

CURES FOR PROJECT MANAGEMENT HEADACHES

What's the best medicine for reducing project pain?



BY EVA KAPLAN-LEISERSON

No engineer wants his project to fail. But between failure and triumph are many different degrees of success. According to the Project Management Institute, the membership association for the project management profession, while 17% of projects fail completely, fewer than two-thirds meet their goals and business intent.

In addition, project success rates have been dropping in recent years. The 62% figure from 2012 reflects a 10-point decrease from the 2008 success rate of 72%.

Projects that don't meet goals or fail entirely waste money and reduce competitive advantage, explains a recent PMI report. Yet only about half of respondents to the organization's survey said that their companies fully understand the value of project management, which may explain the reduced project success rates.

So how can engineering firms best implement project management strategies to ensure unqualified project success and reduce headaches? A panel of experts offer their advice.

A Definition

To best implement project management, it's helpful to first define it. While the general concept may seem self-explanatory, it's important to understand all of the specific components that come into play. The Project Management Institute tells us that project management is "the application of knowledge, skills, and techniques to execute projects effectively and efficiently." That seems straightforward enough. But the definition continues, adding that "It's a strategic competency for organizations, enabling them to tie project results to business goals—and thus, better compete in their markets."

PMI's vice president of information technology, Frank Schettini, explains that project management not only includes such tasks as defining the requirements that need to be met and the constraints (schedule, budget, business objectives) as well as putting together a strategy and steps required to accomplish that, but also ensuring that the business realizes strategic objectives.

Today, companies face challenges that are exponential compared to those even four or five years ago, says the electrical engineer, who has headed up project management offices. Less bank credit is available, and there's a strong need for innovation. An organization needs to not only make sure that investments produce the right results, but also that they are the right investments, he explains.

That means that engineers must understand how assigned projects fit into the overall business strategy, in order to better recommend solutions. "You may come up with more creative ideas to help the business achieve its objectives [that require] less money to invest," he says.

James Brown, P.E., a project and program management specialist who provides training and workshops through his company SEBA Solutions, also believes project management can provide a competitive edge. "If I have a competitor who is faster, better, cheaper than I am because they do more effective project management, it doesn't matter how good my design is or my criteria are," he says. "You have to be able to do and execute as well or better



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Skills, Not Tools

Yet, when many people think of project management, they still think of tools, notes Jeffrey Russell, P.E., F.NSPE, cofounder of the University of Wisconsin-Madison's construction engineering and management program who has led online seminars for NSPE on project management topics. For example, they may think of Oracle's Primavera, an "enterprise project portfolio management solution," or a cost-control system that they use internally or purchase. However, the knowledge and skills included in the PMI definition are critical, Russell says.

Previously chair of the university's department of civil and environmental engineering, Russell is currently vice provost for lifelong learning and dean of the division of continuing studies. He has cotaught courses in a master's program in engineering and professional practice and says that the technical project management course is by far the class that alumni rank as most important five years after graduation. But participants often start out expecting to learn to use software.

Brown, who previously worked in logistics systems for NASA, agrees with Russell when he describes project management as more of an art than a science. Science is "here's my process for running the project,

THE COST OF PROJECT FAILURE

Organizations risk losing 13.5% of every dollar spent on a project if goals are not met, according to the Project Management Institute. Put another way, for every \$1 billion spent, \$135 million is at risk.



SOURCE: PROJECT MANAGEMENT INSTITUTE

THE ROLE OF COMMUNICATIONS

Of the total dollars at risk on project spending, more than half is at risk due to ineffective communications.



THE AMOUNT AT RISK FOR EVERY US\$1 BILLION SPENT ON A PROJECT.

SOURCE: PROJECT MANAGEMENT INSTITUTE

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COLORADO SPRINGS UTILITIES

SOUTHERN DELIVERY SYSTEM CREWS INSTALL THE LARGE DIAMETER PIPELINE.

the technical deliverables, the schedule, the tools," he says. The art is leadership, creating, and nurturing relationships. "Lots of people want to sit back and say, 'I sent this e-mail, gave this schedule, etc.' without involving people," Brown says. "Without garnering the commitment necessary for success."

The Importance of Leadership

Over and over, project management experts stress leadership as a key element in dealing with project management challenges.

The Guide to Lean Enablers for Managing Engineering Programs, released in 2012 by PMI, MIT, and the International Council on Systems Engineering, listed 160 different project management challenges under 10 main themes. Unclear accountability was one of the themes.

According to Schettini, leadership must start at the top. When a project is assigned, the executive sponsor should be committed start to finish, he explains, "not just a person who signs a check at the beginning and at the end [asks], 'Why did you fail?'"

The company CEO must provide strategic direction that gets transformed into strategic initiatives, he notes. Then it's important that the program manager or project director translate those goals into team members' roles.

