where the project is heading or its importance—for example, technology, government laws, competitive products. Project audits include a review of all factors relevant to the project and to managing future projects.

Project audits can be performed while a project is in process and after a project is completed. There are only a few minor differences between these audits.

- **In-process project audits.** Project audits early in projects allow for corrective changes, if they are needed, on the audited project or others in progress. In-process project audits concentrate on project progress and performance and check if conditions have changed. For example, have priorities changed? Is the project mission still relevant? In rare cases, the audit report may recommend closure of a project that is in process.

- **Postproject audits.** These audits tend to include more detail and depth than in-process project audits. Project audits of completed projects emphasize improving the management of future projects. These audits are more long-term oriented than in-process audits. Postproject audits do check on project performance, but the audit represents a broader view of the project’s role in the organization; for example, were the strategic benefits claimed actually delivered?

The depth and detail of the project audit depend on many factors. Some are listed in Table 14.1. Because audits cost time and money, they should include no more time or resources than are necessary and sufficient. Early in-process project audits tend to be perfunctory unless serious problems or concerns are identified. Then, of course, the audit would be carried out in more detail. Because in-process project audits can be worrisome and destructive to the project team, care needs to be taken to protect project team morale. The audit should be carried out quickly, and the report should be as positive and constructive as possible. Postproject audits are more detailed and inclusive and contain more project team input.

In summary, plan the audit, and limit the time for the audit. For example, in post-project audits, for all but very large projects, a one-week limit is a good benchmark. Beyond this time, the marginal return of additional information diminishes quickly. Small projects may require only one or two days and one or two people to conduct an audit.

The priority team functions well in selecting projects and monitoring—cost and time. However, reviewing and evaluating projects and the process of managing projects is usually delegated to independent audit groups. Each audit group is charged with evaluating and reviewing all factors relevant to the project and to managing future projects. The outcome of the project audit is a report.

### Guidelines for Conducting a Project Audit

1. First and foremost, the philosophy must be that the project audit is not a witch hunt.
2. Comments about individuals or groups participating in the project are no-nos. Keep to project issues, not what happened or by whom.
3. Audit activities should be intensely sensitive to human emotions and reactions. The inherent threat to those being evaluated should be reduced as much as possible.
4. Accuracy of data should be verifiable or noted as subjective, judgmental, or hearsay.
5. Senior management should announce support for the project audit and see that the audit group has access to all information, project participants, and (in most cases) project customers.
6. The attitude toward a project audit and its aftermath depends on the modus operandi of the audit leadership and group. The objective is not to prosecute. The objective is to learn and conserve valuable organization resources where mistakes have been made. Friendliness, empathy, and objectivity encourage cooperation and reduce anxiety.
7. The audit should be completed as quickly as is reasonable.
8. The audit leader should be given access to senior management above the project manager.

With these guidelines in mind, the process of the project audit is conveniently divided into three steps: initiation and staffing, data collection and analysis, and reporting. Each step is discussed next.

**Step 1: Initiating and Staffing**

Initiation of the audit process depends primarily on organization size and project size along with other factors. However, every effort should be made to make the project audit a normal process rather than a surprise notice. In small organizations and projects where face-to-face contact at all levels is prevalent, an audit may be informal and only represent another staff meeting. But even in these environments the content of a formal project audit should be examined and covered with notes made of the lessons learned. In medium-sized organizations that have several projects occurring simultaneously, initiation can come from a formal project review group, from the project priority team, or be automatic. For example, in the latter case, all projects are audited at specific stages in the project life cycle—perhaps when a project is 10 to 20 percent complete in time or money, 50 percent complete, and after completion. The automatic process works well because it removes the perceptions that a project has been singled out for evaluation and that someone might be on a witch hunt. In large projects, the audit may be planned for major milestones.

There are rare circumstances that require an unplanned project audit, but they should be few and far between. For example, in a project that involved the development of a very large computer accounting system for multiple locations, one major consulting firm (of many) gave notice of withdrawal from the project, with no apparent reason. The project customer became alarmed that perhaps there was a serious fundamental problem in the project that caused the large consulting firm to drop out. A project audit identified the problem. The problem was one of sexual harassment by members of a small consulting firm toward members of the larger consulting firm. The small consulting firm engagement was terminated and replaced with a firm of similar expertise. The larger firm agreed to remain with the project.

