

# A Brief History of Project Management Development at NASA

BY ED HOFFMAN

Thinking about this special issue of *ASK* focusing on NASA's fiftieth anniversary, it occurred to me that there is a story from my own experience that is worth sharing. I came to NASA in 1983, at what is now the midpoint of its history, and over the past twenty-five years I have witnessed a wholesale change in the Agency's approach to developing its project managers and engineers.

When I arrived at NASA, the Agency had one approach to professional development: people learned on the job. Period. There were no training courses, no formalized coaching sessions or consultations with retired expert practitioners, no *ASK Magazine*. It was very much a sink-or-swim environment, just as it had been for decades. NASA focused primarily on a few large programs and projects—this was the era of the Space Shuttle and Hubble—with relatively long life cycles. They created opportunities for new people to learn as members of large teams of experienced practitioners.

In 1986, the *Challenger* accident happened. It was a watershed event for NASA. Enormous energy and thought went into understanding what had gone wrong and what it would take to repair the NASA legacy of project excellence. Numerous committees, boards, and tiger teams worked to figure out what needed to be done to improve project management.

One idea that came out of these activities was the Program and Project Management Institute (PPMI), the precursor

to today's Academy of Program/Project and Engineering Leadership (APPEL). PPMI was sponsored by then-Deputy Administrator J. R. Thompson, who assigned it an initial \$2 million training budget and one civil servant. (If you judge an organization by its number of civil servants, then not much has changed: today APPEL has two.) PPMI was a training program. It focused on developing a curriculum that would provide a baseline of knowledge and competence, and it did so under the assumption that training would account for only a fraction of an individual's development; the rest would take place on the job, as it always had.

I became involved with PPMI in 1991 when I interviewed with Frank Hoban, its director, for the position of deputy director. Frank was a straight shooter. At first he didn't want me because I knew little about the real world of project management. Once we met, though, Frank decided that I had the right attitude and a willingness to learn, and he hired me straight away.



Frank understood that PPMI had to be more than a training course. He emphasized the importance of identifying the competencies required for project management and then using those competencies as a basis for building a curriculum. He knew that there were multiple ways to do project management successfully, and that our efforts depended on respecting and listening to practitioners. Training that worked had to be based on what experienced practitioners did, not on an abstract theory of what they should do.

Frank set up working groups on project management, program control, systems engineering, and other technical disciplines, and he talked to everybody. He taught me the importance of field research, of spending time visiting the centers and talking to practitioners about what they did and what they needed. He knew we could not do our job sitting behind a desk.

He also initiated the practice of writing down what we'd learned. PPMI began publishing *NASA Issues in Program and Project Management*, a journal that is still available online through the NASA Technical Report Server (NTRS) archive. He believed we had to write about what we were doing and clearly document our efforts. He got questions about that: "Why are you doing a journal about training?" His reply was that it was not about training, it was about improving the development of project practitioners. In Frank's mind, we existed to serve as

a resource for the technical community as a whole. Our work had to be aligned with the NASA mission and it had to reach as much of that community as possible.

Just a few months later, Frank did something that shocked me: he left NASA. I protested that I was not ready to take over, but he assured me that I would be fine, that I was asking the right questions and pointing in the proper direction. So I ended up taking over project management development for NASA three months after arriving at Headquarters. It happened under the most improbable circumstances, and now I had to deliver.

The other landmark in professional development at NASA was the arrival of Dan Goldin as NASA Administrator. Nobody who worked for Dan would ever say he was an easy boss, but he made things happen. He became known, of course, for instituting the "faster, better, cheaper" era, but he was also deeply concerned about the development of NASA project managers. Dan looked at what PPMI was doing and said, you have a lot of courses, but you don't have a framework. He wanted us to adopt a competency-based framework for developing project managers over the course of their careers. This became the basis for the Project Management Development Process (PMDP). We researched and identified the competencies needed at each stage of a career, and we came up with a career learning strategy to attain those competencies. To this day, PMDP remains the bedrock on which our current career development framework



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is built. This is when our efforts became truly professional, culminating in the establishment of the Academy of Program/Project Leadership (APPL) in 1997.

The back-to-back failures of the Mars Polar Lander and the Mars Climate Observer in 1999 represented the next big challenge and opportunity for APPL. Dan was furious that we were doing nothing to support our project teams in the field. As painful as this was, his criticism set us in a new direction. We began offering direct support to project teams by sending them expert practitioners who could tell when a project had gone off course and help steer it back to health. To date, APPEL has sponsored hundreds of performance enhancement engagements with NASA project teams, and these services now consume the largest part of our budget.

Around the same time, I began to focus heavily on the importance of stories in NASA's project-based environment. *How* you communicate matters, and stories are a powerfully effective way to communicate real-world expertise and build professional communities. We created *ASK Magazine* as a journal for practitioners to share their stories, lessons learned, and best practices. A report by the Government Accountability Office (GAO) found that NASA needed to do a better job of sharing lesson learned, and this provided us with an opportunity to expand our knowledge-sharing efforts. Shortly after starting *ASK*, we held the first Masters Forum to provide senior practitioners with a venue where they could share stories, build cross-agency relationships, and take time to reflect on what they had learned from their experiences. We followed the Masters Forum with the first Project Management Challenge conference, which represented the first opportunity to gather a sizable percentage of the project community in one place. The last two PM Challenge events have each had more than 1,000 attendees.

Our recent developments—our leap into the present—came about when Mike Griffin became NASA Administrator. One of his first initiatives was getting the Agency's governance model right. Though that may sound like an abstract bureaucratic exercise, it had enormous importance because it determined how decisions would be made about work getting done at the

project level. It set out clear lines of authority and refocused the Agency on one goal: mission success.

APPL merged with the NASA Engineering Training (NET) program to form today's APPEL, an integrated organization that has responsibility for the development of the entire technical workforce, not just the project community. Our professional development strategy now reflects a much broader focus than training. We provide a range of competency-based activities—including project team support, knowledge-sharing conferences and publications, and training—that are all linked to a career development framework. We have revamped the training curriculum to include a four-level core curriculum as well as in-depth offerings in specific technical disciplines. We place a renewed emphasis on sharing best practices and lessons learned through our e-newsletters and case studies, and we support the Agency's efforts to work with the Office of Management and Budget and the GAO on the implementation of common project standards across government agencies.

Through meeting my colleagues in other government agencies and professional organizations like the Project Management Institute, I have come to learn that NASA is seen as a leader in project team development. Many organizations are just now starting project academies to deal with the challenges that NASA had to undertake years ago, and they are hungry to learn about what we have done.

What will the next fifty years hold for NASA? I do not place much stock in forecasts for the future, but I am comfortable making this one: we live in a project world today, and we will continue to live in a project world for the foreseeable future. We have made a lot of progress at NASA, but the need for constant learning and professional growth will continue and be an ongoing challenge. ●