

# Chapter 1

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# Introduction

*When designed properly, process programs can drive the business forward by operationalizing the mission and goals of the organization. It can serve to articulate—through structured expectations—the organization’s goals, placing importance on processes that help the organization achieve these goals.*

**John Cline**, CEO of eTrials, Inc.

Data management for clinical drug trials

A few years back I was consulting with a company called Impetus<sup>1</sup> in a northwest suburb of Atlanta. Impetus produced asset management software for manufacturers in capital-intensive industries: oil refineries, power plants, pulp and paper mills, and so on. I was brought in to help establish a process management program based on CMMI. The company was having a hard time getting its software releases out the door on time and intact. As a consequence, its market position was suffering. Management thought the introduction of internal workflow controls might help. CMMI looked like it might hold some keys.

When I came into the company, the first two operational areas I began to look at were Project Planning and Project Monitoring & Control, two

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1. The case studies presented in this chapter are accurate; names of companies and people have been changed.

core CMMI Process Areas. I figured that whatever the release problems might be, they would probably at least evidence themselves in one of these two realms.

As part of my initial investigation, I interviewed the software group's project managers, including a bright, energetic guy named Brick Weathers. Brick had been with the company about three years and was managing the 5.5 release, one of the releases that appeared to be going well. I thought if I could find out what his secret was, maybe we could institutionalize that for the other teams.

Brick did not hesitate to tell me what his secret was—once I confirmed that I'd keep the source confidential. Right off the bat, he admitted it was not an intuitive aptitude for dealing with people. And it was not a heightened attention to administrative detail. Here was his secret to success:

Always maintain three versions of the project schedule.

Make sure the one you give to management says everything's on track. Make sure the one you give to your project team says everything's off track, so pick up the pace. And the third one, well, make sure that one's real because that's the one you manage by.

So that was Brick's methodology for managing project schedules. However, it was not one I was going to propose we set up as company policy.

As it turned out, the 5.5 release was in just as much trouble as all the others. Brick's approach simply forestalled attention to the release until it had reached a crisis pitch. Then his team got every resource the company could muster.

In fact, that was the way everyone at Impetus managed projects. Brick's secret actually had been institutionalized; it was just a secret institutionalization. The philosophy was this: Avoid pressure, negotiation, and accountability by avoiding the spotlight; then once the whole company was in the same boat as you, plea for patriotic support.

Another case comes to mind. Two years ago I was contracted by a commercial software development shop called SoftMil. SoftMil was owned by a much larger corporation called SystemAmerica (SA), which dealt a lot with U.S. Department of Defense agencies. SA wanted SoftMil to

achieve CMMI Maturity Level 3 so that SA could bid on lucrative defense contracts. My job was to get the program in place, exercise it across a series of internal projects, and then arrange for a formal company-wide appraisal.

Beginning pretty much from scratch, we were able to build the program over a series of months, and a pretty good program at that. But when it came time to begin using it, I began to get conflicting messages from the project management office. This office was directed by a fellow named Mike McScottle, a guy with “PMP” stamped prominently on his business card. Mike administered the assignment of project managers and facilitated that reporting chain up through executive management. The point of contention was that Mike’s project managers were not deploying the process program to new projects. I went to see him about this. Had we misdesigned things? No. Were the right assets not ready? No. Well, then what?

Mike said it was simply a timing issue. He explained that he assigned particular project managers to particular customer projects with the right personality mix in mind, with sensitivity to the project manager’s individual approach. To mess with that now by introducing new methods and procedures would jeopardize project equilibrium. He wanted to wait for the right time to roll the program out, a time when the right “client-culture mix” came along.

Now, I am not sure I know exactly what a client-culture mix is, but at the time it didn’t sound like “we’ll do it” to me. Needless to say, the Level 3 program stalled in the hands of people who did not want to learn it or use it. Last I heard, SoftMil had abandoned its process initiative altogether and the company, having lost most of its project business, supported itself mainly through staff augmentation. SA shifted its CMMI directive to another internal division.

In the field of technology development, an organization’s ability to successfully manage its project work is an indication of its overall ability to successfully manage itself. Today we have the skilled resources and tools we need to develop and deploy the most sophisticated of technology systems. Technical innovation and complexity are no longer the impediments to achievement they once were. More and more, the emerging differentiator is management: management at the strategic level, at the program level, and perhaps most essentially, at the project level.

