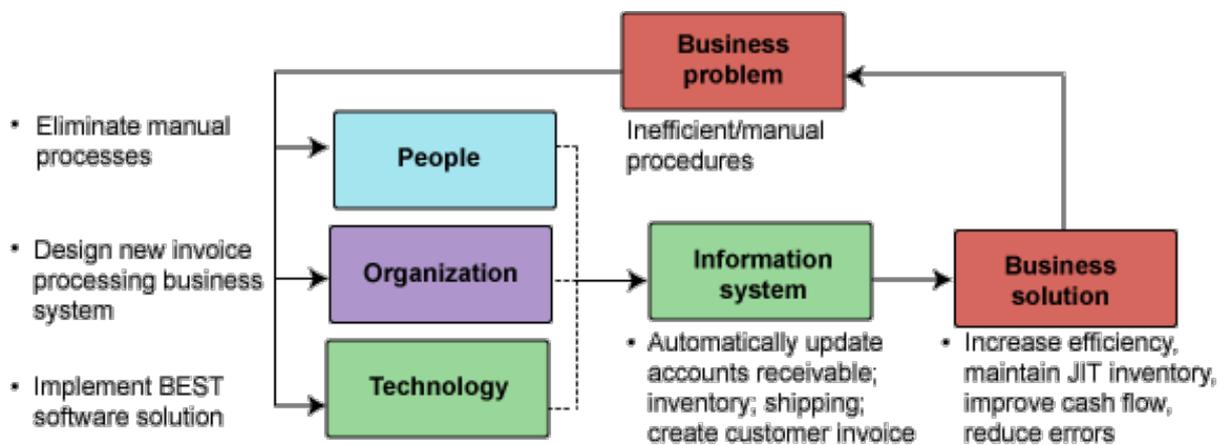


III. Project Management

What is a project? A **project** is an effort with specific starting and ending points that concludes with a result. Building a house is a project, completing a research paper is a project, and planning a wedding is a project. Key characteristics of all projects are a timeline, resources, tasks, person effort ("man hours"), and dependencies. The [Project Management Institute](#) is an excellent resource for project management information. Furthermore, PMI has a professional certification program that requires certified project managers to update their knowledge of new developments in the field of project management.

For our purposes, let's use the project we discussed in module 2: streamlining the invoice payment process. Figure 3.8 shows the high-level scope of the proposed solution (without technical details) to highlight its key elements.

Figure 3.8
Invoice Processing Automation Project



Rather than creating a detailed project plan, we will discuss general aspects of the plan.

Elements	Details
timeline	January 3, 2008–September 30, 2008
resources	Budget: \$675,000
effort	1,200 hours
dependencies	(These would be detailed in the project plan.) Examples: Software cannot be installed until the new file servers are installed, data must be standardized across functions, user training cannot happen until the software application is finalized.
tasks	(These would be defined in detail in the project plan.)

For our purposes, we will assume that the correct business process redesign occurred and the best solution was chosen. So what do we need from a project management perspective? It would seem easy enough: plan the work and work the plan, and *voilà!* The solution is implemented on schedule and on budget.

Of course, anyone who has participated in a project knows that it rarely happens that way. Building a house gets complicated because two solid weeks of rain delays the pouring of the concrete. You thought you could conduct your term paper research on Saturday, but a friend had a ticket for the big game and you could not decline his offer; therefore, you didn't gather the information so you could begin writing your paper on Sunday. And planning a wedding—there are so many potential issues there—the bridesmaids hate their dresses, the caterer backed out, the organist broke her wrist, and so forth. You get the idea; even the best-planned project will have challenges.

Before moving ahead with our discussion of project management, it is important that we define a few key terms.

