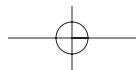
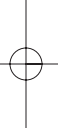
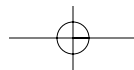
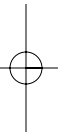
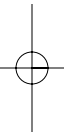
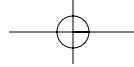


PART I

INTRODUCTION





CHAPTER 1

The Project-Driven Organization

Project management is a discipline that requires discipline.

The first use of the word *discipline* in the preceding sentence refers to the structured business system that is known as project management. This business system consists of people, processes, and politics. Some of these elements are documented; others, handed down from one generation to another, are informal.

The second use of *discipline* in the sentence suggests that there must be rigorous support of management. A buy-in of all the project players is needed to make project management successful within any organization. Only with this level of discipline can the processes be followed, the people be managed, and the politics, in the form of organizational structures, be positioned correctly.

This book looks at both the discipline of project management and the discipline needed to make project management a viable and applicable business system.

CHAPTER AND BOOK OVERVIEW

This chapter introduces the concepts, benefits, expectations, processes, procedures, practices, tools, and terms that constitute the discipline of successful project management. All of the terms and processes introduced here are fully explored throughout this comprehensive book.

A substantial amount of scope and detail is condensed in these opening pages; they present an overall blueprint for success in project-driven organizations. First, we consider the evolution of traditional organizations into project-driven units. We compare types of organizational structures, including the multiproject environment. Then we examine the rationale and critical

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success factors of project-driven organizations. Product and project development processes or life cycles are then introduced and outlined in some detail. Other approaches to project management, and coverage of the evolving role of managers of projects complete the topics in Part I.

Part II explores the sociological or people-oriented aspects of succeeding in project-driven organizations: the roles, interactions, performance standards, and team dynamics of the project players. From the top down, those players include management and project clients; managers of projects; resource managers; project team members; and third-party vendors. In Part III, we study the processes of successful project management, from managing proposals, portfolios, planning, execution, and communications, to managing risks and then carefully bringing closure to the project effort. Part IV considers the political ramifications of project management and how to successfully fit the discipline into the corporate culture and create a sensible project management structure that matches the needs of an organization.

The book concludes with discussions of the measurements by which the success of project management can be evaluated. Practicing what is preached, each chapter is accompanied by practical performance support and assessment tools that readers can apply to their own unique environment. All of the Performance Support and Assessment Tools referenced in this book are available for download at www.pmsi-pm.com.

We begin by tracing the path to where we are.

EVOLUTION FROM A TRANSACTION-DRIVEN ORGANIZATION TO A PROJECT-DRIVEN ORGANIZATION

Many businesses have always been project-driven. Organizations dedicated to construction, high technology, and consumer products do projects exclusively. Construction companies build a single building or a complex of buildings. They create roads, lay pipelines, and dig tunnels. They plan, organize, and manage their work. High-technology companies are creating new hardware or software products. They too must plan, organize, and control their work. Similarly, consumer product companies are generating new products that range from cereal to bug spray or gloves. Each of these new products equates to a new project that must be planned, organized, and managed.

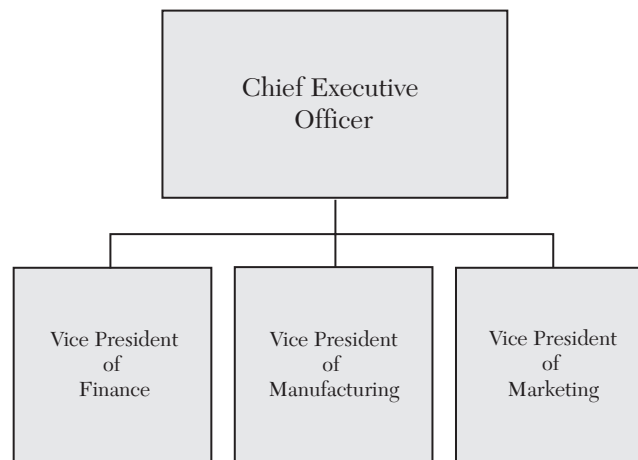
Service organizations and information companies have always been transaction-driven. For example, banks process checks, insurance companies process claims, hotels and airlines process reservations, and the

stock exchanges process buys and sells. These transaction-driven organizations have just recently recognized that in today's business world they are project-driven.

Processing transactions is a necessity that keeps these companies alive. They have been doing this basic processing for so long that it is no longer a challenge. But every time a new process is implemented, or a new system is installed, or a new product or service is introduced to the marketplace, a project is initiated. New projects keep these organizations growing and competitive in the marketplace.

As you can see in Figure 1.1, traditional organizational structures arrange a business into areas of similar expertise, such as finance, manufacturing, and marketing. The principal function of each area is to support a specific activity within the business. Finance supports the planning and management of funds; manufacturing assembles the product; marketing sells the product; and so on. However, the projects that help these organizations to grow require input, support, and buy-in from many functional departments simultaneously. The traditional organizational structure does *not* support projects that cross many functional lines and require contributions from various functional groups. The traditional structure fosters silos or "stovepipes" that are empires in and of themselves. Think of them as serfdoms that have surrounded their town with a moat. People are allowed in only if someone lets

Figure 1.1 Traditional Organizational Chart



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down the drawbridge and invites them in. The rulers are generally so concerned about maintaining their own serfdoms that they have no time to consider other serfdoms' concerns, interests, and projects.

The chain-of-command rule is a classic management philosophy. For many years, it was suggested that each employee should have one boss, and only one boss, as the responsibility is delegated down the chain of command. With the advent of project-driven organizations and project organizational structures, this chain-of-command rule was negated. Project organizations imply that the project team members, and even the manager of the project, have multiple bosses.

Let's consider an example. The branch personnel officer who is helping to install a new product line for the customer may have two bosses: (1) the manager at the branch where he or she works, and (2) the manager of the project at corporate headquarters—the person who is coordinating the rollout of the new service.

Project management has the advantage of open communication links and better utilization of human resources. However, working within a project confers the inherent frustration of having to contend with two bosses, not to mention the questionable level of authority that is sometimes vested in the manager of the project.

Most projects cannot be performed within the confines of the functional department. They require a project-driven organization—one that can support the interdepartmental involvement of team members from widely varied disciplines.

WHAT IS A PROJECT?

A project is the organized development of an end-product. If the focus is on the end-product, that discipline is product management. If the focus is on being organized, that discipline is project management.

