Innovation insights

Office of Planning and Institutional Assessment

Innovation Insight Series Number 24
http://www.psu.edu/president/pia/innovation/

Project Management: The Basics

Often there is uncertainty about the difference between project management and managing a project team, and starting a Continuous Quality Improvement (CQI) initiative and managing CQI team roles. This Innovation Insight provides an overview of project management and addresses how it relates to CQI, including:

- The nature of a project
- The project manager and project team
- The four phases of a project

What is Project Management?

A project is an undertaking that…

- is temporary, with a start date and an end date
- uses shared or temporary resources (funds, space, and staff) and often has a matrix organizational structure, where project team members report to both the project team leader and their permanent supervisor
- creates a specific product, service, or outcome

One question to be answered at the start of an initiative is whether the activity is innovation and process improvement or whether it is project management. Both project management and innovation/improvement projects are based on a specific project, task, or outcome with a beginning and an end. They are not ongoing daily routine work. However, they differ in their starting point.

- In project management, what will be in place at the completion of the project is generally known at the start. The task is focused on implementation.
- In innovating or improving a process, initial actions include analyzing the current situation or process to determine how it can be improved or what the innovation will be. Only after identification of the optimum combination of new or improved actions will implementation begin.

One perspective is that project management is the second part of innovation and improvement – implementing the change once it has been identified.

People and Project Management

Project management involves people in several different roles: team member, project leader or manager, and client or stakeholder. These roles parallel those in a CQI activity.

The client or stakeholder is the individual that has commissioned the project, similar to the sponsor of a CQI activity who controls the resources and approves the recommendations. The project client or stakeholder may be an executive or leader within the organization, or a client or customer outside the organization. This person defines the outcome of the project at the macro level.

The effective project team consists of a group of people who understand the project objective, have expertise in their field as it relates to the project, and understand each person's role and responsibility. This

may be a narrower focus than that of CQI team members who are using a broader perspective for their process analysis. Project team members need to be willing to cooperate and collaborate, trust and respect other team members, and focus on results.

The project manager is the one responsible to keep the project on track and deliver the project outcome, either product or service, on time and within budget. The project manager must ensure that the outcome of the project is what the client or stakeholder asked for, and that the client is satisfied with the results. For effective outcomes, the project manager needs to optimize the use of the shared resources, and balance time, cost, quality, and risk to meet or exceed stakeholder expectations. A successful project manager probably serves as the equivalent of both the CQI team leader and the team facilitator.

The project manager is the leader of the team, with formal authority (from designation as the project manager) and possible informal authority (through respect earned from the team members). The project manager oversees the definition, planning, execution, and completion of the project, and the work of the team members. Remembering that the team members are experts in their fields, the project manager may serve as coach (providing strategy, road maps, or plays) or conductor (bringing together specialized experts to provide music rather than noise) for the team members. Team members probably don't need to be closely supervised or micromanaged.

An effective project manager will be skilled in leadership, communication, time management, problem solving, and handling conflict, and will know when to delegate and how closely to monitor progress. The project manager will have to make use of softer interpersonal skills such as team building, negotiation and conflict resolution, and more quantitative skills such as estimating, scheduling, and tracking. The Global Alliance for Project Performance Standards (2007) identifies six major units for project manager competency: manage stakeholder relationships, manage development of the plan for the project, manage project progress, manage product acceptance, manage project transitions, and evaluate and improve project performance.

Project Management as a Process: Four Phases

There are several detailed models for project management, including that supported by the *Project Management Body of Knowledge*, with five stages and nine knowledge areas, and *ISO 10006: Quality management systems - Guidelines for quality management in projects*.

A simple way of approaching a project and project management is as a process with four phases or stages.

1. **Define** the project: Visualize it and determine its scope. What are the boundaries? What will be included and what will not be included?

2. **Plan** the project: Determine how you will do what needs to be done, by whom, when and in what order, where, and at what cost and using what other resources.

3. **Implement and monitor** the plan: Do what is in the plan, updating and revising the plan during execution as needed.

4. **Complete** the project: Reach closure in terms of final reports, releasing resources, and turning the project outcome over to others for ongoing operations and/or maintenance.

Defining the Project

Before work on the project can be started, it's necessary to clearly define what the outcomes of the project will be. This involves not only what specifications and criteria the final project must meet, but when it must be completed and what the budget is.

This will probably require some study and analysis, addressing questions about the project such as:

- What's the objective?
- What are the expected, required, and desired results?
- How will success be measured?
- What's the timeframe?
- What are the resource implications?

Project stakeholders in addition to the client should be identified:

- Who will benefit?
- Who needs to be involved and at what stage in the development?

Implementation approaches need to be identified, developed and evaluated:

- What are your assumptions and beliefs?
- What do you need to learn?
- What data do you have and what data do you need to move forward?
- With whom can you benchmark?

