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TSPSM

Leading a Development Team



Watts S. Humphrey

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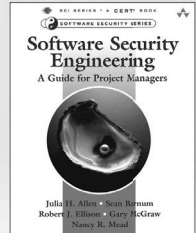
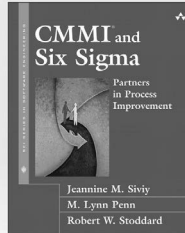
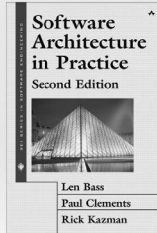
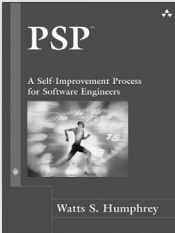
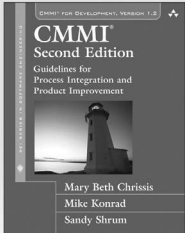


TSPSM—Leading a Development Team

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*I dedicate this book to all the teams
I have worked with over the years.*

*You have taught me that teams are the most powerful tool
mankind has yet devised for doing creative work.*

*Working with you has been the most
enjoyable experience of my life.*

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PREFACE

In the fifty-plus years since I started doing development work, I have worked on, led, managed, directed, assessed, or coached literally hundreds of creative development teams. While I have drawn many lessons and guidelines from this experience, the one clearest message is that leadership makes the greatest difference. Without exception, truly creative work is done by teams with very capable leaders. What is most interesting, however, is that these great leaders are generally ordinary developers like you and me, but when thrust into a leadership position, they do an outstanding job.

What is equally interesting is the converse. When development projects fail, it is almost always because of poor leadership. In this book, I describe the differences between an ineffective leader and one who does a superb job. The objective is to help you understand, anticipate, and correct the most common leadership failings before they cause you or your team problems. I wrote this book because I have seen many smart and dedicated developers make basic leadership mistakes. This is a shame, because it is totally unnecessary. Leadership is not a complex subject and anyone can be a great leader.

When I was first made team leader, I had just joined a development group at my first job and did not know any of the team members or have the vaguest idea what they were doing or why. I didn't even understand the organization or the technology. While things worked out well in the end, it was due more to the marvelous people on my team than to any special insight or skill on my part.

However, I have found that this is not unusual. Given half a chance, your people will be very helpful, even when you are the new boss and they know much more about the job than you do. While there will be occasional exceptions, people want to like and respect you and they want you to succeed. They will tolerate your dumb questions and silly mistakes as long as you are willing to admit your mistakes and laugh at your goofs. Be honest about what you know and don't know, and assume that management had a good reason to make you the team leader.

After I had worked for a few years, I was asked to lead a larger group in another department. I knew the people pretty well and also knew a great deal about the job. This time, however, my reception was not nearly as smooth. One of the more experienced members of the new group was older than I, and he and several team members thought that he should have been the team leader instead. While this situation took a bit longer to straighten out, the team finally came to terms with my new role and we established a good and productive working relationship.

The way teams perform depends to a great extent on how they relate to their leadership. However, I have found that the way your team relates to you will depend on a host of factors, many of which you can influence but some you cannot. In this book, I describe these factors and suggest ways to deal with them. These guidelines have helped me and I hope they will help you.

Who This Book Is For

This book is for people who are now leading or would like to lead a development team. It describes the team leader's job, the essential elements of leadership, and the many issues and problems you are likely to face. While I can't pretend to have all of the answers, I have had a lot of experience leading teams, and I have worked with a great many teams and team leaders. Since every team is different, and most teams grow and evolve over time, there is no magic formula for being an effective leader. However, there are some principles and guidelines.

Whether you are a new or an experienced team leader, this book discusses many of the issues you will likely face and has examples, guidelines, and suggestions on how to handle them. It summarizes my observations and experiences in a form that will help you to address almost any kind of team and team leadership situation.

The Kinds of Teams Addressed

While there are many kinds of teams, this book concerns leading development teams. A lot has been written about sports, military, and production teams, but little material is available on development teams and even less is written about leading such teams. Since many of the teams I have worked with have had leadership problems, I have concluded that this book is needed. My intent is to talk about leading any kind of development team, but most of my recent work has concerned teams that were developing software-intensive systems. Therefore, my examples and much of the process discussion concerns these types of teams.