A project is also a discernible effort that has a discrete beginning, a discrete end, and a discrete deliverable. It is not a routine, repetitive transaction-driven effort, such as producing cars off an assembly line or processing invoices through an Accounts Payable department. However, retooling the line that manufactures those cars, or automating the Accounts Payable system, would be considered a project.

To be more specific, the basic criteria for work that lend themselves to project management are:

- A *well-defined deliverable* that is neither vague nor ambiguous documented in a scope definition or statement of work.
- A *collection of activities* that will culminate in the end-product. These activities will be documented in a to-do list called a work breakdown structure (WBS). This list of work activities also designates who will be responsible for producing the deliverables from each activity.
- *Activities with start and finish points*. The finish points represent specific deliverables that have a measurable standard of performance criteria. Time and cost estimates are made for each of these activities. “I don’t know how long it will take” or “I don’t know how many iterations are required” are unacceptable. A best guess is required.
- *Activities that can be ordered*. Certain activities must be conducted serially, or in sequence. Others can go on in parallel, or simultaneously. The sequence is documented in a network and/or a schedule chart.

Projects may originate from the top of an organization, as a result of the strategic planning process. They may also come from the bottom; an individual or a group may initiate a project because of a belief that it will add organizational value in some way. Some projects are initiated externally by a customer or a client. Let’s look at how each type is related to project management.

- *Strategic projects*. Top-down projects are business initiatives that have already been assigned high priority, having been identified through a high-level management process that support the long-range strategic plan.
- *Bottom-up projects*. Many good ideas are generated from the people who work in the trenches. If the folks doing the day-to-day operational work do not have a forum *and* a process for putting forward their suggestions, either they will not be motivated to make things better within the organization, or they might proceed informally with no approval.
- *External projects*. A third possible category of projects are derived from external sources; for example, a Request for Proposal (RFP) may be received from a potential customer or client.

Whether organizations have been project-oriented for their entire history or are transaction-oriented and are simply converting to a project-driven style, organizations have one thing in common: They must deal with multiple projects simultaneously. Let’s consider the issues surrounding working in a multiproject environment.

A MULTIPROJECT ENVIRONMENT

The words “managing projects in an organization” can bring fear into some souls. It means juggling more than one ball at a time, and that feat is even more difficult in an organizational environment where the manager of the project typically does not have official authority. No matter how good the juggler, he or she occasionally will drop a ball. The job requires not dropping too many too often. When one is dropped, it must be picked up quickly, so that as few people as possible will notice.

The existence of multiple projects in an organization forms a system, much like a galaxy of stars, and planets. These celestial objects are related to one another because they occupy the same universe at the same time. If one of them goes off course or if it collides with another orbiting object, the impact will reorder the scheme of things—even if no serious damage is done. In a similar way, multiple projects exist precariously within a business environment. Each project rotates in its own orbit and is fine as long as there are no collisions with any other projects. Thus, this galaxy of projects does or does not work together because there is order within the larger scheme. In a multiproject environment, the job of a project-driven organization is to keep order within the scheme of things. How can this be done?

Multiple projects come in a variety of shapes and forms. The simplest variation is a large program composed of several smaller projects. The program has a single business objective, and all the individual projects contribute to that end-goal. This type of multiproject management situation has a known focal point, and there are reasonably obvious interfaces. However, when the manager of the project is asked to manage multiple *unrelated* projects, the effort becomes much more difficult. Often, the resources required by these multiple unrelated projects are located in different geographic areas and different time zones, and are conducted within different cultures. The effort to manage and coordinate these projects rises almost beyond the capability of any one human being.

Various factors make managing multiple projects different from managing a single project. Handling only one project allows a singleness of purpose; a sole objective is to be reached. A defined resource pool and a select reporting mechanism focus on one to-do list, the work breakdown structure (WBS). In a multiproject environment, the changes are significant. Each project has its own purpose, its own objective. Resources are drawn from a myriad of functional areas; some originate from the same departments and some do not. Each project requires planning, monitoring, and tracking,

which, in turn, necessitates an individual report reflecting the status of a unique series of activities.

Strategies for Managing Multiple Projects

Does the manager of the project approach multiple projects differently? Yes, very differently. The following list illustrates the differences in the project environment and in how the manager of the project must act when dealing with multiple projects.

Focusing on Efficiency

In a single-project world, efficiency is important. In a multiproject environment, there simply is no room for wasted time or misplaced energy.

Focusing on Long-Term and Short-Term Goals

A manager of a single project might be able to survive by managing predictable events that will occur one or two weeks in the future. A manager of multiple projects, however, must be able to anticipate events occurring over a longer term, and to gauge the achievement of the long- as well as the short-term goals.

Responding Proactively rather than Reactively

The focus of a single-project environment allows some reactive responses. But managing many projects, especially if long-term management is required, necessitates proactive project management skills, such as providing long lead time to request and acquire resources.

Considering Broader Organizational Issues

Inevitably, multiple projects extend their tentacles into more areas and encounter more political potholes. The manager of the project must be sensitive to the potential problems in these extended team relationships.

Introducing Greater Consistency and Communication of Decisions

A multiproject environment deals with changing priorities, unexpected contingencies, and greater political implications which cause project team members to describe the manager of the project as being inconsistent, erratic, and even irrational. The manager of the project must work at being as consistent as possible. This requires communicating decisions quickly, clearly, and with explanations.

Balancing Flexibility and Stability

A multiproject environment requires a balance between flexibility—successfully meeting the inevitable changes in the projects themselves—and stability—connoting control to the project client, the functional manager, and the project team members.

Practicing Greater Delegation

In a single-project environment, the manager of the project often can do much of the work. In a multiproject world, the manager of the project is forced to fulfill that title in the truest sense and cannot afford to get too embroiled in actually doing the tasks.

Competing, Sometimes against Oneself

Each project requires resources: people, and, possibly, equipment and materials. The resource pools are limited. The manager of the project often competes for the same constrained resource pool (labor, equipment, and materials) that supplies all the other projects within the organization. A manager of multiple projects may require support for each project from the same resource pool, which means competing with himself or herself for the same resources.

To work in this project-driven environment, managers must understand the rationale for its existence and be able to “sell” it to those around them.

RATIONALE FOR A PROJECT-DRIVEN ORGANIZATION

Managers who are attempting to sell the concept of a more structured project management approach to their corporate management and/or their customers should read this section very carefully.

