



Understanding Patterns of Project Behavior

"Brilliantly insightful" —Howard Look, VP of Software, Pixar

Tom DeMarco, Peter Hruschka Tim Lister, Steve McMenamin James Robertson, Suzanne Robertson Principals of the Atlantic Systems Guild



Early Praise for ADRENALINE JUNKIES AND TEMPLATE ZOMBIES

"Brilliantly insightful. At one moment you'll think 'Darn, I do that . . . we're toast' followed quickly by the reassurance of 'I'm not the only one. There's hope!" —**Howard Look**, VP, Software, Pixar Animation Studios

"Who else but these particular authors could mine 150 years of software team experience to capture memorable names for oft-encountered situations? I suspect you will start using these phrases in your work—I already have." —Alistair Cockburn, author of *Agile Software Development*

"The 88 project patterns are grimly familiar to anyone who has worked in project-related organizations. Fortunately, some of the patterns are good ones, and should be encouraged. Sadly, though, many of the others are not only depressingly familiar, but astonishingly destructive to productivity, quality, and the morale of the project team."

-Ed Yourdon, author of *Death March* "Written with a combined sense of humor and deep insight. The book clearly conveys why projects fail and what can be done about it. It is all doable practical advice delivered in a very friendly and acceptable way."

—**Warren McFarland**, Professor, Harvard Business School "This is an absolutely must-read book for everyone running an IT organization. Actually the lessons in this wonderful book are applicable to anyone running any kind of project based organization—just about every organization. The metaphors are funny in that kind of tragicfunny *you've been there* kind of way. You will recognize the common pathologies of projects everywhere. With a dose of courage and this book in hand, you will be able to create a healthy project environment where people can thrive and still deliver consistent results."

-Lynne Ellyn, Sr. Vice President and CIO, DTE Energy

"People have always tried to understand themselves and each other. Our survival has depended on such understanding, as has the quality of that survival, from bare subsistence to deeply fulfilling livelihood. What people do individually, interpersonally and within their institutional matrices forms distinct frameworks of attitude and behavior. Perceiving the dynamics of these complexes (let's call them) confers both insight and power. Three attempts at such understanding leap to mind. The Chinese had the *I Ching*, or *Book of Changes*. Architects have had *A Pattern Language*. And medical psychology has had its *Diagnostic and Statistical Manual of Mental Disorders*. Brilliantly blending elements of all three (not least from that last one), *Adrenaline Junkies and Template Zombies* maps the patterns people create and follow—to their detriment and advantage—in the projects they engage within organizational contexts. Sharp, funny and dead-on-target, the book deserves a wide reading."

--Christopher Locke, coauthor of The Cluetrain Manifesto: The End of Business As Usual

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Introduction

Abstraction is uniquely human. It is something we do every day, every waking hour. But it wasn't always so. At some point in our prehistory, there had to be a very first instance of abstraction, a moment when an early protohuman stared at something vaguely familiar, and then with a sudden flash of insight, thought, "Hello! Thingumbob again!" That was the first abstraction. From that moment on, everything was different. Man was loose on the Earth.

Abstraction is profoundly human, but pattern recognition is not. It is not unique to humans at all. The mouse has figured out when the cat is likely to be asleep, when the humans are sure to be out of the kitchen, and when the crumbs have been recently dropped but not yet swept up. Your family dog knows all the signals that precede what you thought was going to be a totally unexpected getaway weekend. (Could it have been the suitcase?) And the neighborhood raccoon understands that when the tide is out, pickings are bound to be better on the beach than



in your compost pile. But for all their pattern recognition mastery, what the mouse/dog/raccoon cannot do is observe, "Hello! Thingumbob again!"¹ That involves abstraction.

The key difference is how the essence is captured. Patterns are absorbed and refined over time, stored away in the deep, nonverbal recesses of your mind, and conveyed to you in the form of hunches. The hunch that a particular ball-carrier is about to dart left, or that your

¹The thingumbob quote is adapted from William James, *The Principles of Psychology* (New York: Henry Holt and Company, 1890), p. 463.

Introduction

spouse is ready to explode in anger, is the result of recognized patterns from the past. So is the hunch that this week's project status meeting is going to be contentious. The unarticulated pattern may be useful to you—it clearly has survival value—but its value can increase markedly when you mull it over and begin to develop from it some declarable observations.

For example, ask yourself this question: What did the few contentious meetings over the past year all have in common? *Well, they were most often the ones that the boss's boss attended, usually near the end of a quarter. In the worst meetings, the team reported a slip in the schedule.* You form this into a statement of the pattern: "My boss tends to be extremely cranky about slip reported at a meeting, especially near the end of the quarter, when his own boss is in attendance."