In my work at the Software Engineering Institute (SEI) at Carnegie Mellon University, we have developed the Team Software Process (TSP). As the name implies, this process is designed to guide software development teams. The TSP has been used by many teams that included hardware, software, systems, requirements, test, and other professionals. It has also been used by some teams that have done little or no software development. So while the book mentions TSP in many places, you will find that the concepts and much of the guidance applies to any kind of development team. Few things that are worthwhile are free, however, and your people will need new skills to use the TSP. These skills are taught in Personal Software Process (PSP) training

How This Book Is Organized

The five parts of this book address the principal aspects of teams and team leadership. Part I discusses what management and the team expect from you. It then describes the conditions for team success and the kinds of teams needed to do development work. Following the discussion of *what* and *why* in Part I, Parts II through V and the appendices deal with *how*: how to do what it takes to be a great leader.

Part II starts with a brief overview of the Team Software Process and how it can help you to build the kind of team you need, even if your team doesn't do software development or even any kind of development. It then describes how to form teams and the TSP launch process. Part III discusses teamworking. It concerns following the plan, maintaining focus, and following the process to produce a quality product. Part IV discusses management reporting, project reviews, and your obligation to support and protect your team. Part V concludes the book with a description of how to develop the team and its members and how to best capitalize on your capabilities and your team's capabilities. The book's appendices

then provide more detail on the TSP team roles and how to use them. They also discuss the communication and command networks in your organization and how to use them to accomplish your team's objectives.

Acknowledgments

This book is based on my experiences in working with development teams. What has consistently amazed me is how varied teams are and how much there is to learn about teamwork and team leadership. After many years of working with development teams, I still learn something from every one. That is why I dedicate this book to the many teams I have led, coached, or observed. I owe each one a debt of gratitude, both for their unfailing dedication to their work and for their tolerance and good humor in dealing with me. While I can't thank everyone personally, if you have led or been a member of a team that I have worked with, I am thanking you.

In writing books, I have had the support of a very special team at the SEI: the TSP development team. The members of this team have all contributed to my work in many ways. For their help and support, I thank Dan Burton, Anita Carleton, Noopur Davis, Caroline Graettinger, Jim McHale, Julia Mullaney, Jim Over, Marsha Pomeroy-Huff, Mark Sebern, Dan Wall, and Alan Willett. I also thank Bob Cannon, Carol Grojean, and Don McAndrews for their helpful comments and suggestions on this book.

1

The Team Leader

As team leader, you are responsible for a project and your job is to use your team to get the job done. While you are the leader for all of the people on the team, you may not be their manager. Leaders must often lead groups that do not report to them. For good leaders, this is rarely a problem: people like to be led; they don't like being managed. This chapter describes what management and the team expect of you, the things team leaders must do, the way team leaders must behave, and the team leader's primary job.

1.1 What Management Expects

As team leader, you are part of management. While this does not necessarily mean that you will have an office and an assistant or that you will control salaries or promotions, it does set you apart from the team members. The essential difference is that you are now expected to get work done by delegating to other people rather than doing it all yourself. Most new managers have trouble accepting the fact that their job is to lead the people who do the work, not to do the work themselves.

While most team leaders who have been developers see nothing wrong with actually doing much of the work themselves, this is rarely a good idea and it can even damage your ability to be an effective leader. Even if you are the most skilled designer on the team, your job is to lead the team, not to be the lead designer. While you may have to provide detailed guidance on the design work, the best leaders show their team members how to do their jobs but do not step in and do the work themselves.

On a small team, you may decide to take on some of the team's roles and tasks yourself. But that must never be your primary concern and it must not distract you from the principal job of leading, guiding, supporting, and protecting the team. As far as management is concerned, your job is to use all of the team's resources to do this job. Everything else is secondary.

Some other things management expects of you are as follows.

- You will get this job done on the schedule and with the resources you have been given.
- The products you produce will meet both the stated and the implied requirements.
- You will keep management posted on your team's progress.
- You will inform management of any problems or issues in time for them to take corrective action.
- You will work cooperatively with all of the other parts of the organization.
- You will abide by all of the organization's rules, regulations, and standards.

1.2 What the Team Expects

While management's expectations are not very surprising, what your team members expect is much less well defined and often contradictory. Initially, the team members will have a collection of individual expectations. While these expectations could vary widely, there are a few common ones that team members almost always have of their leaders.

First, like everyone else, creative people share a basic need for job security. They want to keep their jobs and are understandably concerned about management's views of their performance. However, professionals' views of what makes a job interesting and rewarding often differ somewhat from management's priorities.