Management, in the literal sense, includes those who manage resources to accomplish a specific purpose. Individuals in management roles often have dual motivations: (1) to do business in the most efficient, effective, and productive manner possible; and (2) to get a quality job done as quickly as possible and for the least amount of money. If the environmental culture in which management works gives the second motivation a higher priority than the first, then, even with the best of intentions, it will be difficult for management to buy into a process such as project management. When the focus is exclusively or primarily on maximum speed and economy, project management can appear to add tremendous overhead in time and resources, without an obvious immediate return on investment (ROI).

A *customer* is someone who buys something from someone else. In the project management world, the customer is referred to as the *project client*. An internal or external project client may buy the deliverable(s) produced from a project process. Whether a project client is internal or external, he or she has one motivation: To get the highest-quality deliverable, as quickly as possible, for the least amount of money. This is often where management gets a second push back. Because of the time, expense, and quality motivation, project clients cannot easily buy into a process that appears to add overhead and therefore might slow down their job.

Project practitioners are often asked: “Can you give me some arguments that will convince my management/customer that project management is the way to go?” Or: “I’ve been assigned to implement project management in my firm and have been asked to prepare an executive briefing. Do you have any *sell* terms that will get management to buy in?”

The answer is *Yes*. This section presents a cogent series of defensible arguments that help sell project management, and interjects some expected rebuttals from the ever-present resident cynic. To sell, one must understand what the customer is buying. Revlon representatives are noted for stating, for instance, that they are not selling cosmetics; they are selling hope. What are project practitioners selling?

Because bosses/customers do not like surprises, perhaps the most appropriate term to describe the advantages of project management would be *reassurance*; business reassurance. Planning and controlling are integral parts of project management, and, by definition, they reduce the risk factors of dealing in a rapidly changing environment.

Today’s changing environment is asking each manager of projects to plan, monitor, track, and manage schedules, resources, costs, and quality. The project management process provides the tools and orchestrates the environment in which those variables can be managed in the most professional manner possible. Let’s see how this is accomplished.

A typical project discipline ensures that the following benefits exist. A concise yet definitive project scope statement is generated, and it details the specific project deliverables and outcomes expected from the project, as voiced by the project client. A work breakdown structure (WBS) is also prepared, enumerating a thorough to-do list of the activities to be performed. These two efforts reduce the risk of misunderstandings or omissions. Of necessity, the project client participates in the process via a project team organization. This ensures the beginning of a partnering relationship through good communication.

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The schedules, project budget, and quality/defect reports inherently position checkpoints for reevaluation. These status-reporting tools also offer communication and keep all interested parties informed of progress. Quality and control, plus the involvement and commitment of all project players, are built in through this monitoring, tracking, and reporting process.

Because the tracking process reveals deviations from the plan in the early stages, management is provided with sufficient lead time to weigh the ingredients of quality, cost, and time, and to make decisions that will ensure reaching the original goal—or, if necessary, a satisfactory alternative. As a substitute for panic (the *What-do-I-do-now?* syndrome), this early-warning system or proactive management mitigates the more drastic actions that might be required later, if the project were to get into management by crisis.

A by-product of the efforts described above is the creation of a history or metrics base of future planning. The WBS template, network model, and estimating base all create a springboard from which to generate a faster and more accurate plan for the next project. These normalized history bases go beyond scar tissue and provide a prototype plan for future similar projects.

As a corollary benefit to this process, if the manager of the project or any team member leaves the team, documentation is in place to continue business as usual for the project. Documentation and team organization offer the best failsafe or contingency plan for these inevitable changes.

Among the intangible benefits of project management are the experience and professional development that the project team achieves by working in a cross-functional team environment. Growth and development are gained from exposure to the various disciplines represented by subject-matter experts from different parts of the organization. Networking is established, synergy is heightened, and *esprit de corps* is encouraged. Because primary and secondary responsibilities are assigned for the completion of each task, roles are clear, accountability is understood, and staff members are groomed to grow within the organization.

Our resident cynic stated: “But what about all the additional paperwork, time, and structure imposed by project management?” None of these negative conditions needs to occur in a well-implemented project environment. With (1) the implementation of a project management process that presents a consistent way of doing project management, and (2) a project management organizational approach that supports doing project management business efficiently in each group’s culture, the environment is positioned to accept and support the project management discipline.

The principal disadvantages of project management may be listed under the heading of approach: unclear, inconsistent, and disorganized. Serious

thought, effort, and orientation preceding the implementation of the project management process can negate any of a cynic's negative observations.

This is the goal that motivates both our management and our project clients: to get a quality job done as quickly as possible for the least amount of money. The project management process helps that motivation; it does not hinder it. The time and effort invested in planning and organizing the project before it begins will offset the time it would take to rework, replan, and renegotiate once the project is under way. During the project, early warning signals allow us to reevaluate and respond in a sensible and professional manner. When the project is over, we have in place the mechanisms needed to become a true learning organization—we can learn from our successes and failures and archive these lessons so that others can take advantage of our experiences. Furthermore, cross-functional teams can be formed and reformed to take the best advantage of the resource pool at our disposal. In a cross-functional team environment, the project succeeds and so do the people who participate in it. They learn, grow, and become more productive for themselves and for the organization as a whole.

The key “sell” factors of project management are:

- Communication
- Quality and Control
- Risk Reduction
- Proactive Management
- Involvement, Commitment, Buy-In
- History Bases for Future Projects
- Failsafe Contingency Planning
- Staff Development
- Accountability
- Assurance

At the end of this chapter is Performance Support Tool 1.1, “Selling Project Management to Management/Customer.” Review this list and check off those benefits that you think will help you “sell” project management in your project community.

CRITICAL SUCCESS FACTORS

An effective project management discipline is reliant on these five components:

1. Awareness
2. Organization

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3. Processes
4. Tools
5. Education

Let's look at each one separately. We will first describe the component more clearly and then define the steps necessary to implement that component within a project environment.

Awareness

The discipline of project management succeeds if there is an awareness of: the rudiments of the discipline, the benefits that the discipline brings to the organization, and management's expectations of project management as they relate to other disciplines at work in the organization.

To ensure awareness, the following steps need to be taken.

Synthesize Management's Vision

Management must articulate a vision for project management within the organization. Is project management merely a data-gathering function that is necessary to disseminate the status of stand-alone work efforts that are under way? Or is project management the mandated mode by which all non-operational work is going to be conducted? There is quite a difference.

