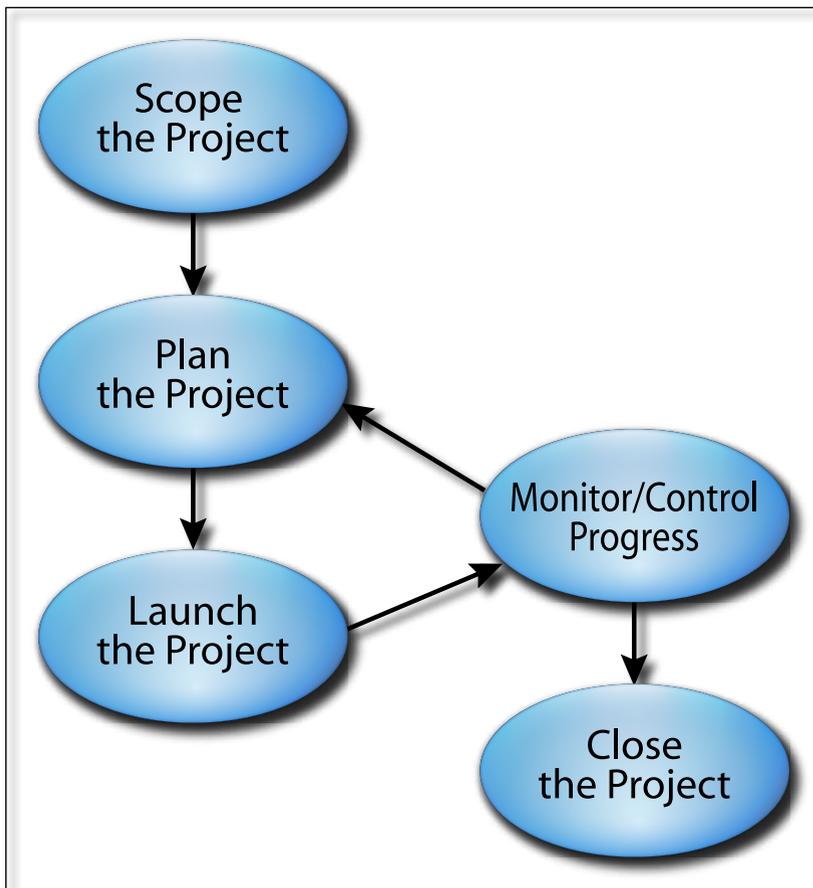By Kristin Lewotsky

Skirting the Pitfalls of Project Management/ Project Management Success

Know the requirements, schedule conservatively, and always ask why.

To manage a project from start to finish, you first define the scope (initiation), plan it at a granular level (planning), launch it and monitor/control progress (execution and control), and close it with a post-mortem (closing).

- A thorough needs analysis is your best friend
- How to avoid underestimating time requirements
- Combine optimism, realism, pessimism

Some wag once said there are five phases to a project: wild enthusiasm, disillusionment, panic, punishment of the innocent, and accolades and honors to the non-participants. Of course, project management, is not about managing mood swings. Essentially, it's a process of drilling down to assess, plan, and execute a project on an increasingly granular level to meet top-line deliverables (see figure). Add a little bit of Murphy's Law, though, and the joke above can become frighten-ingly apt. Let's take a look at some of the most common pitfalls in program manage-ment and the ways to avoid them.

Starting off on the right foot is key. Be-fore you ever get as far as delivery dates and budgets in the initiation phase, you have to understand what it is that you're doing—and why. "There's a significant group of people who'd say it's impossible up front to completely define the customer needs," says Robert K. Wysocki, president of Enterprise Information Insights Inc.

(Worcester, MA). "Things change throughout the project and those needs change what has to be done."

Of course, the first thing to determine is whether the customer's need really translates to changes in requirements, and what those requirements are. A customer may decide they require a feature because of a specific need, but the program manager and engineers may determine the need can be addressed in a different way. "Sometimes, instead of needs, it's what the customer wants," says Wysocki. "The project manager has to dig down deep, do a root cause analysis, continue to ask the question why, why, why until they really get down to the core of what that need is. A lot of project managers don't do that, so they get started in a direction that's fraught with problems."

