

PROJECT MANAGEMENT: ONE STEP BEYOND

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Good project managers are made, not born. But those with a special dedication to a project look beyond the most basic measures of success toward building constructive relationships within the project team, as well as with the client.

Finishing a project on time and within budget are the simplest measures of a project's success, but equally important are goals that represent the team's attitude and dedication to a project. In this definition, good project management encompasses not only considering time and budget, but providing quality professional service that is responsive to client needs, assisting the project development, and developing a relationship of trust with the client.

Fundamentally, project management centers on filing and tracking paperwork. But in a much bigger and important way, project management is about helping a project team enjoy its work, inspiring the project team and creating in team members a sense of mission. These seemingly intangible measures of a project's success can be monitored through each phase of the project: start-up, execution, close-out and quality control.

PROJECT START-UP

The start-up phase of a project begins with a signed contract and ends with project kickoff meetings between the client and the in-house project team. The goal of the start-up phase is to think through the contracted project work effort carefully prior to investing resources in project execution. It includes:

- Assembling the project team. Team

members should be committed to a specific task and decide when work will be done and how many hours it will take. In some cases the team may include subconsultants (e.g., surveying, geotechnical and corrosion control) who should be brought on board with a clear scope of work, budget and schedule defined.

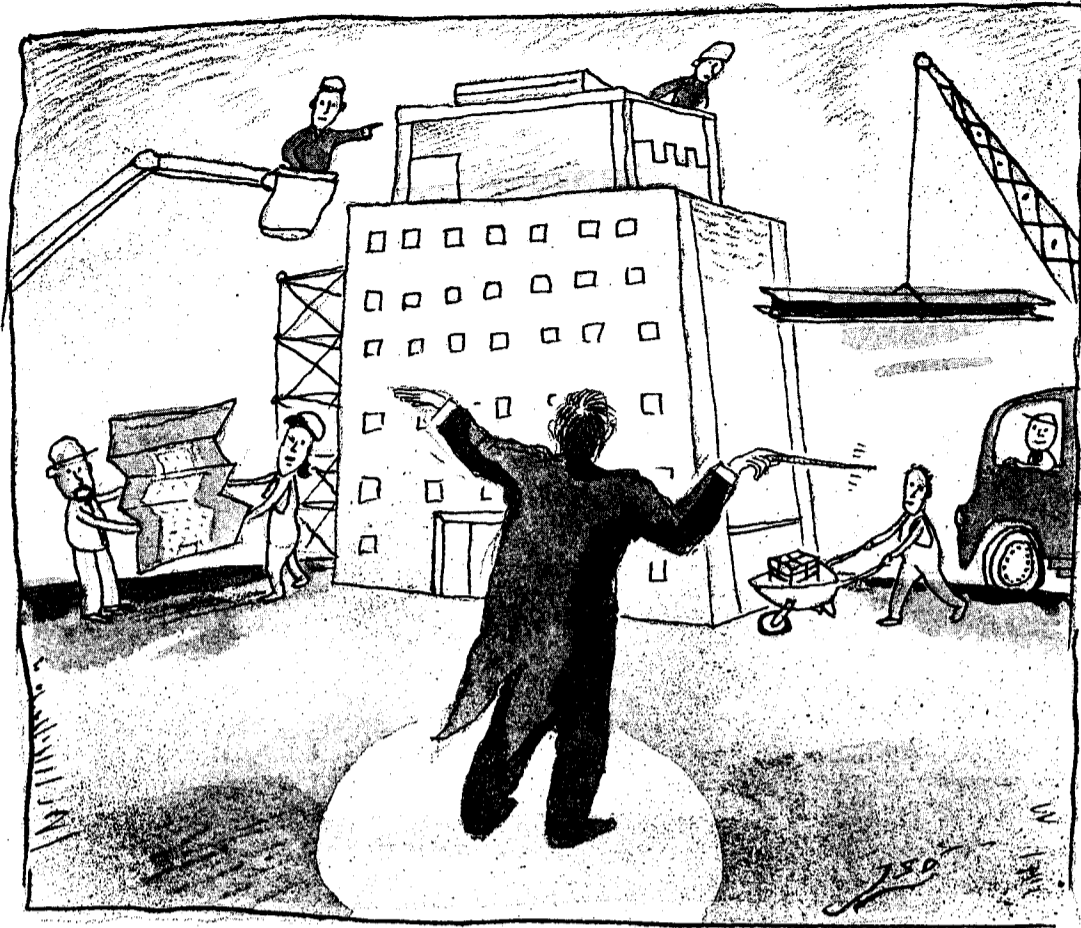
- Clarifying project team roles. If necessary, copies of the organization chart should be developed and distributed to key members of the team, subconsultants and the client.
- Developing a work breakdown structure (WBS). A good WBS consists of a brief summary of the scope of work, tasks and sub-tasks required for fulfillment of the contract. The time segments of a WBS should be short, preferably less than a month, so they can be easily and effectively tracked. Each task in the WBS should have a defined scope of work, a defined duration and a defined level of effort.
- Introducing the key players. Key members of the project team should establish a good relationship and dialogue with the client—prerequisites to a successful project. Exchanging phone numbers among key project individuals creates a sense of informality and increases the level of comfort between different participants on the consultant and client teams.
- Preparing a projected expenditure curve. Personnel and budget should be assigned for each work task of the WBS, the