Disseminate Management's Vision

After management has solidified the role that project management will play in the organization, this vision must be documented and disseminated to everyone who has a need to know. This can be done at a massive meeting; or by functional managers of operational departments, during weekly staff meetings; or via an executive memo, an internal newsletter, and/or a videotape playing in the cafeteria or auditorium.

Inspect the Discipline

A requirement of proof that the discipline is being used is the only way to ensure that project management is being applied consistently and correctly throughout the organization. Reports, scheduled status meetings, and surprise briefings are ways to keep people mindful of doing business using project management.

Maintain the Focus

With many initiatives, all goes well in the first few weeks or months after implementation, but the energy and focus dissipate after some period of time.

The last job in building awareness of project management is to keep the focus and energy alive. Refresher memos, awards, and recognition can reward good project work, and brown-bag lunches can be scheduled as a forum for continual growth and learning. This is a time to be creative, to keep awareness of project management from dying through neglect.

Organization

The organizational structures that support projects differ from the structures that support recurring day-to-day operational, transaction-driven efforts. Teams drive project management. Teams require a clear definition of the organizational structure in which they are expected to work. To define the company's unique organizational entity, take the following steps.

Reevaluate and Solidify the Correct Structure

Evaluate the current structure under which projects are performed, analyze its effectiveness, and reengineer (as necessary) the clustering of skill mixes, the reporting relationships, and the differentiation of operational responsibilities versus project responsibilities.

Clarify Accountability and Authority

This step is crucial. Mistakes are made not because people are unwilling to buy into the project management discipline but because they are unsure of precisely what they will be held accountable for and, specifically, what authority they have to meet their accountabilities.

Develop Job Descriptions

That which is not written down is not real; therefore, the project management roles, responsibilities, accountabilities, and authorities of each and every project player must be documented for all to see and follow.

Set Up Reward Systems

Reward systems should correlate to job descriptions and be both tangible and intangible. Tangible rewards take the form of salary increases and bonuses. Intangible rewards take the form of recognition and additional challenge.

Position a Performance Management System

Each person deserves a tentative roadmap that shows where current performance is going, what goals are supposed to be reached, and what management is going to do to support the roadmap. Performance management consists of

job expectations, tangible metrics that indicate success, and specific advancement potentials if these metrics are attained.

Processes

Project management is directed and facilitated by processes that codify how the project work is to be performed. Two major processes support project management: (1) the *product development process or life cycle* (how to create the deliverable from the project), and (2) the *project management process or life cycle* (how to plan and control the product development process). Let's explore both of these processes.

Establish a Product Development Process

This process delineates project tasks, their associated deliverables, and the responsible parties. A unique detailed task list is produced for the development of each product. The development process for a software product might include: perform feasibility study, generate requirements, program, test, and install. The product development life cycle for an advertising campaign might be: conduct market survey, correlate data, prepare artwork, test market, and roll out. The product development process identifies the actual and unique work efforts that are required to move the project from start to finish.

Establish a Project Management Process

These possible processes provide the standards and procedures that aid in the management of the product development process described above. The project management processes include some or all the following: proposal management, portfolio management, planning, execution, communications, risk management, and closeout. All these processes are integrated within the product life cycle discussed earlier. The chosen project management scheduling and tracking tools are discussed in the next section. Life cycles are further explored later in this chapter.

Part III, "Processes," gives more information on the project management processes.

Tools

When we talk about tools, we are often referring to automated software tools. Typical off-the-shelf scheduling software can be modified to integrate the product development process and the project management processes, including forms, guidelines, and the archiving of historical metrics. The following

steps should be taken to enable this component of the project management discipline.

Standardize to a Tool

One tool, one reporting portfolio, one communication vehicle allows all parties to be comparing apples to apples and to be speaking the same language. It is strongly recommended that only one tool be used (or two tools, a micro and a macro, which import and export data between them).

Integrate the Product Development Process in the Tool

Enter the detailed product developmental tasks into the tool, and make this template of the WBS the mandatory starting point for all new projects.

Integrate the Project Management Processes (Including Forms) into the Tool

Customize the tool (to the degree possible) to provide guidance and reminders of the project management processes. Utilize the tool as the repository for all the information concerning each and every project.

Standardize Report Outputs

One size of report does not fit all; however, a standardized series of reports designed for specific audiences will ensure consistent and meaningful communication.

Expand to a Suite of Software

Often, the scheduling tool alone is not adequate for the company's enterprisewide requirements or for its information needs. Therefore, as your last step in building the tool component, consider and implement add-on pieces of software that will create a complete, automated project management system.

Education

Project management requires that the project players possess its unique set of competencies, which are learned in and outside of the classroom. Education offers the correct skill via the correct mode at the correct time. Here are the steps that must be provided.

Set Up Classroom Education

Determine whether classroom education is necessary, and, if so, what types of classes are appropriate. Classes include Project Management Principles of Planning and Control; application of specific processes (e.g., risk

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management or estimating), the Use of the Automated Tools, as well as Working in Teams.

Acquire Self-Study Education

Self-study computer-based or paper-based education is used as a review and reinforcement of the skills learned in the classroom or as an alternative mode when geography, timing, or budgets cannot justify classroom education.

Enable Performance Support

Be sure that a mechanism is in place to ensure the transfer of skills back to the workplace. Skills transfer can be simple: Provide all the functional managers (or students) of the projects with a guidebook that gives directions for implementation. Skills transfer can also be sophisticated: Provide a software tool that allows students (in an automated environment back on the job) to immediately apply their skills and competencies through charts, graphs, checklists, and worksheets. Education is like a newly planted tree. It takes frequent attention immediately after the planting, and ongoing care throughout its life.

This section has put forth the critical success factors or enablers that need to be in place if project management is to be successful. First, an awareness of the position, benefits, and expectations of project management needs to be cultivated. Second, an appropriate organizational structure, including job descriptions, reward systems, and performance plans, needs to be established. Third, processes of product development *and* project management must be created so that everyone understands what is supposed to be done and how they are supposed to do it. The fourth component, tools, is optional. The correct tools should be given to the people who are accountable for performing the processes. Fifth and last, the players in this environment need to be educated in how project management relates to the organization, the processes, and the tools. Only then can they contribute to the success of each project and, more importantly, to the discipline as a whole.