Second, what often is surprising to management is that the top priority for most development professionals is not about the product or the schedule. It is to work on a cohesive and cooperative team. In fact, even when the result is a total

business disaster, if the team provided a rewarding personal experience, the team members will view the project as a success (Linberg 1999).

Third, the team members like to be successful. While this expectation will vary considerably from member to member, most would like to finish the job on time and to produce a successful product.

Fourth, and this expectation often ranks ahead of finishing the job on time, many team members want to do technical work that is interesting and that satisfies their personal goals and aspirations. This expectation is often hard to satisfy since it can change quickly. While a developer might be very interested in tackling a new challenge, once he or she has successfully handled a similar task once or twice, such challenges are much less appealing. In fact, every engineering challenge is much like a mystery story. Once you know the ending, it is easy to lose interest.

1.3 Management Priorities Versus Team Interests

In many respects, management's priorities are very consistent with the team's basic interests. They want skilled and satisfied employees and they need a stable and reliable workforce. Where their interests differ, however, is on the importance of building a cohesive and rewarding team environment. While few managers would object to such an environment, they have not generally thought much about it or given it a very high priority.

Resolving these differing priorities is a key part of your job and it is what makes leading development work so interesting and rewarding. The reason is something that many team leaders do not appreciate until after they have led several projects: when teams are cohesive and cooperative, and when they find their work most rewarding and enjoyable, they also do the best work. And that is also when they are most likely to meet their committed schedules and to deliver quality products. Convincing management and the team of this fact will be one of your more interesting challenges. A principal objective of this book is to show you how to meet that challenge.

Leadership is demanding, particularly for development work, but it is also exciting to have the support and allegiance of a capable, energetic, and enthusiastic team. You will find that once you have built a truly cohesive and energetic team, you will enjoy the work every bit as much as they do. However, to build such a team you must maintain a clear and consistent focus on the team's goals, set an example for the kind of performance you want, maintain high standards, and be responsible for all of the team's work.

1.4 The Team's Goals

To use a sports analogy, athletic teams strive to win every game. This typically means scoring more points than the opposition. Every team member knows what the goal is and strives both to score points and to prevent the opposition from scoring. While many strategies contribute to successful games, the goal is always clear, and it is the focus for everything that the team does.

In development work, goals are equally important but they are rarely as clear. While the ultimate goal is usually understood by all, there is often considerable confusion about short-term goals. A significant part of your leadership job is to keep the team's goals clear and well defined and to ensure that every team member knows how his or her current tasks contribute to meeting that goal. In addition, you want all team members to work energetically to meet their goals. As each goal is met, you help the team to move on to the next immediate goals, continuing until you meet the final objective. So goals are important. They provide the focus, motivation, and energy that make teams successful.

While establishing goals may seem simple, one team I worked with took over three hours to agree on their goals. The problem was that this team had three developers, two testers, a requirements person, someone from the support group, and the team leader, and that their interests and objectives were widely divergent. The goals discussion helped them to understand each others' objectives and to agree on what was important.

1.5 Setting an Example

As leader, your actions are highly visible and your behavior is seen by your team as an example. Lee Iacocca once said, "The speed of the boss is the speed of the team." (Iacocca 1984). You cannot expect your team to be any more committed or to work any harder or more carefully than you do. To get a full day's work from your people, you must put in a full day's work yourself. If you are not concerned about a one-day schedule slip, you cannot expect your people to work hard to make it up. If you don't seem to care about quality, usability, planning, or any of the other key aspects of the job, you can't expect your people to be concerned about these things either. Your energy, enthusiasm, and discipline set an example; when you take shortcuts, forget about the process, or ignore quality, so will your team. So remember to lead by what you do as well as by what you say.

1.6 Standards

The goals define what you and your team are supposed to do, but you are also responsible for how well that job is done. This is a matter of standards. A **standard** is a required level of performance or attainment, a comparator for quality, or a measure of acceptability. In engineering, there are many ways to measure and assess the work, but you are the only one who can monitor the team's performance and ensure that it meets the relevant standards.

There is an old saying in engineering: "If it doesn't have to work, we can build it pretty quickly." The essence of engineering is quality. Poor quality work is expensive, produces unsuccessful products, and is unsatisfying. Poor quality work wastes your time and your team's time, and it wastes your organization's money. Most developers intuitively understand the importance of quality and many even know how to do quality work. However, they often are not sufficiently skilled, motivated, and disciplined and don't have the leadership required to consistently produce quality results.