A major tenet of the project audit is that the outcome must represent an independent, outside view of the project. Maintaining independence and an objective view is difficult, given that audits are frequently viewed as negative by project stakeholders. Careers and reputations can be tarnished even in organizations that tolerate mistakes. In less forgiving organizations, mistakes can lead to termination or exile to less significant regions of an organization. Of course, if the result of an audit is favorable, careers and reputations can be enhanced. Given that project audits are susceptible to internal politics, some organizations rely on outside consulting firms to conduct the audits.
Step 2: Data Collection and Analysis

Each organization and project is unique. Therefore, the specific kinds of information that will be collected will depend on the industry, project size, newness of technology, and project experience. These factors can influence the nature of the audit. However, information and data are gathered to answer questions similar to those suggested next.

**Organization View**

1. Was the organizational culture supportive and correct for this type of project? Why? Why not?
2. Was senior management’s support adequate?
3. Did the project accomplish its intended purpose?
   a. Is there a clear link to organizational strategy and objectives?
   b. Does the priority system reflect importance to the future of the organization?
   c. Has the environment (internal or external) changed the need for the project’s completion (if project is still in process)?
4. Were the risks for the project appropriately identified and assessed? Were contingency plans used? Were they realistic? Have risk events occurred that have an impact greater than anticipated?
5. Were the right people and talents assigned to this project?
6. If the project was completed, have staff been fairly assigned to new projects?
7. What does evaluation from outside contractors suggest?
8. Were the project start-up and hand-off successful? Why? Was the customer satisfied?

**Project Team View**

1. Were the project planning and control systems appropriate for this type of project? Should all similar size and type of projects use these systems? Why? Why not?
2. Did the project conform to plan? Was the project over or under budget and schedule? Why?
3. Were interfaces and communications with project stakeholders adequate and effective?
4. If the project is completed, have staff been fairly assigned to new projects?
5. Did the team have adequate access to organizational resources—people, budget, support groups, equipment? Were there resource conflicts with other ongoing projects? Was the team managed well?
6. What does evaluation from outside contractors suggest?

The audit group should not be limited to these questions. The audit group should include other questions related to their organization and project type—e.g., research and development, marketing, information systems, construction, facilities. The generic questions above, although overlapping, represent a good starting point and will go a long way toward identifying project problem and success patterns.

Step 3: Reporting

The major goal of the audit report is to improve the way future projects are managed. Succinctly, the report attempts to capture needed changes and lessons learned from a current or finished project. The report serves as a training instrument for project managers of future projects.

Audit reports need to be tailored to the specific project and organizational environment. Nevertheless, a generic format for all audits facilitates development of an audit
database and a common outline for those who prepare audit reports and the managers who read and act on their content. A very general outline common to those found in practice is as follows.

Classification
The classification of projects by characteristics allows prospective readers and project managers to be selective in the use of the report content. Typical classification categories include the following:
- Project type—e.g., development, marketing, systems, construction.
- Size—monetary.
- Number of staff.
- Technology level—low, medium, high, new.
- Strategic or support.
Other classifications relevant to the organization should be included.

Analysis
The analysis section includes succinct, factual review statements of the project. For example,
- Project mission and objectives.
- Procedures and systems used.
- Organization resources used.

Recommendations
Usually audit recommendations represent major corrective actions that should take place. See, for example, Snapshot from Practice: Post Katrina: New Orleans Announces New Evacuation Plan for 2006 Hurricane Season. However, it is equally important to recommend positive successes that should be continued and used in future projects. Postproject audits may be the place to give credit to the project team for an outstanding contribution.

Lessons Learned
These do not have to be in the form of recommendations. Lessons learned serve as reminders of mistakes easily avoided and actions easily taken to ensure success. In practice, new project teams reviewing audits of past projects similar to the one they are about to start have found audit reports very useful. Team members will frequently remark later, "The recommendations were good, but the 'lessons learned' section really helped us avoid many pitfalls and made our project implementation smoother."

Appendix
The appendix may include backup data or details of analysis that would allow others to follow up if they wished. It should not be a dumping ground used for filler; only critical pertinent information should be attached.

Every project comes to an end, eventually. On some projects the end may not be as clear as would be hoped. Although the scope statement may define a clear ending for a project, the actual ending may or may not correspond. Fortunately, a majority of projects are blessed with a well-defined ending. Regular project audits and a priority team will identify those projects that should have endings different from those planned.
On August 29, 2005, Hurricane Katrina, a category 4 hurricane with winds greater than 145 miles per hour, hit the Gulf Coast with devastating effect. The next day two levees in New Orleans broke and water poured in, covering 80 percent of the city and rising to 20 feet in some areas. Many people climbed onto roofs to escape. The storm ended up killing more than 1,300 people in Louisiana and Mississippi.

While investigations into local, state, and federal responses will continue, the City of New Orleans unveiled a new plan based on lessons learned from Katrina for the forthcoming 2006 hurricane season.