The recognized signals that led to this observation are still buried in your unconscious, still able to provide you with occasional hunches. But now, in a momentary connection between the right brain hunch and the left brain articulation capability, you've isolated the essence and turned it into words. You can write it down, formulate tests to check its validity, share it with others, and merge your observations with those of your coworkers.

Most people who do project work are pretty good at pattern recognition and derived hunches ("I sense that this project is headed for disaster"), but not so good at abstracting their patterns into a more usable form. Thus this book. We six authors have put our heads together to articulate the patterns we've been absorbing during our combined one hundred and fifty years of experience.

The form of a book imposes a certain ordering of presentation, since each page must necessarily come either before or after any other. But the patterns themselves have no natural sequence. We've ordered them to suit our own tastes, striving only for the most enjoyable reading experience from the first page to the last.

Whether you read them straight through or nonsequentially, bear in mind this cautionary note: We make no claim to the universality of our observed patterns. They certainly don't apply everywhere. A given pattern may fit your organization or not. If it does, we hope it helps transform what before had only been a hunch into an observation you can express, test, and refine with your team. In writing this book, we have been constantly aware of our debt to the architect and philosopher Christopher Alexander and his admirable book *A Pattern Language*.² In this seminal work, Alexander and his coauthors articulated a few hundred patterns about architecture. The book helps us better understand the buildings we occupy—and the ones we'd like to—and it also shows us the way that thoughtfully articulated abstractions can elucidate any subject.

²See C. Alexander et al., *A Pattern Language: Towns, Buildings, Construction* (New York: Oxford University Press, 1977).

3 Dead Fish

From Day One, the project has no chance of meeting its goals; most people on the project know this and say nothing.

The goals of many IT projects can be summarized simply: We need this set of functionality, with this accuracy, with reasonable robustness, by this calendar



date. The team is assembled, and the statements of goals and constraints are worked into detailed requirements and designs; and they're published.

The big secret is that nobody on the project believes that the project can be an outright success. Usually, the deadline is not attainable with the other goals unchanged. Mysteriously, no one declares that there is a big, stinking, dead fish of failure already smelling up the project.

As the Greek tragedy plays out, the project will slog on. Then, typically a few weeks before expec-

ted delivery, each project member, project manager, manager of a project manager, and anybody standing remotely near the project, will either:

1. declare shock, dismay, and amazement that the project is nowhere near where it needs to be for the upcoming release

Or,

2. lay low and say absolutely nothing about anything unless asked

Why do so many people in so many organizations spray reality deodorant rather than simply state, "No way this project is happening the way we want. The dead fish is here." Many organizations are so driven for success that anyone expressing doubt gets no reward whatsoever for speaking his heartfelt opinion. In fact, if someone identifies the dead fish in the early stages of a project, upper management's first response is likely to be

> "Prove it. Show us that the probability of success is 0 percent. Draw no conclusions from the other dried-out fish carcasses lying around from previous projects; your project is different. Prove to us with irrefutable mathematics that failure is inevitable."

Anything short of a masterful proof gets lambasted as whining or an attempt to get out of some good-old, honest hard work:

"Are you a weenie or a layabout? Take your pick, but we doubt you'll be a part of this fine organization for long."

In such an environment, it is safer to "try hard" and not make it than to declare goals unattainable as defined. Granted, sometimes it *is* necessary to take on a very challenging project and give it a real try before conceding anything. Absolutely—but the difference is that on hard projects with real deadlines, nobody waits until the last minute to declare an emergency. If your project is building software for a communications satellite that is set to launch in 18 months—and you know that if you miss the launch date, the next opportunity is 16 months after that—then you and everyone else will be sniffing the air every day, for that aquatic scent. One whiff of that aquatic scent and you will spring into action, knowing too well that on a dead-fish project, action waits until most options are lost.

Clearly, the dead fish is not only destructive to organizations, it is demoralizing to the dead-fish project teams and their managers. No matter what the organizational culture, nobody is ever comfortable sitting on a stinking dead fish for long. The costs of keeping a dead fish secret are huge.

Just for Monty Python fans:

"This project's not dead; it's pining for the fjords!"

"It's not dead, it's just molting!"

"This is a dead project. It has joined the project choir invisible!"

"And now for some pattern completely different...."

19 Film Critics



Film critics are team members or corporate spectators who have determined that the value they add to the project lies in pointing out what has gone wrong or is going wrong, but who take no personal accountability to ensure that things go right.

You are in the final weeks before releasing your new system into production. Integration testing has been in full swing for some time, and the developers are fixing bugs as they come in. Release managers are going though their checklists of pre-ship activities to ensure that nothing has been overlooked. Then, at a readiness review, a new voice is heard. This is typically someone who has been associated with the project since its inception, but who has had little to say until now. We'll call him Herb.

