

RIGHT ON TIME, RADICALLY

BY KEN LEHTONEN

BACK IN THE EARLY 1990s, REENGINEERING WAS ALL THE RAGE. ALL OF THE CORPORATIONS AND THEIR CEOs GOT EXCITED ABOUT THE PROSPECT OF HAVING TO STREAMLINE AND REORGANIZE, REENGINEERING THEIR ORGANIZATIONS IN AN EFFORT TO IMPROVE THE BOTTOM LINE.

NASA GODDARD SPACE FLIGHT CENTER WAS NO exception to that rule. Some folks in upper management wanted to take advantage of this new paradigm and they turned their attention to the Hubble Space Telescope ground system. The objective was to reduce the operating cost of the system by at least 50 percent. This was a noble objective, as Hubble would likely be around for another ten to fifteen years at least.

When I first was approached by my branch head with the opportunity to lead this reengineering team, I said, "Well, that sounds good. I've done one of these before, and it sounds like a good challenge." So, she put me on the project. What she didn't tell me was that I was the third person to lead the reengineering effort. The people before me hadn't seen much success.

When I came on the project, I spent some time getting a feel for the place and what the major issues were. I didn't try to reach conclusions about the hard decisions facing me right off the bat. Though people introduced me as the new project lead, I tried to stay in the background at first. This gave me the opportunity to observe what was going on and think about how I might need to change things.

The first thing I noticed was there seemed to be a lack of cohesion, or "culture." We didn't have any government on-site management; we had a consultant running the day-to-day activities. This person knew what he wanted to do, but he didn't seem to know how to go about it. We had a number of prototyping activities underway, but they seemed unfocused. In fact, it seemed more like a technical playpen than a project. The only schedule we had was a February 1997 deadline for completing the system update before the next Hubble servicing mission. Overall, the project simply needed better structure, methods, and processes.

Though we were tasked with reengineering an old system, the project team largely consisted of people left

BUDGET, SCHEDULE, AND TECHNICAL ISSUES ARE ALL-IMPORTANT, BUT WHAT OFTEN GETS OVERLOOKED IS HOW YOU GET A TEAM TO WORK TOGETHER.

over from the original system development. At that time, Hubble senior management felt that the reengineering effort could be completed with the legacy staff alone. This assumption later proved to be erroneous.

This is what I inherited in March of 1996 when I came on board.

PROJECTS ARE PEOPLE

Yes, we had technical issues to address, but I concluded that I needed to concentrate first on the team itself if we were going to succeed. That was a strength that I think I brought to my role as project manager. In my work on past projects, I felt that was where I had contributed the most, and I knew that I had good technical people on this project who would handle that side of the house for me.

The project team had an alarming rate of attrition. I realized quickly that people were leaving out of frustration because they sensed a lack of direction. They felt that the management style of the consultant who had been in charge was obstructing, rather than enabling, work. One of the first things I did was to fire him.

I was able to convince our primary stakeholder that the project wasn't going to succeed with just the legacy people we had in place. She said, "Fine—go off and hire some new people; do whatever it takes." I managed to bring in about fifteen people who had worked for me in the past, which allowed me some flexibility to start to fold and mold the project the way I felt it needed to be

in order to get our work completed. The remainder of the revamped staff was provided by existing Hubble contractors, cold interviews, and “word of mouth.” At the peak of the project, we had over 150 people from fifteen different companies, plus NASA civil servants. It was a diverse group of people—from old to young and everything in between—and we were co-located, which was a good idea.

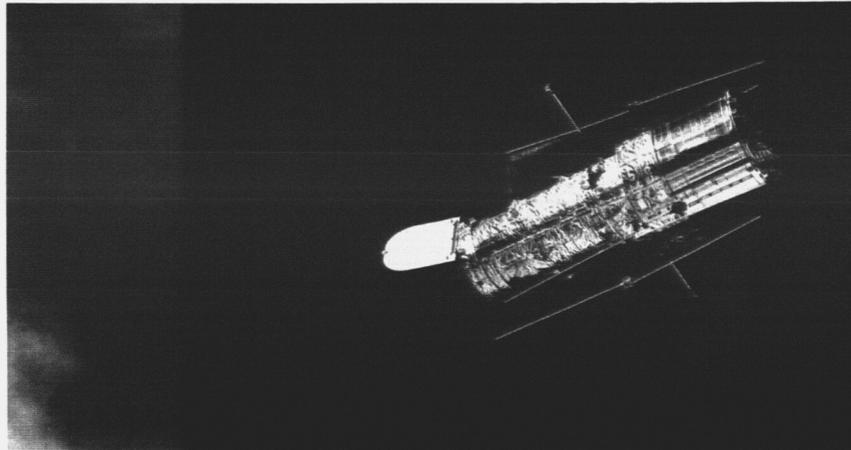
I wanted to create a “badgeless” team. I know the word gets thrown around frequently, but we took it to extremes. Since we were co-located away from the main NASA Center, Goddard, it was easier to do. We were able to have people working together who hadn’t worked together before because they were from different contractors. In a couple of cases we even had government people reporting to contractors. In the past, their management had said, “You can’t work together.” Well, we let them work together. That was a start. However, it wasn’t achieved overnight and took a lot of energy and convincing by my management team and me before it stuck.