Review your current project management discipline. Has your organization built each of these components? Has it taken each of the steps to ensure that project management is being built on a strong foundation?

LIFE CYCLES

The preceding section mentioned that the key features of the project management discipline are the two life cycles that provide the framework on

which the people, processes, and politics can be built. The first life cycle, the *product development process* or life cycle, describes how to create the deliverable from the project. This cycle delineates the tasks, their associated deliverables, and the responsible parties. It includes the actual and unique work efforts that are required to move the project from start to finish.

The second life cycle, the *project management process* or life cycle, maps out how to plan and control the product development process. The project management processes provide the standards and procedures that aid in managing the product development process.

Let's look more closely at both life cycles.

The Product Development Life Cycle

The product development life cycle focuses on the product or the deliverable that is to be produced by the project. This life cycle also includes tasks such as defining the specifications of the product, designing the product (a widget, a software system, a marketing campaign), managing the work to develop/produce the product, and at the end of the project evaluating the product and the lessons learned in its development.

There are 11 phases in a generic product's developmental life cycle:

1. Initiation Phase
2. Definition Phase
3. Macro/Conceptual Design Phase
4. Micro/Detailed Design Phase
5. Development Phase
6. Testing Phase
7. Quality Control Phase
8. Implementation Phase
9. Post-Project Review Phase (Closeout)
10. Production/Distribution Phase
11. End of Life

These phases are presented in sequential order, but a previous phase need not be completed before the next phase can begin. In reality, these phases overlap each other and should be envisioned that way. Several of the phases may be condensed into a single phase. For example, the testing and quality control phases could be consolidated. On the other hand, one phase could be broken into several other phases. For example, the macro/conceptual design phase could be divided into a phase that concentrates on the concept design and another that addresses the general or macro design.

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Phase 1: Initiation

The initiation phase creates a problem/opportunity statement that addresses the viability and feasibility of the product or service being considered. The objective of this phase is to investigate, analyze, and recommend whether a specific problem or opportunity is worthy of the required investment of time, resources, and dollars.

Phase 2: Definition

In this phase, the problem/opportunity statement is defined in greater detail. The requirements are translated into evaluation criteria that detail what is and is not wanted from the chosen solution. Alternative solutions are matched against the criteria, and a recommendation is determined. If there is a viable recommendation, the project is formally approved and prioritized. If a viable alternative is not found, the project is canceled.

Phase 3: Macro/Conceptual Design

This phase addresses the major conceptual design issues. It is important that all parties who will be required to develop the product/service or will be using the product are involved in this phase. The output describes the functionality and design criteria on which this deliverable will be built, from both a technical and a business perspective.

Phase 4: Micro/Detailed Design

This phase documents in detail the specifications required to develop the end-product. The specifications produced from this phase will be used to manufacture the product, to code the program, or to produce the marketing campaign in the ensuing development phase. At this point, the specifications are frozen. If there are to be any changes in the specifications, those changes will be processed through a change control system.

Phase 5: Development

The development phase details the steps to be taken by the project players (the director of manufacturing, the software programmer, and/or the product manager) who will be involved in the actual production of the product. The detailed specifications are translated into the deliverable/actual product.

Phase 6: Testing

In the testing phase, the product is tested to ensure that it meets the specifications developed in the previous phases.

Phase 7: Quality Control

The quality control phase is the final testing effort before the product or service is implemented/shipped. The activity in this phase extends beyond testing the technical functionality of the product. This phase also tests the documentation, functionality, and maintainability in a production/customer environment. The product is tested to ensure that it meets both the test criteria and its projected business/marketing requirements. This phase confirms whether the product will be reproducible and maintainable when the project is completed.

Phase 8: Implementation

In this phase, the transition from the project environment to the operational environment is completed. The product or service is now turned over to production.

Phase 9: Post-Project Review (Closeout)

The post-project review evaluates the immediate success of the project and the processes used to create the product. The product is evaluated to confirm that it has been implemented properly and is meeting functional requirements. The achievement of the process goals by the participants is reviewed and discussed with the purpose of rewarding success and discussing any reasons for failure. This is officially the end of the project but not of the product life cycle.

Phase 10: Production/Distribution

This phase might not be applicable to each type of product. This ongoing operational effort ensures that the product/service continues to be marketed, produced, maintained, and/or shipped.

Phase 11: End of Life

In this phase, the product/service is found to no longer be financially or competitively viable and is discontinued.

Now that we have looked at the product development life cycle, let's review how the project management life cycle plans, organizes, and controls the product life cycle.

The Project Management Life Cycle

A Project Management (PM) life cycle emphasizes the process used to manage a project rather than focusing on the creation or generation of the

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product. This life cycle is a generic process that is applicable in any industry and in any project-driven organization. The generic PM life cycle has four major phases: (1) the initiation and definition phase, which sets the objectives and scope of the project; (2) the planning phase, which establishes the baselines; (3) the execution (and controlling) phase, during which the plan is monitored, tracked, and revised, as necessary; and (4) the closeout phase. Let's look at each phase more closely.

The Initiation and Definition Phase

The life cycle begins when top management or the customer (i.e., project client) articulates a need. In conjunction with the manager of the project, the project client sets quantifiable project objectives. The following questions are answered: What is being requested? What is the scope of the effort? Why now? Why ever? In addition, time, resources, and costs may be estimated at a rough order of magnitude. If a thorough analysis is performed here, the project life cycle as well as the product life cycle is off to a good start.

The Planning Phase

Next, an integrated or more detailed project plan is developed. The quality of the product and the work effort to achieve it will be closely scrutinized. The specific tools needed to produce this plan are described next.

Because the project will be reduced to the lowest common denominator, the work breakdown structure (WBS) provides the most logical and manageable task structure. Network and Gantt (schedule) Charts are used to plan and control the work effort. Their format allows alternatives to be explored if the work effort must be compressed to meet tight deadlines. The Human Resource Matrix and Resource Loading Chart provide the media from which personnel assignments are developed, as well as a macro approach to overall corporate staffing strengths and weaknesses. These tools help determine, from a strategic and tactical viewpoint, whether the project is siphoning off too many skills that are required for day-to-day corporate operations, thereby diluting the staff necessary to meet daily needs. The project objectives are now detailed, to permit tracking the cost of the project/product against the perceived opportunities in the marketplace, or the value to the user of a product that will be utilized in-house.