time that task will be undertaken and completed should be estimated, and a plot of time against projected expenditure should be prepared. These can then serve as the basis for monitoring the budget.

- Establishing a project filing system. A well-thought-out project filing system is essential for retrieving project information. In today's litigious climate it is unfortunately as important to do good engineering as it is to document the basis of that work and be able to retrieve it for later use.
- Having a project kickoff meeting with the client. Besides introducing the project team, the project manager should discuss and present clearly what is included in the scope and, more important, what is not included. Since many assumptions are the basis of the contracted scope of work, they should be restated and verified with the client. Minutes of the kickoff meeting (and all other meetings) with the client should be written and distributed to all participants as a permanent record of what was discussed and agreed on.

PROJECT EXECUTION

Between the kickoff meeting and the near completion of the project, budgets can overrun, schedules can slip and a project may otherwise not meet client expectations. Periodic review meetings with the client should be conducted at important milestones to both receive input and to



keep the client's expectations in check. In determining what these milestones are, the project manager and client should also determine at the onset of the project what should be accomplished and reviewed by the client and when.

To foster team spirit, the project manager should also meet with key members of the project team on a regular basis. If any key member of the project team begins to feel that his or her views are not important to the project, the manager should consider the project off-track. A winning team is comprised of individuals who have positive feelings about the project and their own role on the project.

A detailed, complex design project might call for weekly meetings attended by one key engineer from each design discipline (i.e., process, civil, electrical, mechanical and so on) and subconsultants, if necessary. These meetings should be frequent enough to obtain input from key members of the team so that the project stays on track in the areas of budget, schedule, and most important, project quality.

Every meeting, at a minimum, should have the following agenda:

- Action items from the last meeting.

- Action taken on these items since the last meeting.
- New items.
- Action required for these new items and persons responsible.
- Problems with budget and schedule.

The project manager should periodically review the work of the project team to make sure they meet, in fact exceed, the needs and expectations of the client.

The project manager may consider involving one or two senior-level professionals from within the organization, but not from within the project team, in this review. This review may involve some very general items and issues, which are common but often neglected by the team too close to the project.

For example, in the case of the design of a wastewater-treatment plant these issues may cover access and exit, flexibility to bypass unit processes, overall plant aesthetics and compatibility with existing architecture, adequate handling of side streams, ability to drain tanks and handle storm runoff, conformance to rule-of-thumb design criteria, preparedness in case of a power outage and other questions.

Since subconsultants are an extension of

the project team, their work should be reviewed by the project manager in the same manner as the work done by the in-house project team. The project manager must not assume that the quality of the subconsultants' work will not require review. He or she, however, should exercise judgment in reviewing and directing subconsultants' work; overly prescribing how they should do their job may result in professional liability.

Well-kept records are generally indicative of a good project to outsiders, particularly attorneys and courts. If records are not maintained properly and the project goes to litigation, the outcome may be adversely affected not only because of the absence of supporting records but also because of a perception that the quality of work on the project is substandard.

These records should include the contract; correspondence to and from the client, vendors, regulatory and permitting agencies and others; design calculations, including checkers' comments and notes indicating how they were resolved; copies of telephone notes with the client regarding the scope of work and verbal understandings (which should always be confirmed in writing); meeting notes; and internal communications.

The project manager should monitor the status of each task regularly, as defined by the WBS. If a task is off the allotted time and budget, the project manager should determine the reasons and take prompt corrective action, which often involves adjusting materiel and human resources. Based on milestones achieved, the percentage of progress for each task can be calculated and compared to expenditure of funds, all of which can be plotted and trended.