We also flattened the organization. We got away from the hierarchical approach. We developed a series of product development teams, who were tied into the architecture that we developed. We then developed a work breakdown structure to start putting some process, structure, and schedules in place. The rewards quickly came; we started to look and feel like a cohesive project.

As we did this, I walked around and talked to the people working on the project, so that I could find out what they needed. Budget, schedule, and technical issues were all-important, but what often gets overlooked is how you get a team to work together. How do you create order out of chaos? I hoped we could create, over time, a tight-knit community much like the old *Cheers* slogan, “A place where everybody knows your name.” One of my earliest initiatives to accomplish this was to have biweekly barbecues, which allowed folks to have a place to unwind a bit and to talk about things that had nothing to do with work. The idea was that in six months, when they would be delivering key components in a stressful integration environment, there would be an esprit de corps to carry us through those difficult times.

Another of my initiatives I called the “kudos” program. After each major release produced by the team,

I made a trip to my local grocery store to stock up on about twenty boxes of Kudos® bars. Then, I went to each individual personally and congratulated him or her on his contribution to our work. I would do that for all 150 people. This became something of an “end job,” if you will, or an in-process, as far as the relationship that I had with my team. In fact, people started bringing me coupons for the next round of Kudos that I would be buying.



Mission accomplished: the Hubble Space Telescope as seen by the Space Shuttle Discovery after servicing in February 1997.

THE MISTAKE OR CERTAINLY THE LESSON I LEARNED HERE IS THAT ONE NEEDS TO CONTINUE TO MANAGE EXPECTATIONS TO NEXT-GENERATION STAKEHOLDERS, AND TO DO IT RIGHT AWAY.

WE SEE RESULTS

Did it all work? I find it interesting that near the end of the summer, a little less than six months since I’d arrived, I was sitting quietly in my office, which was centrally located and always open, when I became aware of the hum and the vibration of energy out in the hallways. I could literally hear the team’s cohesiveness. It was something of a mystical moment, I suppose, because I knew then, without a doubt, that the project was going to succeed. I was convinced of it based on the energy flow, the pulse, and the conversations that were occurring in the hallways on this particular day.

In retrospect, when I look back on what was happening there, I can see that we had become the badgeless team I was aspiring for. We had gone from a hierarchical, structured environment, to teams who

had the trust, confidence, and openness to stop in the hallways to discuss problems and make decisions without having to worry about any repercussions if they didn't pass everything through their management team each time.

An interesting side note to all of this was that over time the vocabulary of the project changed. Initially, there was a lot of "I" and "you." Over time, we noticed a subtle shift in the vocabulary to "us" and "we."

Not only did we meet our original milestone, but we had five major releases completed on time and on schedule. During that period, we delivered over one million lines of code. We were producing something on the order of fifteen lines of code an hour, where the accepted norm is closer to five. Our defect metrics were a third of the normal industry rate. This seemed great to me, but I wanted to be certain these metrics were real.

I went to a group at Goddard who study software development. I asked them to take a look at the code we had produced. They spent a couple weeks analyzing our work, and came back and said that our team's work was some of the best they'd ever seen. So, technically, we were in good shape, which was what I figured.

What about programmatically? Maybe there is a direct correlation between high technical productivity and the type of organization and team that you put together. That would be nice to know. I got hold of another group who was putting together a project team development survey. I said, "Why don't you take a look at our team? Come on over and give the survey to our team." We did that for a couple of days. They came back and said, "We have ten major criteria for very high successful teams. The average that we've seen so far is about three. Well, you guys have seven." Even programmatically, we were off the charts.

MANAGING EXPECTATIONS

Despite all of the success that I've talked about, in August of 1998 I was replaced. We had a release due in June of that year, which we delivered on time and on schedule. Two months later, an organizational chart appeared, and I was gone.

What happened is that the original stakeholder—the key supporter of the "radical management" philosophy—retired. New stakeholders came in, including a new program manager who had a background in management rather than systems. I didn't think much about the change in stakeholders until the day my new boss came in and said, "We're

going to review why you have failed to deliver; the project is now in stand-down mode." Evidently, there was a disconnect between what we had been asked to deliver by our former stakeholder, and what our new stakeholder expected to find. The mistake or certainly the lesson I learned here is that one needs to continue to manage expectations to next-generation stakeholders, and to do it right away. Don't assume that they know what you know.

Perhaps I could have done a better job in presenting the case for our project team to the new stakeholders. If I had done a better job bringing my key people in to meet the stakeholders—presenting what we had done to-date, what the challenges ahead were, how we had accomplished what we had, and how effectively we worked—perhaps they might have had second thoughts and would have allowed us to continue.

I'm not convinced that would have helped, though. It was clear that their expectations were very different than my expectations. They wanted to go back to the old way of doing business, one they felt comfortable with, specifically with the prime contractor managing a more traditionally structured project team. If the change had occurred a few months earlier, it would likely have had a devastating effect on productivity levels—but the change came when our initial development phase was almost completed.

In retrospect, I can see that the project had reached a point where exceptional productivity wasn't the highest priority anymore. We've all heard, again and again, that you have to know when things are good enough. It's true in engineering—we don't put twenty-nine bolts in where we need twelve—and it's true in project management. •

LESSONS

- Nurturing a collaborative culture on a project can go a long way towards achieving tangible costs and schedule results.
- Manage expectations, not only from the people working for you, but for the key people, i.e. stakeholders, that are above you.

QUESTION

When would you prefer the collaborative leadership style depicted here, and when not?