Upon completion of the integrated project plan, a management review is conducted to evaluate the initial scope, costs, schedules, and resource allocation. This review provides the data needed to renegotiate the plan (if necessary) and to obtain final approval to proceed. This step in the life cycle sets

the baselines. From the conclusions and resulting reports developed through these efforts, final management approval of the detailed Project Plan may be secured, and work begins. (These planning tools are discussed in more detail in Chapter 8, "Project Planning.")

The Execution/Controlling Phase

Essential to the overall success of the generic approach is the implementation of a formal plan to monitor, track, and control work in progress. Through close monitoring of the progress of the project schedule, budget, and resource allocation requirements, future problems can be anticipated, analyzed, and resolved. When future developments are anticipated, roadblocks can be removed, and the information necessary to negotiate conflict resolution can be made available.

As work continues, periodic reports of progress must be generated to evaluate human resources, anticipate any need for schedule changes, foresee cost variances, and ensure conformance with quality standards. Each factor must be examined in depth and reviewed in context. Enlightened trade-offs may be created after necessary approvals are obtained. This information is recycled when the changes are substantial. Through the project management process, a modification of the integrated plan may be recommended. Typical recommendations to modify the plan are: reallocate resources, extend the time estimate, increase the funds allocated, modify the concept of the end-product, or phase in the segments of the end-product.

The Project Closeout Phase

When the end-product is completed, it is appropriate to perform a post-project review or an audit. This process evaluates actual time, total cost, and quality of the product. A significant benefit of the post-project audit is that management receives a precise comparison of the assets actually expended on the project and the amount that was estimated. Management should be informed of (1) the actual and the expected future impact of the project on annual recurring operating expenses and/or income, and (2) whether the paybacks or savings that were contemplated will be realized. This critique also addresses the quality of the product to ascertain whether additional work effort is required and/or justified.

The post-project review provides an opportunity to refine the project management process. A comparison of the plan to the actual facts gives the manager of the project documentation and information for assessing and perhaps improving his or her planning skills. The closeout phase provides critiques that offer managers of projects a substantive learning experience.

Deconstructing the project into the four-phase life cycle described above makes it easier to contemplate the tasks of project management. Each phase has a purpose. Each phase employs the knowledge and lessons learned in the previous phase. Each phase needs to be understood by the manager of the project, the team, and the project client. Only then can support of the project management effort be complete.

In summary, the life cycles both product development and project development are vital to the success of a project. The two are interdependent. Each begins with initiation and definition and ends with closeout.

THE ROLLING WAVE OR PHASED APPROACH TO PROJECT MANAGEMENT

How often, when you have been asked for estimates of the duration and cost of a project, have you given answers before you fully understood the scope of the effort? How often have you been correct? Although you were assured that your estimates need only be ballpark figures, how often were they set in concrete, never to change?

This section discusses how such a scenario develops, why this approach seldom works, and what can be done to structure a more realistic alternative. To address this issue, imagine that you are an expert mountain climber. You are standing at the bottom of an imposing mountain that you have never seen before. It is your job to climb to the peak of this mountain and to descend to the other side of its base. During the Initiation and Definition Phase of the Product/Project Life Cycles, the person who is funding your expedition asks you, "How long will it take you to get to the other side of the mountain, and how much money do you need?"

You ask yourself, "How do I know how long it is going to take to get to the other side or how much money it will cost? I have never seen this mountain before."

Would answering "I don't know" satisfy your sponsor? Probably not. You were hired because of your expertise in mountain climbing, and you are therefore expected to be able to give some answers. On the other hand, if you shoot from the hip, the accuracy of your best guess will be weak, and sooner or later you will have to confront your error. You seem to be caught in a lose-lose situation. Is there an alternative?

Consider the Rolling Wave, or phased, approach—a method that will both satisfy your sponsor and add a sense of integrity and credibility to your commitments. The Rolling Wave approach to project management suggests that the project planning effort rolls out detailed plans for the *foreseeable* future

and, as the project evolves, periodically reevaluates the completion dates and the total dollars needed.

Let's reexamine your mountain climber role. You are standing at the bottom of the mountain. You have minimal knowledge of what is confronting you. But with your mountain climbing background and experience, and given the data you have gathered from other people who have tried to climb this mountain, you *approximate* the time and resources required.

NOTE The operative word is "approximate," not "estimate." Your approximation should be presented so as to provide you with all the flexibility possible. For example: "It will take six to nine weeks to get over the mountain, will require 10 to 12 people, and will cost \$50,000, plus or minus 10 percent."

Simultaneously, you provide the sponsor with a detailed plan and a list of everything required to prepare the party to start moving up the mountain. Your plan shows that you have determined the necessary equipment, pinpointed the right people, acquired and studied all available information about this particular mountain, and plotted a route of travel. This is called *scheduling through the first planning horizon*. A planning horizon is described as planning as far ahead as you can see. This target may be stated as the next phase of the Product Development Life Cycle.

Thus far, you have provided your sponsor with (1) an approximation of the time and resources needed to finish the total effort, and (2) a detailed schedule for the first planning horizon or Product Life Cycle Phase.

Now the benefits of Rolling Wave come into effect. You track to the detailed plan that was established for the first planning horizon. At the end of each product phase, many unknowns have been resolved, and many decisions have been made. In our mountain climbing analogy, once the equipment and people required to make the climb are selected and the route is mapped, the planning for the next phase begins. This step, which is to acquire the resources and prepare for the start of the climb, becomes relatively easy. Furthermore, at this stage, the approximation of the total time and resources can be refined with a higher level of accuracy and with greater confidence. At each subsequent reevaluation, the projection of the final deadline and the total dollars becomes more realistic. There will come a point in time when you have enough information available to render further reevaluations unnecessary.

This approach may be logical to other managers of projects, but how can we sell it to our management and project clients? First, let's consider the premise that the old way has not worked. It has not been realistic to formulate a series of time, staffing, and budget commitments and, on Day 1, set

them in concrete. Even when estimates have been requested or mandated, or baselines have been announced, the Rolling Wave approach provides a practical methodology for evaluating and reevaluating the validity of commitments, and a means to support refinement of those commitments, if and when appropriate.

THE MANAGERS OF PROJECTS

You may have noticed that we have not once used, nor do we use in this book, the term “project manager.” Many people are managers of efforts that have a discrete beginning and a discrete end, and produce a discrete deliverable, but these people do not have the title of “project manager.” Their organizations may not have authenticated the job of managing projects, or the job may be too small to be on the radar screen as a bona fide position but may still require the discipline associated with project management.