"The Superdome and Morial Convention Center became a scene of misery for days after the August 29 hurricane as thousands of evacuees, many of them ill or elderly, languished with shortages in food and water. In the future, [Mayor Ray] Nagin said, the Convention Center will be a staging point not a shelter.* The city negotiated a deal with Homeland Security so that AMTRAK trains would be used to supplement buses in mandatory evacuation of citizens.

"The new plan will take effect for any storms stronger than a Category 2, which have sustained winds of 111 miles per hour or higher...."

The plan also addresses specific problems that arose during Katrina, such as tourists being stranded in hotels and looters raiding stores and damaging property.


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Conditions for Project Closure

**Normal**

The most common circumstance for project closure is simply a completed project. In the case of "turnkey" projects, such as building a new manufacturing facility or creating a customized information system, the finish is marked by the transfer of ownership to the customer. For many development projects, the end involves handing off the final design to production and the creation of a new product or service line. For other internal projects, such as system upgrades or creation of new inventory control systems, the end occurs when the output is incorporated into ongoing operations. Some modifications in scope, cost, and schedule probably occurred during implementation.

**Premature**

For a few projects, the project may be completed early with some parts of the project eliminated. For example, in a new-product development project, a marketing manager may insist on production models before testing:

Give the new product to me now, the way it is. Early entry into the market will mean big profits! I know we can sell a bizzillion of these. If we don’t do it now, the opportunity is lost!

The pressure is on to finish the project and send it to production. Before succumbing to this form of pressure, the implications and risks associated with this decision should be
carefully reviewed and assessed by senior management and all stakeholders. Too frequently, the benefits are illusory, dangerous, and carry large risks. Why have the original project scope and objectives changed? If early project closure occurs, it should have the support of all project stakeholders. This decision should be left to the audit group, project priority team, or senior management.

**Perpetual**

Some projects never seem to end. That is, the project appears to develop a life of its own. Although these projects are plagued with delays, they are viewed as desirable when they finally are completed. The major characteristic of this kind of project is constant “add-ons.” The owner or others continuously require more small changes that will improve the project outcome—product or service. These changes typically represent “extras” perceived as being part of the original project intent. Examples are adding features to software, to product design, to systems, or to construction projects. Constant add-on changes suggest a poorly conceived project scope. More care in upfront definition of the project scope and limitations will reduce the add-on phenomenon.

At some point the project manager or audit group needs to call the project design locked to bring closure. Although these projects are exhibiting scope, cost, and schedule creep, facing the fact that the project should be brought to an end is not an easy chore. An interesting study by Isabelle Royer chronicles “perpetual” projects of two French companies that lasted well over a decade. Essilor, maker of “progressive” lenses that correct for nearsightedness, and Lafarge, maker of building materials, each had projects that started with much fanfare only to fail to make significant progress. Signs of problems were ignored and allowed the doomed projects to drag on for over 10 years before being killed. Both companies absorbed millions of dollars of lost investment.

Project managers or audit/priority groups have several alternatives available for projects displaying characteristics of being perpetual. They can redefine the project end or scope so that closure is forced. They can limit budget or resources. They can set a time limit. All alternatives should be designed to bring the project to an end as quickly as possible to limit additional costs and still gain the positive benefits of a completed project. The audit group should recommend methods for bringing final closure to this type of project. Failed projects are usually easy to identify and easy for an audit group to close down. However, every effort should be made to communicate the technical reasons for termination of the project; project participants should not be left with an embarrassing stigma of working on a project that failed.

**Failed Project**

In rare circumstances projects simply fail—for a variety of reasons. For example, developing a prototype of a new technology product may show the original concept to be unworkable. Or in the development of a new pharmaceutical drug, the project may need to be abandoned because side effects of the drug are deemed unacceptable. See Snapshot from Practice: Project Canceled.

**Changed Priority**

The priority team continuously revises project selection priorities to reflect changes in organizational direction. Normally these changes are small over a period of time, but periodically major shifts in organization require dramatic shifts in priorities. In this transition period, projects in process may need to be altered or canceled. Thus, a project may start with a high priority but see its rank erode or crash during its project life cycle as conditions change. For example, a computer game company found their major competitor
Germany is the major crossroad for Europe’s international commercial trucks. The German government felt the need to have international trucks (over 12 tons) using their road infrastructure assist in paying for the road maintenance and additional new infrastructure. The project objectives were clear—a new electronic truck toll-collection system that ensures accurate charges and easy fee collection across German, Swiss, and Austrian highways by August 31, 2003. The technology relied on global positioning systems (GPS), telecommunications, and software to record miles and charges, without using toll booths along the highways.

