
Building the Project Team

by Howard T. Wright

After reading the papers on project management by Aaron Cohen and Angelo Guastaferrero in an earlier publication of *Issues in NASA Program and Project Management*, I find it difficult to add to the excellent advice provided by these experienced authors. I believe that they have provided very sound advice on the "how to" in project management, and, therefore, I have decided to explore the human element of motivation in a project team effort. In addition, as I would like to stimulate some thought on "industrial teaming" in today's international political and economic environment.

Much has been written about the relationship between morale and productivity, as well as the difference between a leader and a manager. I have experienced the feeling of both motivation and demotivation while working on project activities in which the intentions of the leader are clearly to bring about a successful conclusion to the project. Why is there a motivating environment in some projects and a demotivating environment in others? Although I cannot provide a cookbook answer to this question, I do want to describe some of the specific actions that I believe successful leaders have taken to provide a positive motivating environment.

There is no doubt in my mind that morale and productivity are directly related. To be very direct, I believe that most aerospace managers would improve the productivity of their organizations if they were to take steps to improve the morale of their people rather than spend their time and

energy trying to solve the endless chain of interesting technical problems that are ever present in most aerospace projects. I must admit that I have been significantly influenced by Robert Ranftl's book *R&D Productivity* primarily because his conclusions are totally consistent with my experiences and observations. Where productivity is concerned, studies show that attitude and motivation — not I.Q., education, graduate study, etc. — are most important. The productivity of an organization is determined by the top five percent of the people of any organization. Managers are reactive, but leaders are pro-active (they focus on the horizon and are sensitive to the effect of change). The most often cited reason for poor performance is over-managed, under-led organizations. And Ranftl asserts organizations are like nations: they begin stoic, they end epicurean. (By the end of the Roman Empire 50 percent of the normal work days were holidays.)

Let me offer some other references that I have found particularly helpful in understanding morale and leadership: *In Search of Excellence* by Thomas Peters and Robert Waterman, *A Passion for Excellence* by Tom Peters and Nancy Austin, *Intrapreneuring* by Gifford Pinchot III, and *The Management of Research Institutions* by Hans Mark and Arnold Levine. In my view these references are strong confirmation of the premise that productivity is closely related to morale and leadership. Let me now share some experiences that I believe are characteristic of those leadership traits that promote high morale and productivity.

While working for Grumman on the Apollo program it was my job to be the Lunar Module contractor representative at George Low's Change Control Board meeting in Houston. I flew from New York to Houston every Thursday night for more than two years to attend the Friday meetings. When George said, "Let's begin," you could set your watch because it would be 12:30 p.m. sharp. It may seem like a small point; however, a great deal of preparation involving many people was at stake. Starting on time gave each of us a clear signal that George felt that the meeting and our time were both important. I do not like to think of the numbers of times I have been summoned to a meeting only to be kept waiting for 45 minutes or more. Delay is an unintentional demotivating activity that is more characteristic of a manager than a leader. To keep employees waiting sends a clear signal that you don't think their time is very valuable.

After joining NASA in 1973 to work on the Viking project, I was fortunate to have found myself in a very highly motivated project office. It is sometimes difficult to be specific about the reason for the high level of motivation. However, the first thing to come to my mind in looking back at those days is the integrity of the leaders. Both the Project Manager, Jim Martin, and the Center Director, Ed Cortwright, were respected by everyone for their undisputed support and concern for the rest of the project team, as well as their open and clear communication. The Viking organization was not unique. If you were to look at the organization chart you would have to agree that it was typical of most project organizations. What was unique, however, was the feeling of responsibility that every member of the organization had. When

Jim said *you* have the responsibility to work a problem, he would make the assignment in an open meeting in such a way that the recipient of the assignment really felt responsible — and the rest of the project office also knew it. Everyone was motivated to help solve the problem. Additionally, a personal note of thanks was typical of Jim Martin's reaction to a job well done.

Team Building at NASP

Most recently, for about four and a half years, I had the pleasure and excitement of working as NASA's deputy on the National Aerospace Plane (NASP) project. This joint Air Force/NASA project office is located at the Wright-Patterson Air Force Base in Dayton, Ohio. The first project manager for the Air Force was Brigadier General Kenneth Stayton. General Stayton is another natural leader whose inspiration is contagious. Although General Stayton employed all of the traditional project management tools for planning, organizing, directing and controlling, like all great leaders he was concerned about people — plus, he had a great sense of humor. Some of the motivating activities that I can attribute to him may seem trivial, but I think they are responsible for creating the team spirit that exists in the NASP project office:

Communication. An important aspect of project management was always stimulated by a daily senior staff meeting at 8 a.m. sharp. If your calendar happened to be full, a brief note to General Stayton would be answered by a return note the next day. This kind of response gave you the feeling that your participation and concerns were important to him. Weekly all-hands staff meetings kept everyone informed.