As information is collected:

- What are some alternative strategies?
- What resources (people, skills, time, money, and facilities or equipment) and authority are needed?

In setting up the project team, it may be helpful to develop both a skill matrix and a responsibility matrix to match team members, skills, and tasks.

To build the responsibility matrix, identify all of the major tasks that will need to be accomplished to complete the project. Then identify potential team members and where/how they need to be involved to complete the individual tasks. If there are tasks with no matching team members, there may be a need for additional members on the team. If there are team members with no match to any tasks, they may question why they are on the team.

Follow the same process for setting up the skill matrix. What skills are needed on the team, and which team members possess those skills? Identify the gaps and determine how to close them.

Project Scope

Essential to effective project management is a clear description of the scope of the project – what is included in the project, what is not included, and where the boundaries between the two are set – established at the start of the project. The scope statement forms the basis for an agreement between the project manager and the project client by identifying both the *project objectives* (final project outputs or outcomes) and the major *project deliverables* (specific products to be provided to the client during or at the completion of the product). 'Scope creep' is the term for what may occur when the scope is not well defined: as the project progresses, it grows. It thus becomes more difficult to complete the project or satisfy the client. To avoid scope creep, spend enough time developing a detailed scope statement and have the client/stakeholder sign-off on the written scope statement at the start of the project.

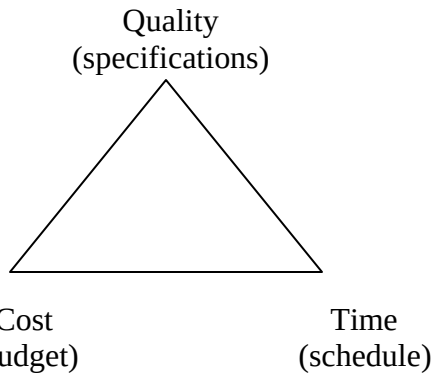
Planning the Project

Once the outcome of the project has been defined, it's important to develop a plan of what work needs to be done, what resources are needed, who will do it, and when. The level of detail needed in the plan will be determined by the complexity of the project and the number of people involved. The plan will probably not be followed exactly – things will happen that lead to adjustments and modifications. One reason for having the plan is to be able to see what needs to be adjusted when a task takes longer than expected or people or other resources are not available when needed.

In developing the plan, consider the specifications from the client and any required completion date, the budget, the best sequence of events (and whether any steps can be carried on concurrently), the staff needed and the need for any staff training for their part in the project.

The Triple Constraint

One aspect of project management is often referred to as the 'Triple Constraint'. Those involved with the project want the outcome to be of high quality, low cost, and quick delivery. It's generally not possible to meet all three of those expectations. High quality usually requires attention to detail which requires more time. Faster delivery can be accomplished by having more people working on the project, but that will increase cost. There may also be a point at which adding more people actually slows the project down, as they need to be integrated into the project and communication needs increase. It's the job of the project manager to find the optimum balance among the criteria for quality, time, and cost in developing the plan, and also to take into account planning for risks, contingencies, and pilot versions.



The ideal: good, cheap, and fast!

Seven Steps for Project Planning

Snead and Wycoff (1997) provide one possible checklist for developing a project plan.

Planning Step	Questions to Ask
1. Identify parameters/ constraints	What are the requirements for quality/specifications, cost/budget/other resources, and time/schedule? What are the trade-offs? Which of the three is highest priority?
2. Identify 'hot spots'	Where are the potential problems? How could these problems be addressed?
3. Break the project into 'hunks, chunks, and bites'	What are the major pieces of the project, the minor pieces that make up the major pieces, and the individual tasks within the minor pieces?
4. Write down the tasks in sequence	What tasks can be done concurrently, or in parallel? What tasks cannot be done until others are completed?
5. Identify who is responsible for each item	Do the project manager and team have the resources needed?
6. Determine when each task will be done	Which tasks are required, and which may be just nice to have? How long will each task take? What are the start and finish dates, based on sequence and time to complete?
7. Determine the projected cost	Based on the schedule, what will be the final cost?

Project Planning Tools

There are several tools available for developing and documenting a project plan.

- Expanded Responsibility Matrix – expand the table or spreadsheet of team members and major tasks developed during definition of the project to include more detailed information, such as minor and supporting tasks, start and end dates, resources needed, and other related information

- Work Breakdown Structure (WBS) – a graphic representation using the tree/branch format to break down tasks into smaller components

- PERT (Program Evaluation and Review Technique) or CPM (Critical Path Method) Charts – a graphic representation that shows the critical path for the project (longest path from start to finish based on the essential sequential steps)

- Gantt Charts – a table or spreadsheet that includes a horizontal bar chart showing timing of tasks and which tasks must be completed before others

Computer application programs can be used to construct many of the tables or graphic charts once the information for the plan has been collected.