The project manager must not develop corrective action unilaterally; such action will not always receive support from key members of the project team and is less likely to be successful. To the extent possible, corrective action should be developed by consensus, which ensures support and commitment from all members of the project team.

If the project is on schedule and budget, the project manager should acknowledge good work. It is amazing how rewarding a word of thanks can be to the continued success of a project.

Quite frequently, clients change the scope of work as the work progresses. Scope changes must be followed by revisions to the WBS, project schedule, project budget and projected expenditure curve. Making these revisions is important; otherwise the project manager will be managing a project different than the one contracted. This can only result in fiscal and schedule disaster. Here are some suggestions for overcoming schedule and budget problems:

- Review contract to make sure you are not doing out-of-scope work.
- Be decisive and stop evaluating too many alternative solutions. Pick one that you know will work and go with it.
- Watch out for team members who are striving for perfection.
- Get senior people on the project; often, they get more done and require less supervision, which makes their participation more cost effective.
- Get experts on the project. Look for people who have done this type of work before.
- Set priorities. Decide if there are less-critical tasks that can slip without causing any problems.
- Rethink your strategy. Can drawings be simplified? Can sections or some details be simplified? Can some be deleted entirely?
- Continually monitor all team members' progress to make sure they are not spinning wheels and wasting time.

PROJECT WRAP-UP AND CLOSE-OUT

This phase starts essentially after the completion of deliverables and lasts until their delivery to the client and the closing of the project files. In addition to closing all the job numbers and carefully filing all paperwork regarding the project, the project manager should assess the overall outcome: Is the client satisfied? Was the project a success—fiscally and otherwise?

Often, a systematic and timely closing of the project can be difficult. This may be because the project team is tired or the entire budget has already been spent and there is no incentive to properly close the project. To avoid any letdowns at the end of the project and associated difficulties, the project manager may consider scheduling project close-out as a separate task with its own budget. Close-out then becomes a miniproject with its own scope, schedule and budget.

Part of this phase includes establishing and executing a finish-up plan for project deliverables. The plan should identify all deliverables, big and small, so that nothing slips through the cracks. In a detailed design, for example, drawings may require signatures of the client. Because this can be time-consuming, the process should be built into the plan. Similarly, it is not uncommon for reproduction of deliverables to take two or more weeks, which must be considered in developing the plan. Overlooking any of these can delay a project.

Near the end of a project, team members may exhibit some dissatisfaction for the project's progress and quality. Perhaps certain elements of the project could have been done differently or better. The project manager should encourage everyone on the team to wrap up the project by asking whether project goals have been met. Based on answers to these questions, the project manager can prepare a final checklist of changes to be made.

Evaluations of subcontractors and key members of the in-house project team provide a valuable database. This evaluation should be based on input from all members of the project team and should be done immediately upon completion of the project when it is likely to be more thorough and objective. Knowing the strengths or weaknesses of key members of the team will enable determination of appropriate future assignments for these employees. If properly conducted, performance evaluations will result in an improved performance of the

members of the team in the next project.

It is tempting for staff to keep charging a few hours each week to a completed job, particularly when they have not been reassigned. All job numbers should be closed so that no further charges are incurred against the project.

In closing project files, project managers should bring records up to date and make sure all original documents, including project calculations, are in the project files and at one location.

PROJECT QUALITY CONTROL

The project manager must remember that employees make their strongest commitment to those systems or projects they help create. For the team to perform its best, the project manager should be accessible to every member, should encourage team discussion of issues, and should give credit to members of the team who offer good ideas. This should help create a culture that breeds and recognizes quality.

Doing so also involves sharing client feedback with the entire project team. The client's judgment of quality in a project may include a number of nontechnical aspects that may not be obvious without client feedback. These include:

- Responsiveness. Were you and your team responsive to the client? Were you there when the client needed you to make a presentation to its governing body? Did you make an effective presentation? Did you address all the issues of concern?
- Courtesy. Were you and your staff courteous to the client and its staff? Did you and your staff return phone calls in a timely manner? Were you and your staff respectful of the client and its staff in your conversations and interactions?
- Client involvement. Did you involve the client in decision making? Did the completed project incorporate its ideas and address their concerns?
- Friendliness. Did you make the client and its staff feel good about you? Did you encourage client participation?

Quality control is not about catching mistakes, it is about anticipating and preventing mistakes from happening. Every member of the project team carries this responsibility, but only the project manager can inspire this attitude among his or her team. ▽

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