Therefore, we have chosen to change the title of the individual in question and to include everyone in the organization who plans, organizes, and manages projectlike work. The title “manager of the project” accomplishes that objective. What is the role of the manager of the project?

A Role as an “Intrapreneur”

Think of a project as though it were a microcosm of the organization. It absorbs the organization’s resources and, as payback, it creates a deliverable that will provide the organization with a return on that investment: a salable or cost-saving product or service. If this is true, then the manager of the project and his or her project team are running an enterprise; a small microcosm of the business. And as a manager of the project of an enterprise, this person is an “intrapreneur.”

What is an intrapreneur? It is a person whose tasks are like those of an entrepreneur but who works within an organization. An intrapreneur should have the same mindset as an entrepreneur: a desire to run the enterprise cost effectively and productively, to gain the most return. Thus, if the manager of the project is willing to be accountable for managing the enterprise, he or she should be given the autonomy and authority to do the job to the best of his or her ability.

The Role of Managers of Projects

A manager of a project must plan, organize, and control the schedules and budgets of that project and must manage an entity called a cross-functional

team. In *Productive Workplaces*, Marvin Weisbord suggests that, in this instance, the following conditions must exist simultaneously:

- *Interdependence.* The team is working on important problems in which each person has a stake.
- *Leadership.* The leader wants so strongly to improve the team's performance that he or she is willing to take risks.
- *Joint decisions.* All team members agree to participate.
- *Equal influence.* Each person has a chance to influence the team's agenda.¹

Today, a project environment that will support a high-performing, cross-functional team is marked by more freedom, less micromanaging, challenging goals, freedom to take risks, patience with ambiguity, and minimal information.

To allow this supportive environment and the above team conditions to exist, the attitude of top management must undergo a shift. Management must:

- Trust
- Encourage trial and error
- Position cross-learning and transfer of learning
- Support assembling the right mix of people, not just a mix of skills
- Encourage getting out of the office to clear the cobwebs and to dream
- Establish reward systems based on individual and team performance

CONCLUSION

Project management is a discipline that requires discipline. As a discipline, PM has become more prominent in the business community. Transaction-oriented organizations are moving toward a project-driven orientation. This is occurring because transaction processing allows the company to survive, but the project discipline lets the company grow and compete.

What is a project? A project is an endeavor that has a discrete beginning, a discrete end, and a discrete deliverable. There are three types of projects:

1. Strategic projects come down from the top. Top-level management conjures them up during a strategic or long-range planning effort.
2. Bottom-up projects are dreamed up by the people in the trenches.
3. External projects, found at some companies, are initiated by an outside customer.

This generally means that multiple projects are in progress within any organization at any time. It is not easy to work in a multiproject environment.

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Focus and patience are required. It is also helpful if all the project players have bought into the process of project management. Project players buy in because this way of doing business is a logical utilization of resources to reach common goals with meaningful end-products. Project management facilitates communication, quality, control, risk reduction, and, most importantly, assurance to all the players that project business is being conducted in the most professional way possible.

In positioning this project management discipline, there are five critical success factors:

1. Awareness of the discipline
2. An organization that supports the discipline
3. Processes that prescribe how the discipline is to be conducted
4. Automated tools that support the processes
5. Education in how to use the tools and processes as well as how to work within a project-driven organization

The project-driven organization is built around two different life cycles: a product life cycle and a project life cycle. The product life cycle describes how to create the deliverable produced from the project. This life cycle consists of the actual and unique work efforts that are required to move the project from the beginning to the end.

The project life cycle lays out how to plan and control the product development life cycle. But how do you plan an entire product life cycle at Day 1 of the project?

You don't. You use the Rolling Wave or phased approach to planning, organizing, and controlling a project. You plot the first planning horizon in detail and map out the rest of the project at a high level. At the end of the first planning horizon, you revisit and modify the project parameters of time, staffing, and cost (if necessary), and you detail the plan for the next planning horizon. The project management discipline is an iterative approach.

And who runs this entity called a project? The manager of the project. Although many organizations call this person a "project manager," we have chosen to refer to him or her as a manager of the project. This recognizes that personnel who are not officially given the title of "project manager" are often held accountable for running project work. It also broadens the spectrum of people to whom this book applies and who should be reading this book.

With this information in hand, we offer you Performance Support Tool 1.2, "Gap Analysis," which allows you to determine the current state and imagine the future state of project management in your organization, and to work

toward closing whatever gap exists between them. The goal is to identify the barriers and the solutions needed to overcome them so that your organization can reach the future state.

NOTE

1. Marvin R. Weisbord. 1987. *Productive Workplaces: Organizing and Managing for Dignity, Meaning, and Community*. (San Francisco, CA: Jossey-Bass).

PERFORMANCE SUPPORT TOOL 1.1

Selling Project Management to Management/Customer

Project management is a discipline that promotes an environment of performance, profitability, effectiveness, and efficiency.

Below are a series of cogent arguments, which will help you convince your management and/or your customer that project management is a discipline worth investing time and money in.

Here is how to use this performance support tool. First: In Section 1, describe the person/group to whom you are trying to sell project management, then read each of the alternative benefits in Sections 2A, 2B, and 2C checking off those arguments that will help substantiate your case. Finally, in Section 3, summarize a Benefits Statement which can be presented in a proposal to your management or to your customer.

SECTION 1: TO WHOM ARE YOU SELLING?

1. Name of person (title) or department
2. Current use of project management, if any
3. Possible reluctance to accept project management
4. Indications of acceptance of project management

SECTION 2: ALTERNATIVE BENEFITS

2A. BENEFITS RELATIVE TO MANAGEMENT

- 2A.1 Project management requires a concise project definition and specific deliverable(s). Management must thoroughly evaluate the rationale for any project that is submitted for approval and must justify producing the deliverable(s). This analysis allows management to develop a perspective on how this project relates to the intermediate and long-term goals and strategies of the organization. Management can then appropriately prioritize the project and the effort that it takes to produce the deliverable(s).
- 2A.2 Quality and control are built in through scheduled management reviews and go or no-go decisions. Management becomes involved at appropriate junctures to review the quality of the deliverable and reevaluate the current status of the justification. If the project no longer will produce the expected benefits, then management has an obligation to terminate the effort.
- 2A.3 The scheduled interactions with management ensure a continued involvement, particularly for the project client. Project clients should not envision projects as arm's-length endeavors for which they place an order and come back later to pick it up. Projects are not like ordering a pizza. You may request particular toppings, but if the deliverable is less than perfect or indicates substitutions, you'll eat it anyway. Projects are more like ordering a tailored suit. You try it on again and again to make sure it will fit and to have

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adjustments made as needed. The discipline of project management encourages the project client, the end user, the manager, and the bill payer to remain involved throughout the entire process.