Several problems sabotaged the project. Time-to-market deadlines were impossible to meet. Delayed launch dates were caused by technical problems with truck tracking units and software that failed to function as expected. Interface communication with public and private stakeholders failed. As a result, the August 2003 deadline was never met. The revised November 2003 deadline was not met. Finally, in March 2004 the German government pulled the plug and canceled the project.

The cancellation of the project had serious impacts on other governmental programs. The shortfall of not receiving the revenue from the new toll system is estimated at $1.6 billion. Some of those revenues were destined for a high-speed maglev train in Munich and other infrastructure projects.

Lessons learned reveal that lack of project management knowledge was evident. More importantly, failure to identify and assess the impact of schedule and complex technology risks resulted in the death of the project. Perhaps a simpler, cheaper microwave system recommended by the Swiss and Austrians to be operational by 2005 would have sufficed.

Place 64-bit, 3-D game on the market while their product development projects still centered on 32-bit games. From that moment on, 32-bit game projects were considered obsolete and met sudden deaths. The priority team of this company revised organization priorities. Audit groups found it easy to recommend closure for many projects, but those on the margin or in “gray areas” still presented formidable analysis and difficult decisions.

In some cases the original importance of the project was misjudged; in some the needs have changed. In other situations implementation of the project is impractical or impossible. Because the audit group and priority team are periodically reviewing a project, the changed perception of the project’s role (priority) in the total scheme of things becomes apparent quickly. If the project no longer contributes significantly to organization strategy, the audit group or priority team needs to recommend the project be terminated. In many termination situations, these projects are integrated into related projects or routine daily operations.

Termination of “changed priority” projects is no easy task. The project team’s perception may be that the project priority is still high in relation to other projects. Egos and, in some cases perhaps, jobs are on the line. Individuals or teams feel success is just over the horizon. Giving up is tantamount to failure. Normally, rewards are given for staying with a project when the chips are down, not giving up. Such emotional issues make project termination difficult.

There is little advantage to placing blame on individuals. Other modes should be used to “justify” early project closure or to identify a project problem—for example, customer needs or tastes have changed, technology is ahead of this project, or competition has a better, more advanced product or service. These examples are external to the organization and perceived as beyond anyone’s control. Another approach that weakens close team loyalty is changing team members or the project manager. This approach tends to minimize team commitment and makes closing the project easier, but it should only be used as a last resort. Minimizing embarrassment should be a primary goal for a project review group closing down an unfinished project.
Signals for Continuing or Early Project Closure

Persons who are preparing to join a project audit group for the first time would find it rewarding to read a few studies that identify barriers to project success and the antithesis, factors that contribute to success. Knowledge of these factors will suggest areas to review in an audit. These factors signal where problems or success patterns might exist. In rare cases their existence may signal problems and the need for an in-process project to be terminated early.

A number of studies have examined this area. There is surprising conformity among these studies. For example, all of these studies (and others) rank poor project definition (scope) as a major barrier to project success. There is no evidence these factors have changed over the years, although some differences in relative importance have been noted in different industries. See Research Highlight—Chaos: Software Projects. Table 14.2 presents the barriers identified by 1,654 participating project managers in a survey by Gobeli and Larson. The signals noted in Table 14.2 can be useful to audit groups in their preliminary review of in-process projects or even in postproject audits.

The Closure Decision

For an incomplete project, the decision to continue or close down the project is fundamentally an organizational resource allocation decision. Should the organization commit additional resources to complete the project and realize the project objectives? This is a complex decision. The rationale for closing or proceeding is often based on many cost factors that are primarily subjective and judgmental. Thus, care needs to be taken to avoid

