

Straight to the Source

BY JON BOYLE

“It doesn’t look good in terms of the schedule. I don’t see any way we are going to make the delivery deadline,” our project manager said. He settled back into his chair, a look of resignation on his face. I was looking at the same data and coming to the same conclusion. There was no way we were going to meet schedule requirements, much less cost or technical performance requirements, based on the projections we had just reviewed with the management team. The schedule had steadily slipped from project kick-off onward, until now we faced a significant adjustment.

I had just been assigned as the Deputy Project Manager for a critical Department of Defense (DOD) project that was based on cutting-edge technology that had the potential to change the way U.S. forces engage the enemy on the battlefield. The project faced critical challenges of balancing research and development concerns in untested technology with prototype production issues concerning numerous components fabricated by hand for the very first time.

There was no arguing the data. We used a project management software package that captured every detail of the project and provided us with a clear status on every angle of project progression at the subtask level. The project manager, Mark White, was recognized as a technically savvy businessman who possessed encyclopedic knowledge of every detail, and he could quickly tell you the status of any task in his comprehensive project plan. In every senior management briefing, this guy absolutely shone through as an authority on how production projects are controlled, and he always had the right answer at the right time. Mark had never managed a research and development project, however, only production projects with proven technologies. Now we had hit a deep pothole. It looked like the schedule would slip at least a month because of undefined technical production difficulties and slower-than-anticipated assembly processes.

I looked at the management team. Their body language clearly communicated the deep funk the project review had thrown them into and reflected the mood of the project manager. I began to get angry, wondering what, specifically, was putting us behind schedule. I decided I needed much more data than the spreadsheets, projections, and reports could tell me. The fabrication plant was within an hour’s drive of headquarters. “Mark,” I called across the room, “I’m headed out on a visit to the fabrication facility. Just gonna go and see what’s going on.” The project manager was back at the computer screen, analyzing the data... one more time as he waved an acknowledgment in my direction.

The traffic could have been much worse, and I pulled up to the gate within the hour. I drove to the assembly building, processed through security, and entered the main production floor. Impressed by the product sitting under bright flood lamps, I noticed a curious feeling surrounding the work area. There was little actual assembly activity going on, but I saw assemblers in little groups talking, drinking coffee, and working on paperwork—doing everything but work on the vehicle. I approached one of the workers and asked, “Where’s the foreman?” After I explained that I was the Deputy Project Manager, he directed me to a small room off to the side of the main area.

THERE WAS LITTLE ACTUAL ASSEMBLY ACTIVITY GOING ON, BUT I SAW ASSEMBLERS IN LITTLE GROUPS TALKING, DRINKING COFFEE, AND WORKING ON PAPERWORK—DOING EVERYTHING BUT WORK ON THE VEHICLE.

“I understand you’re the foreman here. I’m the new Deputy, Jon,” I said as I sat down in Hank Glaser’s office. As I talked with the foreman, I slowly realized that he didn’t know how important the schedule was and how our activities affected DOD testing requirements that would occur after we delivered the product. I explained the big picture to Hank, covering all the details and how our project fit into program requirements, as well as going over what impact our inability to deliver to schedule would have on other program elements. Hank now understood the situation and anxiously shared with me the technical and production issues that had slowed the project down.

It turns out that there was great concern about wiring together different systems that were being fabricated. The complex product gave off so much heat during operation that the handmade circuit modules required metal heat sink covers. But tight tolerances meant that wiring cables were getting stuck on heat sink covers throughout the product as the workers attempted to run cables. I walked around the production floor with Hank, talking to the workers as we thought about the issue.

I noticed a small piece of wide-mesh nylon screen sitting on a worktable. I picked it up, and it felt slippery between my fingers, stiff and yet flexible. “Hank, would this stuff work if you attached it over the top of the heat sinks?” I asked. “It seems pretty flexible and slippery, but I don’t know if it could take the heat, and I’m not sure how you would be able to attach it to the heat sinks.” Hank’s eyes grew wider as he thought. “You know,” he said, “this is pretty unconventional, but it might work.”

That afternoon, Hank sent the nylon screen over to engineering to be tested, to design an approach using such a concept, and to see if there were any better materials that could be used to overcome the heat sink problem. As it turns out, engineering conducted heat-dissipation tests and validated the concept of the nylon screen, recommending ordering rolls of the very same material to be attached by heat-resistant glue to the heat sink covers on all modules situated under cable run areas.

I returned to the management team and asked Mark for permission to relocate my duty area to the fabrication plant. Mark readily agreed, since he had already been informed of the technical solution to the heat sink problem. I began delivering the project management report directly to the assembly team, giving them access to the same data that the management team received on a regular basis. I also helped with the assembly process, tucking my tie into my shirt and assembling pieces of the product, even drilling and counter-sinking different parts. I got to know the team pretty well, and we laughed and worried and sweated through the ramp-up to delivery day.

As it turns out, we beat the schedule by two days, and we came in under budget, even after I had ruined some parts of the product by counter-sinking them too deeply with the drill. Leading by example and opening the lines of communication had done the trick. In the assembly worker’s view, management had taken the time to come down and work at their level, keeping them informed every step of the way, giving them the big picture about where they fit into the overall scheme of things, and adding outside perspective on a problem they were too close to solve. I also received the “Counter-Sinker of the Year” Award at the company awards luncheon, gently being chided that we would have come in even more under budget if I had only known how to counter-sink better. ●

DR. JON BOYLE is the Program Manager for the NASA Academy of Program/Project and Engineering Leadership (NASA APPEL) at Arctic Slope Regional Corporation Management Services, responsible for all products and services produced by the Academy and strategic relationships for the program. Dr. Boyle teaches Knowledge Management at Virginia Tech, where he earned his Doctorate. He also holds a M.A. from George Mason University and a M.Ed. from Boston University.