Milestones and Progress Reports

Two key components of the plan in any format and with any of the project planning tools are milestones and status reports. A milestone marks the end of a stage or period of the project, and may also be tied to a project deliverable, a specific product provided to the client. During the planning:

- Identify and establish milestones along the way to provide an indicator of progress and successes, and the impact of difficulties or delays that have been encountered.

- Establish a schedule and procedure for communicating status and progress of the plan on a regular basis.

Regular timely sharing of this information will allow the opportunity to adjust the plan and rebalance the quality, time and cost constraints.

Implementing and Monitoring the Project Plan

Implementation of the project plan may be the longest and most visible phase of the project. It is during this stage that activities move from paper to more tangible components. It's important to monitor progress, track milestones, and regularly communicate the progress, delays, or detours, both internally to the project team and organization, and externally to the client.

Monitoring progress and tracking milestones can mean inspecting and testing interim, partial, or pilot products, auditing work records, or holding progress review meetings to compare the original plan of what would be done when and by whom to the actual work and output.

Completing the Project

A project is something with a formal ending, and it is important to reach closure. While whatever has been created or developed may go on, the project team's work is done. Activities at the closing of the project can be split into two categories: those for the client or stakeholder, and those for the team and organization.

For the client: Those who will be operating or using the product need information to do their job effectively. This information includes training and documentation to be turned over to those responsible on a daily, ongoing basis for the new or revised process, system, or product. Also included is a formal sign-off that indicates the client has accepted the product, process, or system.

For the team and organization: Evaluate how the

project management process worked, and record lessons learned for a more effective process the next time. Celebrate the completion of the work, and the team's accomplishments. Then release or reassign the resources (staff, equipment, and facilities) to their regular jobs or to new projects.

Project Meetings

Meetings during the project will fit the phase in which they occur.

At the start there will probably be a kick-off meeting to inform and engage all the members of the project team. During the definition of the project there may also be meetings to establish goals and objectives, gather information, and clarify roles and responsibilities.

Meetings during the second phase will focus on planning the implementation of the project, and gathering the information needed to ensure a complete and executable plan. One of the items in the plan will be how to communicate status reports, progress, delays, and accomplishment of milestones during implementation.

During the implementation phase, the team will need to decide what will be the most effective way to communicate and coordinate their activities, monitor progress, and make any needed decisions. They will need to determine when they can use technology and when they should meet face to face.

Finally, there will need to be communication or meetings when completing the project to tie up all the loose ends and ensure that the project actually is complete.

During all of these meetings, an effective project manager will be a facilitative leader of the group, encouraging input, keeping the group on track and on time, and noting and documenting decisions and action items.

Project management can be a useful approach for implementing specific initiatives. The keys to a successful project include being clear on the scope of the project, developing a plan with sufficient detail, identifying and committing needed resources, and communicating effectively throughout the project.

References and Resources

Berkun, Scott. (2005). *Making Things Happen: Mastering Project Management*. Sebastopol, CA: O'Reilly Media.

Gido, Jack and Clements, James P. (1999). *Successful Project Management*. Cincinnati, OH: South-Western College Publishing.

Global Alliance for Project Performance Standards. (2007). *A Framework for Performance Based Competency Standards for Global Level 1 and 2 Project Managers*. Sydney: Global Alliance for Project Performance Standards. http://www.globalpmstandards.org/project-manager-standards/general/download-latest-update/ Viewed November 10, 2008.

Haynes, Marion E. (1989). *Project Management: From Idea to Implementation*. Menlo Park, CA: Crisp Publications, Inc.

ISO 10006:2003 *Quality management systems - Guidelines for quality management in projects.* http://www.iso.org/iso/catalogue_detail.htm?csnumber=36643 Viewed June 21, 2010.

Knutson, Joan and Bitz, Ira. (1991). *Project Management: How to Plan and Manage Successful Projects*. New York, NY: AMACOM/American Management Association.

Project Management Institute. (2008). *A Guide to the Project Management Body of Knowledge*. Newtown Square, PA: Project Management Institute.

Project Management Institute Web site. http://www.pmi.org Viewed May 13, 2010.

Scholtes, P. R., Joiner, B. L., and Streibel, B. J. (2003). *The Team Handbook* (3rd ed.). Madison, WI: Oriel, Inc.

Snead, G. Lynne and Wycoff, Joyce. (1997). *To Do...Doing...Done: A Creative Approach to Managing Projects and Effectively Finishing What Matters Most*. New York, NY: Fireside/Simon and Schuster, Inc.

For more information, contact the Office of Planning and Institutional Assessment at 814-863-8721 or psupia@psu.edu, or visit our Web site: http://www.psu.edu/president/pia.

The services of the Office of Planning and Institutional Assessment are provided free of charge to The Pennsylvania State University and are adapted to the specific needs of departments or individuals.

August 2010