Term	Definition	Examples
project scope	describes the work that must be accomplished to complete the project	three-bedroom, two-bath house completed and occupancy certificate obtained; research paper submitted to professor; wedding held
project manager	"expert" responsible for planning, managing, and controlling all aspects of a project	construction manager; student; wedding planner
project management	"the process of scoping, planning, staffing, organizing, directing, and controlling the development of an acceptable system at a minimum cost within a specified time frame" (Whitten & Bentley, 2008, p. 80)	the construction plan for building the house; the "to-do" list for researching and writing the research paper; the wedding planning notebook
project deliverables	concrete, tangible outcomes, results, or products generated as a result of a project	drywall completed on new house construction; first draft of research paper written; wedding invitations printed
milestones	key dates when specific, critical tasks or groups of activities are completed	March 15: electrical wiring completed; May 1: research completed; June 1: reception hall booked
contingency	anticipating delays or problems, and having an alternative solution or strategy planned	backup plumber and electrician identified in case primary contractors are unavailable

Characteristics of a sound project plan include:

- **easy to understand**—Tasks and deliverables are specifically presented in commonly understood, well-defined terms.
- **readable**—Graphical representation follows standard structure and layout.
- **communicated to all key stakeholders**—Those involved and affected know what the plan is.
- **appropriate to the project's size, complexity, and importance**—The plan is not overly involved or complicated for a minor, small-cost, short-term project, and is not too general and abbreviated for a complex, high-cost, long-term, high-priority project.
- **prepared by the team**—Project team members contribute to the project plan development, rather than a project manager developing in a vacuum.

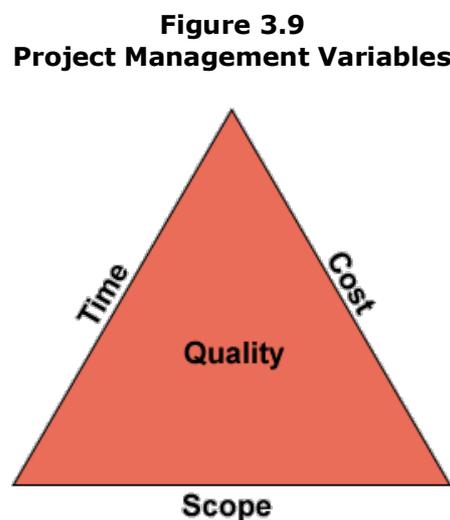
Having a well-prepared project plan can help reduce the risk of project failure, but it cannot eliminate the possibility of failure. There are many reasons why even a well-planned project can fail. Some common project problems result from mismanagement (Whitten & Bentley, 2008, p. 81):

- failure to establish upper-management commitment to the project
- poor expectations of management (expectations of users and managers not in agreement, or expectations change over the life of the project)
- premature commitment to budget and schedule
- overly optimistic
- mythical man-month
- inadequate people-management skills
- failure to adapt to business change
- insufficient resources
- failure to work the plan

As you review this list, how many of these causes are related to hardware, software, or other technology issues? Right—none! This indicates that it is frequently the human aspect of projects that creates most of the problems and greatly increases the risk of failure. Therefore, the importance of paying attention to the softer skills of managing people in IT cannot be overemphasized.

A. Project Management Dilemma

Figure 3.9 shows four variables that provide a constant challenge and balancing act in project management.