PMI has revised the traditional idea of the triple constraint of project management (on time, on budget, and meeting business intent or quality), to a new concept of a talent triangle. One side is technical skills: the expectation for project managers to be able to bring projects in on time, on budget, and with the skills to manage risks. But two other key elements are leadership skills and strategic business management.

MWH Global, a "wet infrastructure" and water engineering company, is partnering on the Southern Delivery System (SDS), a nearly \$1 billion Colorado project that involves 50 miles of conveyance piping, large diameter pipelines, three pumping stations, and a 50-million-gallon-per-day water treatment plant.

Russ Snow, P.E., MWH program design manager and conveyance practice leader, notes that much of project management is not technical skills taught in engineering school. A lot of it is very people-driven, he explains. "We have to be able to manage teams [and people] effectively,

understand skill sets, and bring the right people to the job with the appropriate skill set." For example, at least 20 different disciplines must be managed on the SDS project, from design and construction to risk management, environmental permitting, legal, financial, change management, and public relations.

In total, Snow and his partner, program delivery manager Phil Tunnah, P.E., manage 60 staff in their part of the effort. Tunnah explains that effective project management and leadership include seeing the big picture and knowing how everyone's roles fit in. "As engineers, we love to look at the detail," he says, "but we have to make sure we're truly addressing what the client is looking for."

That includes understanding client and stakeholder expectations, adds Snow. It also means looking well ahead and not focusing on just the task or technical issue of the day. For example, planning has already begun on the commissioning and integration of the Southern Delivery System, even though that won't happen until 2016. "We're already putting in place the planning elements necessary to support the startup, commissioning, and handover to the owner of this asset so the process runs smoothly," says Snow.



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Communicate, Communicate, Communicate

Another extremely important element in effective project management and good leadership is communication. PMI's Schettini says that the organization's latest in-depth study on communications found that companies had a five-times higher likelihood of project success if they had positive communications start to finish with teams.

"In some cases, organizations are succeeding 80%–85% of the time versus others [succeeding] 20%," he says. "If you're in an organization, which side do you want to be on?"

Says Russell, "People will set up a schedule and think that's project management." That's a start, but just because you did some preplanning doesn't mean that the plan will go exactly the way you envisioned, he explains. You still have to continue to interact with stakeholders to lead and manage the project.

The most important tool for a project manager is his or her ears, the PE says. "We have two ears and one mouth for a reason." It's key to learn to actively listen and engage to make sure you understand what's going on. Know what you know and don't know, and don't be afraid to say you don't know or don't understand, says Russell.

Treat people with respect, he continues, no matter how they are involved with the project. Saying "please" and "thank you" can go a long way, as can admitting when you're wrong.

MWH's Phil Tunnah discusses the importance of communicating with empathy. For instance, the engineers on the SDS project might feel compelled to talk about the "fantastic and successful design" to the public who will be affected. However, he adds, what members of the public really want to know is what to expect during construction, restoration, and completion; the level of disruption and how long will it last; and who to call with questions.

Ranchers who are concerned about preserving their cattle's access to water supplies during construction of pipeline sections are not necessarily interested in the technical aspects the engineers are focused on, stresses Tunnah. So it's important to understand the audience's needs.

Project management trainer and consultant James Brown also stresses the importance of communicating in a way that goes

beyond pure logic and data to incorporate knowledge about human behavior. The PE recommends reading sales books rather than management books. "Engineers sometimes look at sales skills as sleazy," he says, "but sales skills are leadership and project management skills; fostering relationships; and knowing what makes people commit, buy in, and change their minds."

Flexibility vs. Standardization

The ability to adapt to changing circumstances is another key element of project management cited by the experts.

One way to ensure this is to take a proactive approach, says Jeffrey Russell. For example, in advance try to think through scenarios of how conditions might change, such as available funding coming in at only 75% of what was planned, and how you might address those changes.

The key to managing risk and uncertainty is to focus on what you don't know and think through those elements and their implications, the PE says. Then monitor the situation as it unfolds. Often people think they need to put in significant planning on the front end of projects, says Russell, but overplanning a project before you have all the necessary information can create a false sense of security.

Brown stresses the importance of risk plans with options: plans A, B, and C. Problems come up, and you have to be comfortable with uncertainty, he says. You also have to realize that there are no perfect solutions. Every fix comes with pros and cons. The key is to consciously accept any cons, he points out. "There's nothing wrong with accepting a solution with negative ramifications," he continues. "But you better understand those."

Schettini emphasizes standardizing practices. Even though each project is unique, it should follow the same set of practices, he says, although it may sound counterintuitive to agility or flexibility. "But when you standardize basic processes and frame everything, that frees the team to be dynamic in its thinking and be much more creative," he says. "Instead of focusing on *how* to do things, [team members] focus on *what* and end up being much more successful." **PE**

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