<table>
<thead>
<tr>
<th>TABLE 14.2</th>
<th>Barriers to Project Success</th>
</tr>
</thead>
<tbody>
<tr>
<td>Activity*</td>
<td>Barrier</td>
</tr>
<tr>
<td>Planning</td>
<td>Unclear definition</td>
</tr>
<tr>
<td>32%</td>
<td>Poor decision making</td>
</tr>
<tr>
<td></td>
<td>Bad information</td>
</tr>
<tr>
<td></td>
<td>Changes</td>
</tr>
<tr>
<td>Scheduling</td>
<td>Tight schedule</td>
</tr>
<tr>
<td>12%</td>
<td>Not meeting schedule</td>
</tr>
<tr>
<td></td>
<td>Not managing schedule</td>
</tr>
<tr>
<td>Organizing</td>
<td>Lack of responsibility or accountability</td>
</tr>
<tr>
<td>11%</td>
<td>Weak project manager</td>
</tr>
<tr>
<td></td>
<td>Top management interference</td>
</tr>
<tr>
<td>Staffing</td>
<td>Inadequate personnel</td>
</tr>
<tr>
<td>12%</td>
<td>Incompetent project manager</td>
</tr>
<tr>
<td></td>
<td>Project member turnover</td>
</tr>
<tr>
<td></td>
<td>Poor staffing process</td>
</tr>
<tr>
<td>Directing</td>
<td>Poor coordination</td>
</tr>
<tr>
<td>26%</td>
<td>Poor communication</td>
</tr>
<tr>
<td></td>
<td>Poor leadership</td>
</tr>
<tr>
<td></td>
<td>Low commitment</td>
</tr>
<tr>
<td>Controlling</td>
<td>Poor follow-up</td>
</tr>
<tr>
<td>7%</td>
<td>Poor monitoring</td>
</tr>
<tr>
<td></td>
<td>No control system</td>
</tr>
<tr>
<td></td>
<td>No recognition of problems</td>
</tr>
</tbody>
</table>

* To interpret the table, note that 32 percent of the 1,654 participants reported the barriers under “Planning,” 12 percent reported the barriers under “Scheduling,” and so on.
The Standish Group International is a market research and advisory firm specializing in mission-critical software and electronic commerce. They have conducted and published extensive research on the success and failure of software development/application projects. Their research, code name "Chaos," shows that a staggering 31 percent of software projects will be canceled before they are ever completed. In addition, 53 percent of projects will cost 189 percent of their original estimates. In terms of success, on the average only 16 percent of software projects are completed on time and within budget. In larger companies, the success rate is much worse—9 percent. The Standish Group estimated that in 1995 American companies and government agencies spent $81 billion for canceled software projects.

The Chaos research is based on "key findings" from research surveys and personal interviews. The respondents were information technology (IT) executive managers. The sample included large, medium, and small companies across major industry segments, for example, banking; securities; manufacturing; retail; wholesale; health care; insurance service; and local, state, and federal organizations. The total sample size was 365 respondents and represented 8,380 projects.

Based on an in-depth comparison of successful versus unsuccessful software projects, the Standish Group created a success potential chart that identifies key factors associated with project success. The success criteria were weighted based on the input from the surveyed IT managers. The most important criterion, "user involvement," was given 19 success points, while the least important, "hard-working, focused staff," was given 3 success points. The following chart lists the criteria in order of importance:

<table>
<thead>
<tr>
<th>Success Criteria</th>
<th>Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. User involvement</td>
<td>19</td>
</tr>
<tr>
<td>2. Executive management support</td>
<td>16</td>
</tr>
<tr>
<td>3. Clear statement of requirements</td>
<td>15</td>
</tr>
<tr>
<td>4. Proper planning</td>
<td>11</td>
</tr>
<tr>
<td>5. Realistic expectations</td>
<td>10</td>
</tr>
<tr>
<td>6. Smaller project milestones</td>
<td>9</td>
</tr>
<tr>
<td>7. Competent staff</td>
<td>8</td>
</tr>
<tr>
<td>8. Project team ownership</td>
<td>6</td>
</tr>
<tr>
<td>9. Clear vision and objectives</td>
<td>3</td>
</tr>
<tr>
<td>10. Hard-working, focused staff</td>
<td>3</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>100</strong></td>
</tr>
</tbody>
</table>

Inferences concerning groups or individuals. The audit report needs to focus on organizational goals, changing conditions, and changing priorities requiring reallocation of scarce organizational resources.

When the audit group or priority team suggests closure, the announcement may need to come from a CEO position if the effect is large or if key egos are involved. But, in most cases, the closure decision is left to the audit group or priority team. Prior to announcement of closure, a plan for future assignment of the project team members should be in place.

**Project Closure Process**

As the project nears the end of its life cycle, people and equipment are directed to other activities or projects. Carefully managing the closure phase is as important as any other phase of the project. The major challenges for the project manager and team members are
over. Getting the project manager and team members to wrap up the odds and ends of closing down the project is sometimes difficult. For example, accounting for equipment and completing final reports are perceived as boring by project professionals who are action-oriented individuals. They are looking forward to new opportunities and challenges. The major activities found in project terminations are developing a plan, staffing, communicating the plan, and implementing the plan.

The typical close-out plan includes answers to questions similar to these:

- What tasks are required to close the project?
- Who will be responsible for these tasks?
- When will closure begin and end?
- How will the project be delivered?