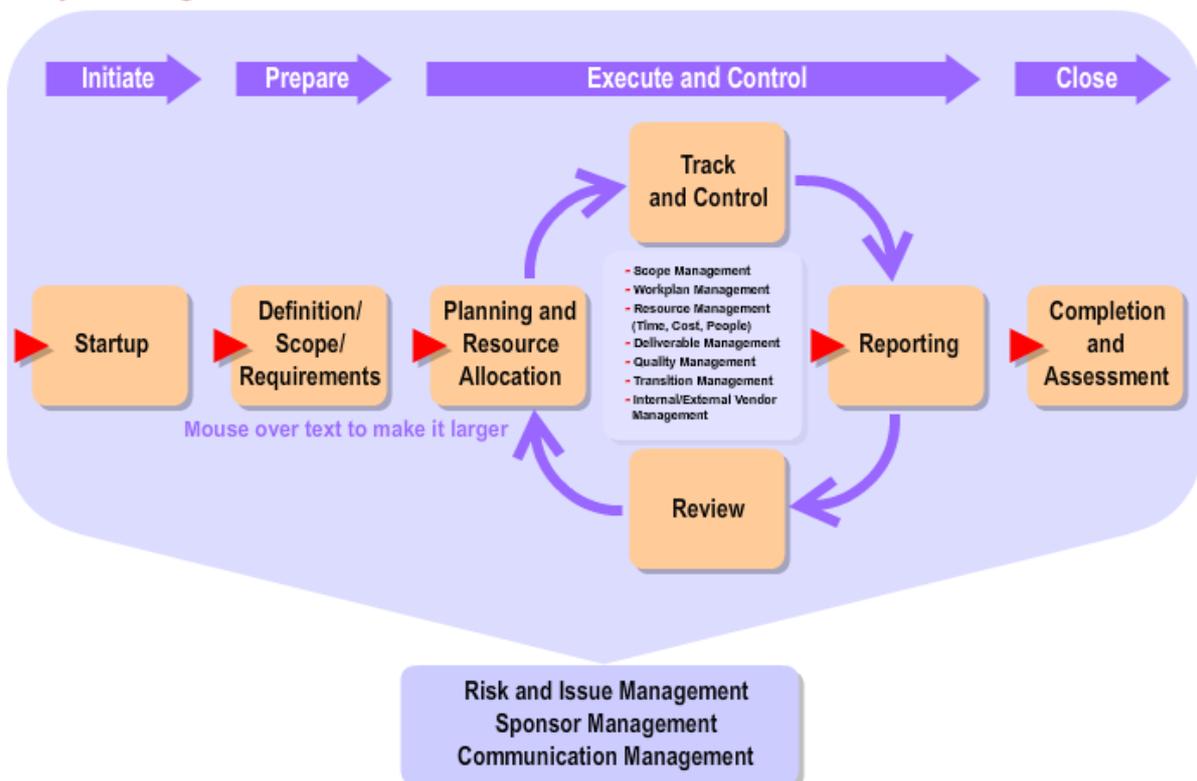
If you look back at the list of causes of project failures, you will see that many connect to one or more of these interrelated elements. For example, premature commitment to budget and schedule will definitely affect the time and cost variables. Let's relate this cause to our earlier examples.

Project	Cause of Failure
building a house	estimating the construction budget with insufficient research into the current costs of construction materials, or assuming stable pricing
preparing a research paper	planning your schedule to complete the paper without considering other course assignments or personal requirements
planning a wedding	establishing a budget for "dear old dad" without obtaining the costs of catering the reception

A critical success factor for projects is having a sound project management methodology; however, the specific methodology used is less important than having a structured process (Dorsey, 2000). The project methodology provides the structure and processes to define and plan a project, monitor its progress, and evaluate its end result. A standard methodology also provides for consistency, allows the process to be refined and improved over time by incorporating lessons learned, and increases the transferability of skills among team members. Let's look at a project management framework from the Massachusetts Institute of Technology's Information Services and Technology Group's website.

Figure 3.10
MIT's Project Management Framework

Project Management Framework



Source: Adapted from Massachusetts Institute of Technology (n.d.)

An extremely important part of project management is monitoring (or tracking) and controlling the progress of the project. The **project plan** provides the road map for the project. The **project manager** is responsible for monitoring to ensure that tasks are completed on schedule, resources are available as planned, and key milestones and deliverables are met. Routine status reports are an important part of tracking the progress of the project. This monitoring process helps the project manager keep time, cost, and scope in balance.