One of the key standards for a development team leader is the ability to get quality work from his or her team. Motivate your people to do the job correctly and, if they don't do it properly the first time, get them to do it over until it is right. If you settle for sloppy, incomplete, or inaccurate work, a sloppy and lazy attitude will infect everything that the team does.

Even more important than the quality standard is the team's standard of cooperation and support. While this standard is rarely stated or explicit, it is the team members' cooperative and supportive behavior that makes the working environment rewarding, productive, and fun. As pointed out earlier, a top leadership priority must be providing a cohesive and cooperative working environment. Accomplishing this is almost entirely a matter of behavior: your behavior, your management's behavior, and every team member's behavior. So, setting and meeting behavioral standards for yourself, for your team members, and for your management must be your top priority.

1.7 The Leadership Attitude

The way you act, your feelings, and even your private opinions will influence your team. For example, if you doubt that your team can succeed in its mission, even if you say nothing about your concerns, this belief will subtly affect your behavior. Your team will probably detect your doubts. When your team members sense that you do not believe in them, they will almost certainly fail.

If you do not believe that the team can succeed, sit down with the entire team and discuss your concerns. Don't tell them that you believe they will fail, but do get the risks and issues on the table and see if others share your concerns. Then, work with the team to figure out what must be done to succeed. Next, work with the team to make the required changes.

Your role is to motivate the team to do its utmost. To accomplish this, you must have confidence in all the members, believe that they can overcome the obstacles ahead, and trust that they are capable of producing extraordinary results. The most successful teams have energetic, enthusiastic, confident, and hard-driving leaders. If you don't have the required energy and drive, figure out what to change so that you do. If you can't see how to do that, either your team has a hopeless job or it needs a new leader.

1.8 Taking Responsibility

Finally, you are the boss. Your job is to get this project done and to use the resources that you have been given to do it. However, as boss, you are responsible for everything that the team does. You will get credit for the developers' achievements and successes, but you will also be blamed for their mistakes and failures. In short, as far as management is concerned, you *are* the team. This means that you had better make sure that the job is done correctly.

If the team is going down a blind alley, is wasting time on unproductive tasks, or is doing poor quality work, you must sooner or later answer for the consequences. Therefore, you had better make sure that the work is done properly. Doing this in a way that builds and sustains team motivation is not easy and there is no simple prescription that will fit all situations. However, there are some principles that can help you to define your own prescriptions. This book describes these principles and tells you how to apply them.

1.9 The Team Leader's Job

As team leader, you have several related jobs, and they must all be high priority. That is, there is no one job that you can ignore; if you omit any one, you and your team will fail. The three top priority jobs are as follows.

1. Deliver a quality product on the planned schedule and for its planned costs. As pointed out in Chapter 9, if you don't do that, you will have failed.

2. The second job for you and your team is to do quality work. Chapter 11 explains why the quality of your team's work governs the quality of your product and why product quality will determine the actual development schedule. Therefore, if you don't do quality work, you won't meet your obligation to deliver on the committed schedule.
3. The third job concerns high-performance teamwork. This subject is also discussed in Chapters 7, 15, 16, and 17. Teamwork is important because it drives team performance, which in turn governs the quality of the team's work. In short, without a smoothly operating, cohesive, and motivated team, you will not get the quality work that is required to deliver a timely or high-quality product.

As team leader, you have these three principal jobs and you must give them all top priority. Throughout the book, whenever I say that something must be your top priority, I am referring to one of these three top priorities.

1.10 Summary

This chapter describes the team leader's role, what management expects, what the team expects, and the basic responsibilities of the team leader.

Management expects you to use this team to get your assigned job done. This means that you must do the following.

- Get the job done on the schedule and with the resources you have been given.
- Produce products that meet their stated and implied requirements.
- Keep management posted on your team's progress.
- Warn management of any problems or issues in time to take corrective action.
- Work cooperatively with the other parts of the organization.
- Abide by all of the organization's rules, regulations, and standards.

While the team also expects these same things from you, it has other high priorities.

- That you will give them challenging and interesting work
- That you will recognize their achievements
- That you will foster and encourage a cohesive, cooperative, and productive working environment

Lastly, as a team leader, you must maintain a clear and consistent focus on the team's short- and long-term goals, set an example for how you expect this team to work, establish and maintain standards for how the team behaves and for the quality of its work, show confidence and enthusiasm for the team and its work, and feel and act responsible for the team and everything that it does.

Doing all of this in a way that motivates the team and all of its members will be your most important leadership challenge. The rest of this book describes how to do these things in a way that is rewarding for you and for the team and that produces the results management wants.

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