Staffing is usually not a significant issue if the termination is not a sudden hatchet job. If the project is suddenly canceled early, before completion, it may be judicious to seek someone other than the project manager to close out the project. In successful, completed projects, the project manager is the likely choice for closing down the project. In this case it is best to have the project manager’s next assignment known; this will serve as an inducement to terminate the project as quickly as possible and move on to new challenges.

Communicating the termination plan and schedule early allows the project team to (1) accept the psychological fact the project will end and (2) prepare to move on. The ideal scenario is to have the team member’s next assignment ready when the termination is announced. Conversely, a major dilemma in the termination phase is that project participants are looking forward to future projects or other opportunities. The project manager’s challenge is to keep the project team focused on the project activities and delivery to the customer until the project is complete. Project managers need to be careful to maintain their enthusiasm for completing the project and hold people accountable to deadlines, which are prone to slip during the waning stages of the project.

Implementing the closedown plan includes several wrap-up activities. Many organizations develop lengthy lists for closing projects as they gain experience. These are very helpful and ensure nothing is overlooked. Implementing closedown includes the following five major activities:

1. Getting delivery acceptance from the customer.
2. Shutting down resources and releasing to new uses.
3. Reassigning project team members.
4. Closing accounts and seeing all bills are paid.
5. Evaluating the project team, project team members, and the project manager.

Figure 14.1 depicts a partial closedown checklist for the Euro Conversion Project for a space company. See Appendix 14.1 for another example used by the state of Virginia.

Orchestrating the closure of a project can be a difficult task. Implementing closure usually takes place in an emotionally charged web of happiness from successful completion of the project and sadness that newly forged friendships are now being severed as individuals go their separate ways. It is customary in organizations to arrange a celebration of the completion of the project; this could range from an informal pizza party after work to a more formal banquet including speeches and awards or certificates of recognition for participants. Such a festivity provides a sense of closure and emotional release for the participants as they bid farewell to each other. For less successful projects, this ending can take the form of a ceremonial wake; even though the atmosphere...
may be less than festive, such an event can also provide a sense of closure and help people move on with their lives.

It is important to remember that dragging out the project closure process can also drag out costs that continue for the life of the project. If the project is not completed and earning the benefits promised, the interest costs of the money spent for the project continue, along with other continuing costs. Not only that, but for contracted projects final payment is not received until after the closeout.

**Team, Team Members, and Project Manager Evaluations**

Auditing includes performance evaluations of the project team, individual team members, and the project manager. See Research Highlight: Measures of Team Performance. Evaluation of performance is essential to encourage changes in behavior and to support
If team evaluation is not done well in practice, how bad is it? Joseph Fusco surveyed 1,667 project managers representing 134 different projects. Fifty-two percent of the respondents indicated their team received no collective evaluation of their team performance. Of the 22 percent who indicated their team was evaluated, further probing found their evaluation was informal, lasting little more than 20 minutes. This apparent lack of team evaluation practices may be sending the wrong signal. Individual team members can slough off poor team performance by relying on the old saying, "I did my job." Strong team evaluation practices need to emphasize team members are "in this together," while minimizing individual performance. Nearly every company in Fusco’s survey lacked an effective project management reward system.


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These “in-place conditions” will support any evaluation approach for teams and their members.

In practice, the actual team evaluation process takes many forms—especially when evaluation goes beyond time, budget, and specifications. The typical mechanism for evaluation of teams is a survey administered by a consultant, a staff member from the human resources department, or through computer e-mail. The survey is normally restricted to team members, but, in some cases, other project stakeholders interacting with the team may be included in the survey. When the results are tabulated, the team meets with senior management, and the results are reviewed. An example of a partial survey is found in Table 14.3.

This session is comparable to the team-building sessions described in Chapter 11 except that the focus is on using the survey results to assess the development of the team, its strengths and weaknesses, and the lessons that can be applied to future project work. The results of team evaluation surveys are helpful in changing behavior, stressing the importance of supporting the team approach, and continuous improvement.

**Individual Team Member and Project Manager Evaluation**

Team evaluation is crucial, but at some point a project manager is likely to be asked to evaluate the performance of individual members. Such an evaluation will typically be required as part of the closure process and will then be incorporated in the annual performance appraisal system of the organization. These evaluations constitute a major element of an individual’s personnel file and often form the basis for making decisions about promotions, future job assignments, merit pay increases, and other rewards.