When you look at it in a pure light, almost all organizational success comes from project success—because almost all organizational work is organized into project initiatives. That’s true for just about all of corporate America, not just technology shops. But this trait has a tendency to carry more and more weight in technology shops because today’s technology projects carry the full weight of the business mission on their shoulders.

And so it’s important today for technology shops to embrace the proper form and function of project management, to view it as an essential component to a responsive and accountable management program, and to ensure that competent project management skills and practices are in place in the shop.

That brings us to the topic of process. The terms *process*, *process improvement*, and *process management* are being tossed around a lot these days in discussions of management and organizational efficiencies. But many times the rhetoric has little push behind it. Many of the executives and managers I know have an intuitive appreciation for process and its relationship to sound operations, but their practical understandings—and often their practical experiences—bring out concerns of overhead, inflexibility, and uncertain investment. Process seems by default to be heavy to them. That’s an improper perception, and it’s one I deal with continually in my practice as a process consultant.

The important point is that process does not have to be heavy, and it does not have to stiffen an organization. It need not require a large investment (although it will require some kind of investment), and it need not add a layer of overhead to a company’s layout.

That’s what process does not have to be. What it should be is a carrier of corporate values.

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## Project Management as Value Management

Look at any successful company and you’ll see a distinct, discrete, and tangible corporate culture. Many companies that fail, that fade from the market scene, do so because they were not able to determine who they were within that market; they could not solidify an image of what they

were focused on or what they brought to the table. Successful companies invariably achieve identity, focus, and purpose—big success or small success.

Culture is a strong force in any company. It may be the strongest force. It's the shape of the organization, the conduct and habits of its people. It's the way we do things around here. But it is also pretty much invisible. You always feel culture, but you don't always see it. Process can be seen as a very real and visible extension of culture. It is culture on paper. It is culture you can see, manage, measure, bend, and improve.

The view that culture is itself process is not a common one, even among process people. But it is true. Culture is a pattern for behavior; it governs action, it directs energies, it carries the unspoken rules of the workplace. When you create a well-designed process program to manage certain aspects of your operations, all those things should hold true as well. Process needs to mirror the culture because the ultimate goal of any process is to promote the culture, to help it succeed.

I don't think any experienced, considerate manager would negate the value of culture within an organization. They might wish to *change* some aspects of it, but I doubt they'd want it removed altogether. Culture is generally viewed as a positive force.<sup>2</sup> Yet many of those same managers flinch at the idea of process. I think they would flinch less if they simply equated process with cultural value.

Any process is a carrier of value. Here's a quick example. Every morning I drive to the office. I leave at a regular time. I follow a regular route. I follow this process because it has been shown over time to get me to work in a pretty efficient way by minimizing congestion, stoplights, and so on. That reflects what's valuable to me: I want to get to the office at a certain time every morning; I don't like idling on busy thoroughfares. Someone else with different values might take a different route. For example, a person might take a longer way, following the school bus because his or her daughter is on board.

The same approach should be evident in a project planning process or a requirements management process or a status reporting process. The steps in those processes should promote activities that are beneficial to

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2. Except, of course, in highly dysfunctional organizations, where negative cultures can corrode even the most talented and dynamic of groups.

the mission of the organization. They should help realize organizational value. Process for the sake of process is no good to anyone. Process linked to cultural value is usually good for everyone.

Recently I was speaking with John Cline, the founder and CEO of eTrials, Inc. eTrials builds and markets products and services that help pharmaceutical companies manage the mountains of data that must be collected, analyzed, and interpreted during clinical drug trials.

Like most entrepreneurs, John started eTrials on a run-and-gun basis, doing everything and anything he could to keep the company growing and viable. Not surprisingly, in those early days eTrials had little use for formal process. But within a few years the company assumed a firm spot in its marketplace. Growth continued, and John was able to take the company public. Over time, process became more and more important to eTrials. When I spoke with him, he reinforced this idea of process as a carrier of culture. In his words:

When designed properly, process programs can drive the business forward by operationalizing the mission and goals of the organization. It can serve to articulate—through structured expectations—the organization’s goals, placing importance on processes that help the organization achieve these goals.