Project managers must also address team issues to help guide the project team. People should be recognized for their contributions and successes and held accountable for failing to meet commitments. Far too often, members of project teams know things aren't going well but bolster themselves by vowing to get caught up next week. Addressing problems as early as possible in the project allows time to make corrections and help keep the project on target.

B. Scope Management

Failure to manage the scope of a project will result in **scope creep**—the natural tendency of projects to become bigger than originally intended, with detrimental impact on cost, time, and outcome. For example, while building a house, we decide to add a home theater in the basement; you decide to add a PowerPoint presentation to your research paper; and the wedding reception entertainment changes from Cousin George, the DJ, to an eight-piece jazz ensemble.

To minimize inadvertent scope creep, effective project managers define a **change management process** specifically related to the project. (This is different from the organizational change management strategies that we will discuss later in this module, which relate to generally managing the changes within the organization that a new solution may create.) At the risk of oversimplifying this concept, for the purposes of our discussion, we are talking about a structured process (part of an overall project management methodology) to address changes in requirements or expectations on the specific project outcome.

As you can imagine, changes affect resources. A change may require additional staff hours, hardware and/or software costs, testing, systems configurations, and/or the assessment of impact on related IT components. There are times when these changes are necessary to maximize the intended business solution, address some unforeseen problem, or meet a changing business strategy or requirement. Having a structured methodology in place means that the change is treated as a potential mini-project:

- The requirements are documented and analyzed.
- The impact (time, money, and other resources) is analyzed, and the effects on budget and schedule are defined.
- At this point, the business sponsor or project owner may make a determination as to whether or not to proceed with the change.

In many larger organizations, a **change control board (CCB)** exists for just such situations. Representatives from the affected areas review the documentation and make a decision as to whether or not to proceed. If the decision is to proceed, the additional impact is inserted into the project plan, and appropriate adjustments are made.

In module 2, we mentioned an alternative in our invoice-processing solution of having orders received electronically by using EDI. This may be a great idea and provide maximum efficiency; however, it adds significantly to the original project scope and cost. Applying a project management change process would include evaluating the impact of this request and making an appropriate business decision as to whether or not to proceed.

If we look back at our definition of **project manager**, it seems like this individual bears most of the responsibility for making projects successful. Although he or she may delegate various tasks, the buck frequently stops with the project manager. Because of the many hats project managers wear, the variety of skills they must have, and the constant juggling act they must perform, it is no wonder that highly capable and skilled project managers can be scarce and are in great demand. Let's look at the skills, or competencies, a good project manager must have.



Table 3.2: Project Manager Competencies

Competencies	Description
business achievement	connects projects with corporate strategy and objectives partners with and involves stakeholders throughout the process provides quality perspective
people management	communicates effectively facilitates team process coaches team members to work cohesively and fosters a spirit of collaboration provides resources and training to develop team members prepares, monitors, and controls project plan—gathers input and adjusts as needed
problem-solving	displays initiative to show creativity and innovation calculates risks and prepares contingencies applies critical thinking to problem resolutions provides systems perspective
influence	understands and is sensitive to interpersonal motivations and behaviors of others is aware of corporate political landscape and can navigate it effectively understands the implications of project decisions and manages risks knows how to enlist cooperation and build consensus among business managers, users, and IT staff
self-management	displays self-confidence, but with humility "walks the talk" has personal accountability works well under pressure and adverse conditions

Source: Whitten & Bentley (2008, pp. 82-83)

Depending on the organization and scope of a project, there may be both a business project manager *and* a technical project manager assigned. As we discussed in module 2, it is essential that the business owns the solution. IT's role is to help the business identify the best technology solution for the business problem. Regardless of whether one or two individuals perform this role, the critical skills they need to address the issues we have discussed are the ability to (1) manage people and (2) manage the project effectively. The project team can be staffed with technical expertise, but it is much more difficult, if not impossible, to make up for a project manager's shortcomings in the areas of understanding the business and addressing the human aspects. Project managers must also address any team issues that arise to help guide the project team.

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