Organizations vary in the extent to which project managers are actively involved in performing the appraisal process. In organizations where projects are managed within a functional organization or functional matrix, the individual’s area manager, not the project manager, is responsible for assessing performance. The area manager may solicit the project manager’s opinion of the individual’s performance on a specific project; this will be factored into the individual’s overall performance. In a balanced matrix, the project manager and the area manager jointly evaluate an individual’s performance. In project matrix and project organizations in which the lion’s share of the individual’s work is project related, the project manager is responsible for appraising individual performance. One new process, which appears to be gaining wider acceptance, is the multirater appraisal or “360-degree feedback,” which involves soliciting feedback concerning team members’ performance from all the people their work affects. This would include not only project and area

<table>
<thead>
<tr>
<th>Using the scale below, assess each statement.</th>
<th>Disagree</th>
<th>Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. The team shared a sense of common purpose, and each member was willing to work toward achieving project objectives.</td>
<td>1 2</td>
<td>3 4 5</td>
</tr>
<tr>
<td>2. Respect was shown for other points of view. Differences of opinion were encouraged and freely expressed.</td>
<td>1 2</td>
<td>3 4 5</td>
</tr>
<tr>
<td>3. All interaction among team members occurred in a comfortable, supportive atmosphere.</td>
<td>1 2</td>
<td>3 4 5</td>
</tr>
</tbody>
</table>
managers, but also peers, subordinates, and even customers. See Snapshot from Practice: The 360-Degree Feedback.

Performance appraisals generally fulfill two important functions. The first is developmental in nature; the focus is on identifying individual strengths and weaknesses and developing action plans for improving performance. The second is evaluative and involves assessing how well the person has performed in order to determine salary or merit adjustments. These two functions are not compatible. Employees, in their eagerness to find out how much pay they will receive, tend to tune out constructive feedback on how they can improve their performance. Likewise, managers tend to be more concerned with justifying their decision than engaging in a meaningful discussion on how the employee can improve his or her performance. It is difficult to be both a coach and a judge. As a result, several experts on performance appraisal systems recommend that organizations separate performance reviews, which focus on individual improvement, and pay reviews, which allocate the distribution of rewards.

In some matrix organizations, project managers conduct the performance reviews, while area managers are responsible for pay reviews. In other cases, performance reviews are part of the project closure process, and pay reviews are the primary objective of the annual performance appraisal. Other organizations avoid this dilemma by allocating only group rewards for project work. The remaining discussion is directed at reviews designed to improve performance because pay reviews are often outside the jurisdiction of the project manager.

**Performance Review**

Organizations employ a wide range of methods to review individual performance on a project. In general, all review methods of individual performance center on the technical and social skills brought to the project and team. Some organizations rely simply on an informal discussion between the project manager and the project member. Other organizations require project managers to submit written essays that describe and assess an individual’s performance on a project. Many organizations use rating scales similar to the team evaluation survey in which the project manager rates the individual according to a certain scale (i.e., from 1 to 5) on a number of relevant performance dimensions (i.e., teamwork, customer relations). Some organizations augment these rating schemes with behaviorally anchored descriptions of what constitutes a 1 rating, a 2 rating, and so forth. Each method has its strengths and weaknesses, and, unfortunately, in many organizations the appraisal systems were designed to support mainstream operations and not unique project work. The bottom line is that project managers have to use the performance review system mandated by their organization as best they can.

Regardless of the method, the project manager needs to sit down with each team member and discuss his or her performance. Here are some general tips for conducting performance reviews:

- Always begin the process by asking the individual to evaluate his or her own performance. First, this approach may yield valuable information that you were not aware of. Second, the approach may provide an early warning for situations in which there is disparity in assessments. Finally, this method reduces the judgmental nature of the discussion.
- Avoid, when possible, drawing comparisons with other team members; rather, assess the individual in terms of established standards and expectations. Comparisons tend to undermine cohesion and divert attention away from what the individual needs to do to improve performance.
More and more companies are discarding the traditional superior-subordinate performance feedback process and replacing it with 360-degree feedback systems. The 360-degree feedback approach gathers behavioral observations from many sources within the organization and includes employee self-assessment. The individual completes the same structured evaluation process that superiors, project team members, peers, and, in many cases, external customers use to evaluate performance. Survey questionnaires, augmented by a few open-ended questions, are typically used to gather information.

Summary results are compared against organizational strategies, values, and business objectives. The feedback is communicated to the individual with the assistance of the company's human resource department or an outside consultant. The technique is used by a growing number of firms including General Electric, AT&T, Mobil Oil, Nabisco, Hewlett-Packard, and Warner-Lambert.

The objective of the 360-degree process is to identify areas for individual improvement. When anonymous feedback solicited from others is compared with the individual's self-evaluations, the individual may form a more realistic picture of her strengths and weaknesses. This may prompt behavioral change if the weaknesses identified were previously unknown to the individual. Such appears to be the case for Jerry Wallace, an up-and-coming manager at General Motors. "The strongest message I got was that I need to delegate more," he says. "I thought I'd been doing it. But I need to do it more and sooner. My people are saying, 'Turn me loose.'"