The phrase I like in that comment is “structured expectations.” That’s a great way to define what process can be. It’s a way to formally define what is expected in terms of activity, communications, and output—expectations that reflect standards for quality, performance, and accountability. Because eTrials serves a heavily regulated industry, it developed an innate appreciation for process—and not process conducted solely to exert control over employees. John notes that that approach “has the potential to minimize creativity and individual initiative, which is never good for an organization.” That’s a tip I’d like to share with everyone thinking about embarking on a process program of any kind. For eTrials, process has become a way to promote and protect not only its own missions but also those of its pharmaceutical clients and industry regulatory bodies.

Everything we have mentioned to this point complements the realm of project management. Project management shares this trait with process

management: Its job is to fulfill the mission of the organization. Well-functioning project management will reflect the culture just as process management does. Those elements of project work being managed are those things that the company holds important. In some shops, budget might take precedence over schedule. In others, resource levels might be the key focus. For others, it might be scope. And so, while project management should be recognized as an independent discipline in the fields of management science and organizational design, it should not operate as an independent discipline.

Some disciplines need to operate independently of the organizational mission. Accountants are bound to use generally accepted accounting principles whether the company is crazy about them or not. Rocket scientists honor Galilean trajectory curves no matter what the culture at large thinks about Galileo. But that's not true when it comes to project management. Project management that is not anchored in corporate values or to the corporate mission becomes management by personal preference. Whatever it is that's important to the individual project manager—scope, schedule, cash—will receive the bulk of management energy. That's fine as long as the project manager happens to be in sync with corporate goals; but happenstance is no way to run a business.

That's why project management and process (both process management and process improvement) have a true affinity for each other. When you link project management to a process program born out of the organization's culture, you end with a view of project management as value management. Through established policies, procedures, and workflows, project management helps the organization reach success according to the organization's own definition. And that may well be the best kind of project management program to have.

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## Visible Management through Process

The theme of this book is that technology shops will be able to plan and run development projects more effectively when they base their approach to project management in process. That approach works best when supported by three tactics.

1. Process should be shaped to promote corporate values.
2. Process should be only as heavy as it needs to be—and often enough that is light.
3. Process should be shaped to make progress visible.

We've already touched on points 1 and 2. Now let's take a quick look at point 3.

Brick Weathers at Impetus was what I call a black-box project manager. He preferred to work on the inside, keeping the details out of sight of anybody who might make independent decisions or draw independent conclusions from the data. He operated on the "Trust me, I know what's best" principle. Maybe he believed that really was the way to manage. Maybe he did it because his managers provided no other options. Whatever the reason, there are plenty more project managers out there just like Brick. They feel that any other approach constitutes micromanagement and so should be avoided. They believe that successful project management begins and ends with talented project managers.

That brings us to a subtheme of this book. In the following chapters, we'll look at how process can aid project management. More specifically, we'll look at how the Capability Maturity Model, the well-known process improvement framework from the Software Engineering Institute, can be used to build an effective project management program. And on top of that, we'll look at how project management standards such as the Project Management Body of Knowledge (PMBOK) from the Project Management Institute (PMI) can find full and powerful expression in programs based on CMMI. The purpose of the PMI's PMBOK is to prepare project managers to manage with eyes wide open, with an understanding of a project's dimensions, dynamics, tethers, and interactions. Because the PMBOK can prepare a project manager to manage to professional standards, that helps create a talented individual. Given the choice between a reckless company staffed by reckless project managers and a reckless company staffed by conscientious PMPs, I'd take the latter every time.

But even the best of project managers, the most talented, the most gifted, will stumble without organizational support. And I don't mean the kind of support that says, if you fall, we'll pick you up. I mean the

kind designed to prevent falls. Project management, like any other kind of management, operates best when it operates from a framework. Sales management uses territories, quotas, contact sheets, and call reports. Human resource management uses regulations, policies, reviews, and assessments. The common trait here is visibility. Sales do not happen inside a black box. Human resource management is not a company secret. The procedures these managers follow allow each to operate in a visible way, a way that allows for accountability, measurement, and when needed, course correction. That's the value of process with regard to project management. Even the most knowledgeable PMP may find it hard to manage in an unordered environment. Maybe that's why many project managers go "underground." But it should not be that way.