Spirit Building. Leaders and followers are all mere humans and in many ways are very much alike. Getting to know one another is an important ingredient to working well together. To facilitate an interaction between the project team members, one person was asked to provide lunch for the rest of the organization for a nominal charge every other week. The ground rule was, no talking about business during these lunches. Some organized special events for their turn, and I can fondly remember winning the lasagna contest with my wife's favorite recipe. I called it "NASP (Noodles and Sauce Poquoson) Lasagna." There were cookie contests at Christmas time, and every year we were all sure to be present at the luncheon immediately following Chuck Anderson's vacation. Chuck would always return from Minnesota with some of the greatest sausage and grill it on a charcoal fire right outside the office. Birthdays were always celebrated with a cake, now done on a monthly basis. At the family pig roast scheduled each year, there was something about getting out at 5 a.m. with pick and shovel to dig a hole to roast your own pig that brought together those early birds like no amount of office experience. Celebrations and special lunches were anticipated and remembered like no other management tool or technique in NASP's spirit building.

Work as Fun Time. The clocks on the project office walls had no numbers on them but were shaded green between 8 and 4:30, yellow between 4:30 and 6, and red between 6 and 8:30. All were labeled "fun" clocks to remind us that work is enriching and fulfilling, but can be overbearing. Productivity goes

down as the hours add up. Family and rest are important, too, for team spirit.

Team building is nurtured by a genuine interest in people — not just their professional but also their private and family lives should be of concern. Every success story in *A Search for Excellence* reinforces this conclusion. All of my experience tells me that when adversarial conditions develop within a project, you are headed for trouble.

■ Team Building for the U.S.

Perhaps I am a little obsessed with the notion that working together toward a common goal is not only more productive but also more satisfying than working in competition. A U.S. executive at a Washington Conference on foreign competition, recorded in Ira Magaziner's *The Silent War*, said, "No matter how hard we try on our own, we can't compete by ourselves." What the electronics industry needed, he said, was a Washington-backed strategy to combine the strengths of America's companies, universities, and government labs. The competition has been doing that for years, he said; if the United States didn't do the same, we'd lose a piece of our living standard.

I personally believe that this statement can apply to much more than just the electronics industry. I believe it is particularly true for the aerospace industry. It is common practice in Europe and Japan, where government-supported industry consortia teams are rapidly increasing their share of the market at the expense of the U.S. manufacturers in this high-technology field.

The NASP program has taken a bold step in the direction of teaming the U.S. indus-

try to improve the combined productivity of their companies while rapidly and efficiently developing and improving those technologies essential to compete effectively in the world marketplace. The resources available in the U.S. aerospace industry are a national treasure, and I believe it is in the best interest of the U.S. for the government to try to eliminate the duplication of effort that exists when each company attempts on its own to develop the same technologies as its competitors. Today the high-tech market is global, and we must consider what the overseas competition is doing in order to develop a strategy for the U.S. This strategy must rely heavily on the development of new technologies and the synergistic combination of ideas that are generated not only in industry, but also in the universities and government laboratories across the country. I think it is appropriate for the government to take the lead and organize a team effort involving all potential contributors.

In order to implement a consortium of contractors to develop new materials for the NASP, the joint Air Force/NASA program office organized the National Materials and Structures Augmentation Program. I selected this name because the acronym was easy to remember — National Materials ASAP. All five major NASP contractors — McDonnell Douglas, Rocketdyne, Rockwell, General Dynamics and Pratt & Whitney — agreed to divide the materials development into areas that each could lead, and they agreed to share the results of their efforts with each other. In a very short time, contract arrangements were agreed upon and implemented, and soon a national team was in place, all working together to develop new materials. This team is shown in Figure 1. Even at the outset, the number of government labora-

tories and universities across the country involved in the program was impressive.

For those who would still argue that the NASP program lost the element of competition, I would say, yes, perhaps so; however, it has been replaced with some things that are even more motivating to the people at the working level. First of all, there developed a level of peer pressure among the five prime contractors. Since there was a semiannual review with the senior management of each company present, each company wanted their part of the effort to be progressing on schedule with subcontracts let and progress to report. It was interesting to me to see individuals from one company helping another company to expedite this effort when in the normal competitive environment they would not even speak to each other. The second observation that I would make is that everyone involved was a winner. There would be three big losers if all five contractors were working in competition (the case for many years) before the government would select two winners. One way to look at the situation was to conclude that three-fifths of our national resources would have been wasted. Morale of the losers would have plummeted.