Many firms obtain feedback from internal and external project customers. For example, a client may evaluate a project manager or member of the project team according to, "How effectively does the individual get things done without creating unnecessary adversarial relationships?" Incorporating customer feedback in the evaluation process underscores collaboration and the importance of client expectations in determining project success.

William J. Miller, a program director at Du Pont, helped install a 360-degree feedback system for 80 scientists and support people. "A high or low score didn't predict a scientist's ability to invent Teflon," says Miller. "But what feedback did was really improve the ability of people to work in teams. Their regard for others and behaviors that were damaging and self-centered are what changed."


- When you have to be critical, focus the criticism on specific examples of behavior rather than on the individual personally. Describe in specific terms how the behavior affected the project.
- Be consistent and fair in your treatment of all team members. Nothing breeds resentment more than if, through the grapevine, individuals feel that they are being held to a different standard than are other project members.
- Treat the review as only one point in an ongoing process. Use it to reach an agreement as to how the individual can improve his or her performance.

Both managers and subordinates may dread a formal performance review. Neither side feels comfortable with the evaluative nature of the discussion and the potential for misunderstanding and hurt feelings. Much of this anxiety can be alleviated if the project manager is doing her job well. Project managers should be constantly giving team members feedback throughout the project so that individual team members can have a pretty good idea how well they have performed and how the manager feels before the formal meeting.

While in many cases the same process that is applied to reviewing the performance of team members is applied to evaluating the project manager, many organizations augment this process, given the importance of the position to their organization. This is where conducting the 360-degree review is becoming more popular. In project-driven organizations, directors or vice presidents of project management will be responsible for collecting information on a specific project manager from customers, vendors, team members, peers, and other managers. This approach has tremendous promise for developing more effective project managers.
Project audits enhance individual and organizational change and improvement. In this chapter, processes for conducting project audits and developing the report were examined. Project closures and the importance of conducting team and individual evaluations were also reviewed. Key points of the chapter include the following:

- It is better to have automatic times or points when audits will take place. Surprises should be avoided.
- Audits of projects (especially those in process) need to be conducted carefully and with sensitivity to human reactions. The audit should focus on issues, problems, and successes and avoid references to groups or individuals.
- The audit is best staffed with individuals independent of the project.
- Audit reports need to be used and accessible.
- Audits support an organizational culture that vigorously promotes continuous improvement and organizational learning.
- Project closures should be planned and orderly regardless of the type of closure.
- Certain “core conditions” should be in place to support team and individual evaluation.
- Both individual and team evaluations should be conducted, and performance reviews should be separated from pay or merit reviews.

Competitive conditions appear to be forcing more organizations to adopt continuous improvement and organizational learning. Regular use of project audits has yielded dramatic improvements in the way projects are managed. As more members of these organizations are learning from project mistakes and what is contributing to project successes, the process of managing projects is continuously improving in their respective organizations. The major instrument for implementing this philosophy will be the project audit and report.

Since the purpose of the audit is to improve performance, the project maturity model is a good approach for checking project management performance and improvement for the organization over the long haul. Using the model as a starting benchmark, improvements can easily be tracked to higher levels.

### Key Terms

- In-process project audit
- Project audit report
- Team evaluation
- Performance review
- Project closure
- 360-degree review
- Postproject audit

### Review Questions

1. How does the project audit differ from the performance measurement control system discussed in Chapter 13?
2. What major information would you expect to find in a project audit?
3. Why is it difficult to perform a truly independent, objective audit?
4. What are the five major activities for closing a project?
5. Comment on the following statement: “We cannot afford to terminate the project now. We have already spent more than 50 percent of the project budget.”
6. Why should you separate performance reviews from pay reviews? How?

### Exercises

1. Consider a course that you recently completed. Perform an audit of the course (the course represents a project and the course syllabus represents the project plan). Summarize the results of the audit as a report organized in accordance with the outline in the section “Step 3: Reporting.”
2. Imagine you are conducting an audit of the International Space Station project. Research press coverage and the Internet to collect information on the current status of the project. What are the successes and failures to date? What forecasts would you make about the completion of the project, and why? What recommendations would you make to top management of the program, and why?

3. Interview a project manager who works for an organization that implements multiple projects. Ask the manager what kind of closeout procedures are used to complete a project and whether projects are audited.

References


Software Engineering Institute (SEI). (See website at http://www.sei.cmu.edu/activities/sema/profile.html.)