To accommodate changing requirements, a new approach called agile project management actually builds a re-evaluation step into the schedule. This represents a sea change from traditional project management. "A traditional project manager hates change," says Wysocki. "The customer says 'by the way, we also need one of these,' so the project manager has all this stuff that has to be undone, re-done, restimated." Agile project management says don't plan the entire project—specify the parts you really know, maybe even build them, and then step back and redirect as necessary. Yes, that adds to the planning overhead, but it saves wasted steps or undoing work. "You're not wasting time," Wysocki observes, "you're actually saving time."

LOOKING ON THE DARK SIDE

Whether you're working with traditional or agile project management, the planning phase can be a make-or-break step. This phase involves converting the objectives, delivery date, and top-line budget established in the initiation phase to specific goals with concrete metrics and deadlines. A key component of planning is developing the work breakdown structure (WBS). The WBS essentially breaks down a large project into successively more granular levels until the final level consists of a collection of two-to-three-week "work packages."
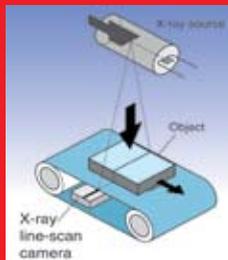
Complete the work packages in an organized fashion, the thinking goes, and your project will be done to spec, on time, and on budget.

So much for theory. Unfortunately, it's human nature to underestimate the amount of time required to complete a task. One solution to this problem is to drill down through the tasks, using experts or subteams who understand the work packages involved and can give more accurate assessments of the manhours required for completion.

Even this approach can have its pitfalls, though. "Engineers tend to think that things are going to take a lot less time

than they do," says Jon Hurley, software group manager for the National Instruments (Austin, TX) vision product line. National Instruments' solution is to use a round-table approach to come up with consensus time estimates for tasks, even drawing on people from outside the project.

Another method is the U.S. Navy's Program Evaluation and Review Technique (PERT), which statistically combines optimistic (nothing goes wrong), realistic (something goes wrong), and pessimistic (the sky is falling) estimates for task duration to yield a more accurate timeframe. PERT helps guard against missing deadlines because of unforeseen delays.

Critical path analysis provides a useful tool for resource management. For a given work package, you've got the earliest start time (EST), which is the EST of the previous work package plus that previous package's duration, and the latest start time (LST), which is the LST of the previous work package plus that previous package's duration. The difference in the two is slack time.

A work package with zero slack time is considered a critical task; the sequence of critical tasks in a project represents the aptly named critical path. This is a useful tool to identifying areas of greatest concern. It also provides a method for monitoring potentially disastrous schedule slippage—if a task consumes its slack time, it becomes a critical task, and the program manager knows to monitor it closely or risk missing deadline.

Risk management, in fact, is one of the most important tasks facing a project manager. Novice program managers often make the error of being overly optimistic, building a schedule that assumes everything will go without a hitch. The reality is that problems crop up; the more complex the project, the greater the problems. The project manager needs to assess the possible risks that can impact schedule and budget and develop contingency plans for them so that if—when—they happen, the project does not come to a screeching halt. Inexperienced managers blithely assume things will go well; veterans know that Murphy was an optimist.

GETTING TO WORK

It would be a mistake to assume that after planning, a program manager's job is done. Now the real work begins, in the execution and control phases. "Probably 90% of what project managers do is communicate," says Steve Eisenberg, project management consultant, Media Resource Network Inc. (Merrick, NY). "Making presentations, making sure milestones are hit, making sure people get the assignments done as planned, and then also reporting back to senior management how the project is doing."

Regular status meetings and reports allow a manager to stay on top of the project, controlling schedule, cost, and quality throughout. The project manager has to provide leadership when problems crop up, steering the project through contingency plans without impacting schedule. They've got to meet the deadline and budget, and, last but not least, conduct a post-mortem of the project to itemize lessons learned for future projects, whether for their own use or that of their organization

Awareness is the first step to avoiding problems. Managing a project can be challenging but with knowledge of the pitfalls, you'll be on the road to success. *AI*

Kristin Lewotsky is a trained engineer and a twelve year veteran of technology journalism.

TOOLS OF THE TRADE

- Critical Tools' WBS Chart Pro and PERT Chart Expert programs for WBS and PERT analysis.
- Computer Associates' Open Workbench project scheduling software.
- Microsoft Project project management software.
- MindJet's MindManager—a tool for mapping out WBS charts.
- The Project Management Institute (www.pmi.org) resources, training courses, and more than 200 chapters world wide.
- The Cutter Consortium (www.cutter.com) training and tools for agile program management. K.L.