2A.4 Project management provides a historic bank of data and project models for future planning. The future planning can be in the realm of strategic planning regardless of whether the organization has wisely or unwisely expended its money in the past. The project management historical database will provide insight and guidance as to where management should be expending funds in the future.

2A.5 From another and more immediate perspective, a formalized project history base stores data from which more accurate estimates can be made for future projects. New project teams, if provided with models and templates of work breakdown structures (WBSs), sequences, and time estimates, are more likely to prepare realistic plans in which project parameters of time, resources, and scope can legitimately be met.

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2B BENEFITS TO THE PROJECT

2B.1 Project management is a discipline that requires discipline. The latter discipline refers to building a foundation to visualize the project through time and to determine the tasks to be performed, the people who need to be involved, and the time frames that must be met. This disciplined approach to planning helps to avoid costly and time-consuming mistakes.

2B.2 A well-conceived plan facilitates timely identification of potential problems in order to take corrective action. Project management can turn a reactive style of management into a proactive one. The warning signals are manifest to all. Decisions relative to alternative actions can be based on reliable data rather than on subjective emotions.

2B.3 Up-front analysis of tasks and time schedules encourages the project team to thoroughly investigate the product requested and the project plan for producing the product, thereby reducing the potential for disasters. Time may be scheduled for documenting status, holding review meetings, and conducting quality control procedures throughout the process. Conservatism may be built into the project plan through scheduling of reviews, reevaluation, rescheduling, and revision of tasks.

2B.4 If subcontractors, vendors, or consultants are involved in the projects, special care must be taken in scheduling their interfaces with the project schedule. Project management compels the subcontractors and the client to think through their relationships, to understand the work effort each must perform, and to agree on acceptable time frames for delivery.

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- 2B.5 If and when the plan goes awry, the manager of the project, the project client, and the team can quantify the impact of the variance on the plan. They can then consider the appropriate trade-offs of time, resources, and/or technical objectives. For example, if the project is slipping behind schedule, the manager of the project may want to order up a cast of thousands to attack the problem. As Frederick Brooks observes in *The Mythical Man Month*, a woman can have a baby in nine months, but two women cannot do it in four and a half months. In a project scenario, it takes time for the new recruits to come up to speed, and they burden the senior people on the team during that process. The sooner the trade-offs of time, resources, and/or technical objectives are initiated, the more effective and less costly they will be.

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2C. BENEFITS TO PEOPLE

- 2C.1 Have you ever picked up a project from a manager who had no documented plans, no written project goals, no technical objectives? How many weeks did it take you just to figure out where the project was, much less where you were going? For the benefit of new managers who may have to take over projects in progress, the organization should require each manager of projects to maintain up-to-date records.
- 2C.2 A manager of projects wants to be mobile and promotable. An organization can not afford to promote someone who carries entire projects in his or her head. Do that and you may have painted yourself into a career corner with no way out.
- 2C.3 When you are in trouble and need management support, can you reasonably expect to be allocated additional dollars and/or resources when you have no defensible proof that you are truly in trouble? Approaching management with statements that begin with "I feel . . ." or "I think . . ." is not convincing. Take along appropriate project management data and you can approach management with a confident assertion: "I have the facts for you and the alternatives that I can recommend. I know what I need, when I need it, and for how long I need it." This approach engenders confidence and support.

SECTION 3: BENEFITS STATEMENT

Taking into consideration all the Alternative Benefits which you checked off in Section 2, develop a Benefits Statement which will convince your management or your customer of the justification of the implementation of the project management discipline.

PERFORMANCE SUPPORT TOOL 1.2

Gap Analysis

The Gap Analysis is a series of interviews or focus-group sessions intended to meet the following objectives:

- To determine the current state of project management
- To determine the future state of project management
- To determine the gap between the current and the future state of project management
- To identify the present barriers and the solutions needed to close the gap and reach the future state

A. What is the current state of project management?

To determine the answer to this question, answer the following:

1. What type of projects account for most of the project-related effort in this department?

2. How are projects presently managed (i.e., formally vs. informally)?

3. Is there a project management methodology in place?
_____ Yes _____ No

If yes, how is it used?

4. What constitutes project success in your organization?

5. What are the rewards of a project's success?

6. What are the consequences of a project's failure?

7. How are projects prioritized?

8. Is top management supporting the project management initiative?
_____ Yes _____ No

If yes, how? If no, why not?

9. What is the driving/gating project parameter: time, resources, budget, or quality? In other words, if the project team focused its energy on meeting one of these parameters, which one would it be?

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10. In your opinion, what is the team's perception of the driving/gating parameter? Is it time, resources, budget, or quality?
-

B. What is the envisioned future state of project management?

To determine the answer to this question, answer the following:

1. In your opinion, who/what will be your organization's future customers/markets?

2. How can your organization's use of project management serve these future customers/markets?

3. How will project management fit into the strategic plan of your organization?

4. How will project management fit into the tactical plans of the functional departments?

5. What other vision might project management support?

6. What has prompted your company's interest in project management (e.g., project failure, a top-management directive, or competition)?

C. How wide is the gap between the current and the future state of project management?

1. What is your perception of the current state and your vision of the future state of project management?

2. In your opinion, what is causing the gap between the two?

D. What are the barriers to reaching the future state?

To determine the answer to this question, answer the following:

1. Who are the key players in the implementation of project management?

2. How do you envision their role in the implementation process?

3. What resistance, if any, do you anticipate in this project management initiative? On what history do you base your concern?

4. What are your expectations of a successful project management implementation?

 5. How do you expect top management to support the project management initiative?

 6. What barriers/obstacles might interfere with the implementation of project management in your organization?

 7. What needs to be done to remove those barriers and obstacles?

- E. Again, what is the gap between the current and the future state?**
1. Based on your perception of the current state and the future envisioned state of project management in your organization, describe the gap between the two.

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