Recently the NASP program has taken an even bolder step by forming a team of the same five contractors to develop NASP program configurations. Only time will tell how effective this team will be, but I predict it will result in a significant improvement in productivity, and certainly eliminate redundant and costly activities.

I believe that cooperation is the only way for U.S. industry to survive in this fiercely competitive international marketplace. Teamwork and morale contribute more to

productivity than all of the formal project management tools put together. Times are changing and we should think of national team building in large projects, but government must lead the effort to integrate and coordinate the efforts of the U.S.

industry, universities, and government laboratories in specific technology areas. In other words, the same technique to build a project team can be applied nationally. Such an effort will require strong leadership and sustained motivation and morale.

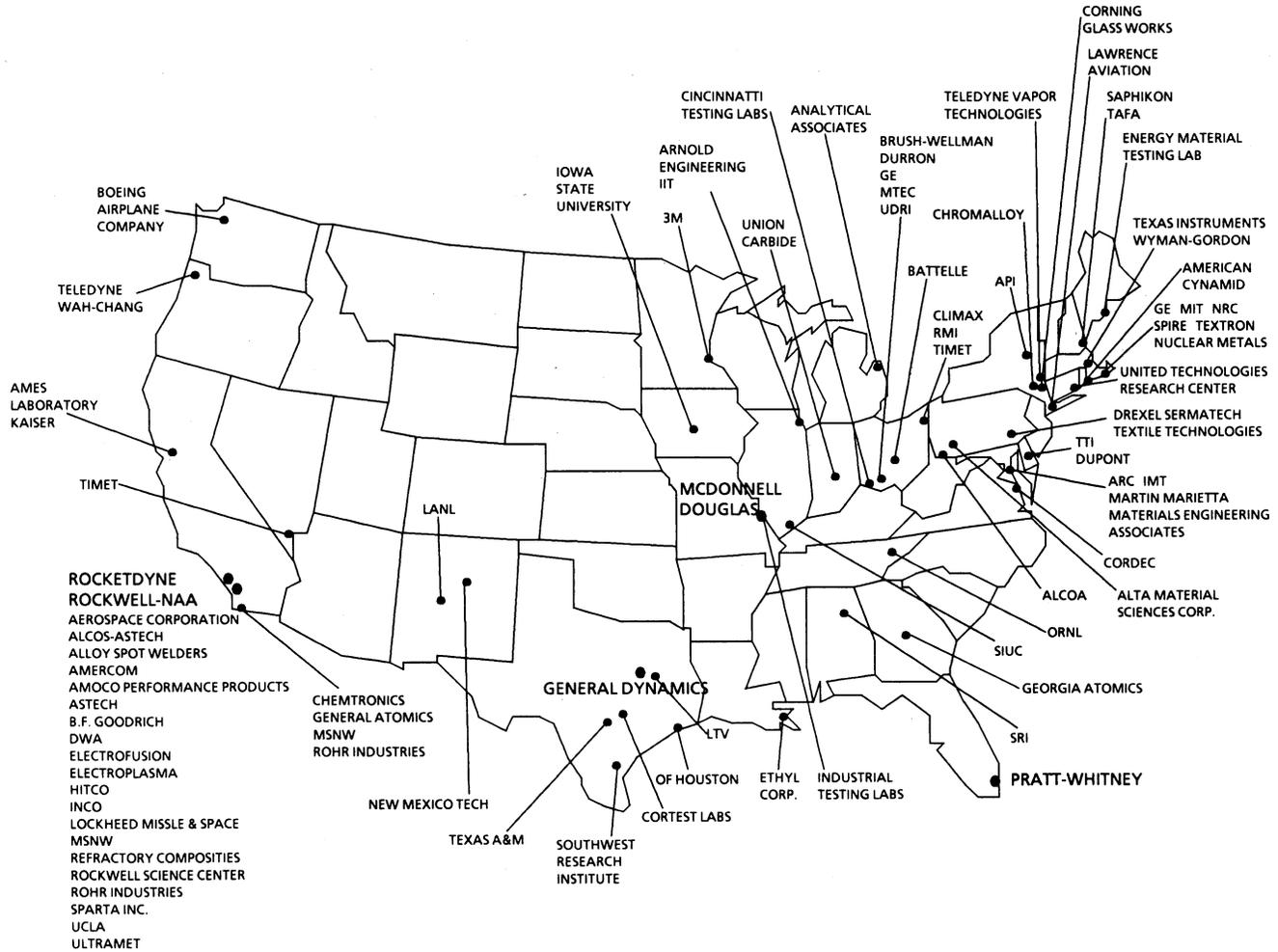


Figure 1. - National Materials and Structures Augmentation Program Subcontractors