Herb is not all that pleased with the state of things. Herb feels that the product about to be shipped has missed a few key features. And the design reviews were not all they could have been. And the integration testing should have been far more rigorous. Given all of the problems he sees, Herb feels that shipping the system now may pose serious risks. He has enumerated the risks in an impressive PowerPoint deck that he has e-mailed to the world.

Film Critics

You consider Herb's points, and you have to agree that some of them are valid. But your overall reaction is, "Why are you telling us this now? Where were you when we had time to address these issues?" Herb waves off your questions, offering no constructive suggestions for correcting what he sees as deficiencies, but reiterating his concerns about the way things have been handled.

Herb is a film critic.

Sometimes, on projects, film critics have real jobs and their criticism is more or less a hobby. Other times, they are actually chartered to be film critics by a manager who values this behavior. Either way, all film critics share one trait: *They believe that they can be successful even if the project they're on is a failure.* They have, in effect, silently seceded from the project team.

Not all project critics are film critics. A lot of the difference is in the timing. People who feel accountable for the success of the project tend to speak up right away when they see that something is going wrong or could be done better. They come forward and say what they think, to whomever they believe can make a difference. They do so as soon as they can, because they know that time is always short and that corrective actions should be taken sooner rather than later. These people are not film critics; they are your fellow filmmakers. They know that they cannot succeed if the project fails, so they are taking matters into their own hands, every day, to increase the probability of your collective success. You may agree or disagree with their criticism, but you can see that they are working on the same film you are.

Pursuing the analogy between projects and films, we note that film critics don't tend to weigh in until the film is complete, or so near to completion that there isn't enough time left to take corrective action. It's not that they actually want the project to fail; it's more that they have come to believe that their own success is independent of the project's success and has more to do with being seen as a keen observer of the obvious and an accurate predictor of the inevitable. They don't necessarily realize it consciously, but they no longer care whether the project succeeds or not, as long as they are seen as having been right.

Why are some projects infested with film critics while others have few or none? There is only one reason: Some management cultures emphasize doing things right, while others emphasize not doing anything wrong. When managers are most concerned about not making mistakes, or at least not being seen as having made mistakes, they send obvious signals, both explicit and tacit, that catching people making mistakes is just as valuable to the organization as doing things right. Those people in the organization who have natural film-critic tendencies rise to these signals and engage in freelance film criticism on their current project to see how it will be received. If it is tolerated, or even rewarded, then film critics will multiply and accountability will diminish. Keep in mind that it is far easier to be a film critic than it is to be a filmmaker, that is, to be an accountable leader or team member. If the organization demonstrates that it values film critics, it shall have them.

Film criticism can exist at all levels in an organization, and it even can be institutionalized in a number of ways. The most common case is the unofficial film critic. This person already has a role on the project, though typically a peripheral one. Many film critics are in staff support roles, and from there, they can criticize multiple projects. In an especially diseased management culture, senior leaders may even charter an entire organization to act as a watchdog on teams building systems.

On project teams, film criticism is one example of a more general destructive pattern that we call goal detachment. Notice what enabled the film critic: the belief that there were multiple ways to succeed on this project. The project itself could succeed, of course. But the film critic (or the leader who chartered the critic) allowed that goal to be replaced by a related but independent goal: to accurately identify what's going wrong on the project. It's not that identifying deficiencies is a bad thing; it obviously is not. Goal detachment is destructive because people pursuing detached goals are only coincidentally working toward the success of the project; their efforts are just as likely to be inconsequential or even counterproductive.

62 Hidden Beauty



Some aspect of the project's work moves beyond adequate, beyond even elegant . . . and reaches for the sublime.

Some of us produce work that is intended for other eyes. If you're the body designer of a new car style, for example, then a large part of the success of your work depends on the extent to which it is appreciated by others. If what they see pleases them, you will know it and derive pleasure and esteem from their response. If you're good, this derived pleasure is a large part of your total remuneration package; depriving you of it would be like neglecting to pay your salary, practically a breach of your employment agreement.

Now imagine instead that you are designing the self-test mechanism for airbags on the same vehicle. Almost no one will see the result of your work or even be more than marginally aware that it is there at all. So, one might suppose that success or failure of this work—and any attendant satisfaction that brings—should depend entirely on whether or not it achieves its assigned functionality, with no provision at all for aesthetics.

What an error! Design is an inherently creative process in that it produces something where before there had been nothing at all. The act of creation can take you in many different directions, all perhaps functionally identical, but differing in ways that can only be termed aesthetic. Some designs are, quite simply, beautiful. Their beauty is not an added attribute, not a "decoration," but a side effect of achieving functionality in a way that is at once natural and yet surprising. This can be just as true of those parts of the whole that are largely or totally hidden as it is of those that are visible to all.