Process is a tool that can be used to bring visibility to project management activities. It can be used both to light the way and to illuminate the current position. This concept of visibility is important in any development shop, in any operational environment. eTrials uses process to bring visibility to each of its key operating areas. Here's John Cline again:

Data and ensuring its integrity is the most important artifact of our software and services. We have policies, procedures and technology to assist us in managing customer data: who uses and accesses it. The quality assurance team, in working with the organization, ensures that our standard operating procedures (SOPs) meet regulatory requirements and that our employees fully understand our policies surrounding clinical data use and access. In addition, we employ technology to manage and audit our data use. It's a permission-and-role-based system that is fully auditable.

One of the main missions of project management is to keep project activities moving within a set of predefined bounds. Another is to communicate to others how this mission is going. With process—with structured expectations in place to support these two—activities and status become visible. They become visible through recognized plans, reporting forms, measurements, progress analyses, milestone meetings, and so on.

A good process, for whatever purpose you have in mind, is typically defined using the information shown in Table 1–1.

Notice the bent toward visibility here. Use is stated. Responsibility is defined. Explicit conditions are described. Work products are specified. Measures are stated. All of these elements provide two things to a project initiative.

1. They standardize project externals. That is, they identify tangibles that should appear at certain points in project progress.
2. They establish a threshold of acceptable performance.

Through this approach, project management based in process makes progress visible. It takes the practice out of the black box, and safely out of the black box, by using an alternative methodology that should prove more conducive to management, more open to analysis and input, and more amenable to predictable outcomes. In short, one better oriented to success.

**Table 1–1:** *The Structure of a Well-Designed Process*

<i>Purpose</i>	<i>The objective of the process</i>
Actors	The roles needed to perform the activities of the process
Entry criteria	Conditions that need to be in place before the process activities can begin
Inputs	Documents or products that need to be in place or referenced before the process activities can begin
Steps	The step-by-step sequence of the process
Output	Documents or products to be produced by process activities
Exit criteria	The condition(s) that will exist once the process is completed
Measures	Any measures that need to be collected once the process is completed

Here's another case story from an e-company. A Web-based discount brokerage was having an internal performance problem.<sup>3</sup> The company's software projects were routinely running six to eight weeks over schedule. That drag was causing delays in product and service rollouts and was showing up as a distinct marker on the company's bottom line. To address this problem, and in conjunction with the company's overall focus on quality, the company set into place a process improvement program based on CMMI. It took a few operating quarters to get the program in place. The managers targeted CMMI Maturity Level 2 as their goal and worked on seven distinct areas of technology development, including project planning and project tracking.

Here's what they found. After the project teams had adapted to the new procedures and were operating comfortably with them, schedule slippage began to shrink. After three months in the new paradigm, most schedules averaged less than two weeks behind schedule. The problem didn't go away, but the situation had dramatically improved. And best of all, company teams have been able to sustain this efficiency increase over time, meaning that their new processes really do help project management performance.

The full title of this book is *Project Management Success with CMMI®: Seven CMMI Process Areas*. These seven process areas, often associated with CMMI Maturity Level 2, represent a particular slice of CMMI. It centers on seven areas that invariably play a part in project success: planning, tracking, managing requirements, managing configuration, managing suppliers, measuring progress, and auditing for quality control. For each of these areas, CMMI defines a set of goals that can be achieved by implementing a set of specific practices, practices that have been proven to work well over time in technology industries.

That's what we'll be looking at in this book—how you can interpret the practices described for CMMI Maturity Level 2 in such a way that you can then create processes to support them for your shop. Processes shaped to reflect what's valuable and important to your shop. Processes designed with the right degree of weight and flexibility.

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3. This case study comes from the course material "Introduction to CMMI" by the Software Engineering Institute (2007). Visit [www.sei.cmu.edu/products/courses/](http://www.sei.cmu.edu/products/courses/) for more information about courses.

Processes shaped to make tracking project progress open, visible, and accountable.

In the next chapter, we'll begin to assimilate the framework provided by the Capability Maturity Model with the traditional expectations of project management.