Chapter Nineteen:
A Difficult But Solvable Problem

I once presented some of the ideas in this book to a group that had just been assembled to develop a software measurement system for a large organization. The group's members had been carefully selected. They were some of the organization's brightest and most energetic people, and many had software measurement experience.

These people listened attentively and often nodded knowingly as I spoke of dysfunction and its causes. But, as I enumerated the difficulties of the measurement problem, I sensed that my audience was becoming uneasy. Faces seemed to be darkening. Finally, while I was analyzing a particularly spectacular example of dysfunction, one person could contain his growing discomfort no longer: "But you're being so negative!" he protested.

Although I don't believe that the contents of this book are essentially negative, the book's message can seem quite stern. A reader hoping to find, say, a three-step program for measurement success, encounters instead a detailed description of the difficulties involved in establishing a successful measurement program. Perhaps frustration is an inevitable first reaction to facing squarely the true difficulty of the measurement problem.

The fundamental message of this book is that *organizational measurement is hard*. The organizational landscape is littered with the twisted wrecks of measurement systems designed by people who thought measurement was simple. If you catch yourself thinking things like, "Establishing a successful measurement program is easy if you just choose your measures carefully," watch out! History has shown otherwise. I urge you to regard all such statements as skeptically as you might regard the statement "that pistol is not loaded."

The first step to solving the measurement problem is facing its true difficulties. If you feel frustration, push past it and formulate a plan for dealing with the difficulties. Successful plans may have what seem like extreme elements. For example, it might be necessary to enforce very strict requirements on the acceptable use of measurement. Managers might need to satisfy themselves with less access to data than they want, to preserve the validity of the data they are permitted to see. Most of all, organizational leaders will have to work twice as hard as they might like to establish a culture conducive to measurement, in which measurement is seen as a useful way to learn but not as the be-all and end-all of performance management.

A good test of whether you are succeeding in creating the right kind of culture is to ask yourself what seems to be driving the people around you to do a good job. Is the motivation of workers primarily internal or external? That is, are people in your organization driven primarily by feelings of identification with the organization and their fellow team members? Do they work hard because they don't want to let their coworkers down? Or, are they driven mostly by a desire to do well on their next performance review and get a big raise? Strive for the former, but be prepared that, too often, measurement systems produce the latter.

The difference between these two types of motivation is important because of what is perhaps the most basic problem of organized activity. In a typical organization, an individual worker confronts tens or hundreds of small decisions every day. In making each decision, he can choose to do what is best for the organization or he can choose what is best for himself. As I have written repeatedly, what is best for the organization almost never is exactly the same as what is best for the worker's measurement performance. So, if the worker feels that the measurement system is of greatest importance, then each of his decisions will be at

least a little worse than it might have been if he had felt compelled to choose what is best for the organization. Add this effect across many workers and the result is significant. Often, it is the difference between transitory and lasting success for the organization. An organization can try to keep its measurement systems and other formal criteria aligned with its overall goals, but this is a difficult and expensive process at best.

The good news is that you *can* succeed in producing a culture conducive to measurement. There are organizations in which people seem to have given themselves completely to the pursuit of organizational goals, at least temporarily, organizations in which members hunger for measurement as a tool that helps get the job done. In these settings, there is nothing special about measurement; measurement seems neither remarkable nor threatening. To use measurement inappropriately would betray a sacred trust, and no one would consider such a betrayal.

I know it is possible to create such a culture. I have worked in organizations and on teams that have achieved this higher state. Maybe you have worked in similar settings. If so, you know that this kind of culture is precious for reasons that go far beyond the benefits that can be realized from a successful measurement program. You may also know that this kind of culture is fragile and often fleeting. So, when you achieve it, I urge you to guard it fiercely, because if you lose it, it is distressingly difficult to regain.

Appendix:

Interview Methods and Questions

Interviews with eight experts were arranged in three ways. First, five have affiliations of varying immediacy with the Software Engineering Institute of Carnegie Mellon University in Pittsburgh, Pennsylvania, and were contacted through that organization. The nature of SEI affiliations ranged from close to quite distant (for example, serving twice a year on SEI Steering Committees). Of the three experts who were not contacted through the SEI, two were suggested by other experts' recommendations and the third was contacted through completely independent means. These experts participated voluntarily, receiving no money or any other form of payment. Four other experts were approached but declined to participate, all citing time constraints.

Experts were first contacted by telephone or electronic mail. Four interviews were carried out in person and four by telephone. Interviews took between thirty-five minutes and one hour. I conducted all interviews, which were audio recorded and transcribed. An interview template was followed strictly in that all questions were asked of all experts, but unscripted follow-ups to provide clarifications were frequent. Interviews were open-ended, but every attempt was made to assure that the interviewee addressed the intent of each question. This often involved repetition of questions and some elaboration of the intent of ques-