Since the inventor of Ethernet, Bob Metcalfe, is a friend, I thought I might look into the details of the Ethernet protocol to see how it was designed. I opened the spec to be informed, not charmed, but to my surprise, I found that the protocol was a thing of substantial beauty. It was spare where it needed to be spare, elegant in concept, and its recovery mechanism for lost packets was a simple derivative of the way the packets were originally transmitted. Its concept of collisions and the way it deals with them was unexpected, at least to me, but amazingly simple. Call me a weenie, but the Ethernet spec brought a lump to my throat.

There is an aesthetic element to all design. The question is, Is this aesthetic element your friend or your enemy? If you're a manager, particularly a younger manager, you might be worried that any aesthetic component of the designer's work could be a waste, little more than the gold-plating that we're all taught must be avoided. This aestheticsneutral posture in a manager acts to deprive designers of appreciation for work that is excellent, and to refuse acknowledgment of any valuation beyond "adequate."

The opposite posture requires that you be capable and willing to look in detail at your people's designs, and be aware enough to see quality when it's there. Doing this for even the shortest time will quickly convince you that the gold-plating argument is a red herring; no design is made better in any way by piling on added features or glitz. Rather, what enhances a design's aesthetic is *what is taken away*. The best designs are typically spare and precisely functional, easy to test and difficult to mess up when changes are required. Moreover, they make you feel that there could be no better way to achieve the product's assigned functionality. When their work is largely invisible, designers are enormously affected by a manager who pores into the details enough to appreciate design quality. When you delve deeply into one of your designer's work, you may be able to increase the universe of people able to appreciate a lovely piece of work, from one to two. In the eyes of that worker, you just may be transformed from an okay manager to "the boss that I would follow anywhere."

> "Perfection is reached not when there is nothing left to add, but when there is nothing left to take away." —Antoine de Saint-Exupéry

About the Guild



If your organization builds systems of any kind, chances are that some of the methods and approaches that it uses came originally from The Atlantic Systems Guild.

The six principal members of The Atlantic Systems Guild are

Suzanne Robertson and James Robertson, the London partners, are the creators of the Volere requirements process, which includes the popular Volere requirements specification template. James and Suzanne's seminars and consulting assignments have helped organizations around the world improve their discovery and communication of requirements. The Robertsons are coauthors of *Mastering the Requirements Process, Requirements-Led Project Management*, and *Complete Systems Analysis*.

Steve McMenamin is vice president of engineering at Borland Software, where he leads development teams building several of Borland's Open Application Lifecycle Management products. Before joining Borland, Steve held executive positions at BEA Systems, Crossgain Corp., and Edison International.

Tim Lister works out of the Guild's New York office. He spends his time helping systems organizations become more effective with what they have. He is a self-proclaimed risk-management zealot who believes that it's all about risk and reward, and that productivity and quality are meaningless unless put into the risk/reward context. Tim is coauthor with Tom DeMarco of *Peopleware* and *Waltzing With Bears*.

Peter Hruschka, based in Aachen, Germany, specializes in requirements and design of embedded real-time systems. He is the codeveloper of the ARC42 template for system architecture documentation. In one of his earlier lives, he pioneered modeling tools for structured and object-oriented methods. He has coauthored half-a-dozen books on methods and tools.

Tom DeMarco is the author or coauthor of twelve books, and a consultant specializing in project success and, sometimes, project failure (litigation). His nontechnical publications include a mainstream novel and a short story collection, and he is presently at work on a history. He lives with his wife and lifelong partner, Sally O. Smyth, in Camden, Maine.

BEHAVIORS THAT MAKE YOUR PROJECTS Wonderful or Awful or Frustrating or Satisfying or Successful or Doomed

Project behavior patterns are clues to understanding what otherwise can only be mysterious. This book is a starter kit to help you make sense of the human element in group endeavors. If you do project work, you need to know about:

- Project Sluts—managers who can't say no
- Soviet Style—building the product no one can love
- Hidden Beauty—an ethic that drives great developers
- News Improvement—status gets rosier as it rises in the organization
- Dead Fish—learning to appreciate project odor
- Seelenverwandtschaft (you'll just have to read the book) and many more

"Another masterpiece from the folks who brought you *Peopleware*. Anyone who has survived a software project or two will surely recognize many of these patterns and will be able to learn from most of them. *Adrenaline Junkies and Template Zombies* is a real joy."

—Joel Spolsky, author of Joel on Software

"A remarkably compelling book that captures with vignette, anecdote and history, both the anthropology and sociology of software project dysfunction. There is the knowing and weary but not-yet-cynical voice of experience that will make project leaders, managers and participants flinch and wince with recognition." —*Michael Schrage, MIT Media Lab*



The principals of the Atlantic Systems Guild—authors of *Mastering the Requirements Process, Waltzing with Bears, The Deadline, Essential Systems Analysis, Peopleware* and many more—have distilled their observations on hundreds of projects to identify the behavior patterns that help and the ones that hurt.



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