MANAGING A PROJECT AS A PROCESS

Eileen M. Sieli

Eileen M. Sieli *is a member of technical staff in the Network Utilization and Management Department of AT&T Bell Laboratories at Holmdel, New Jersey, where she defines and develops software tools to enable AT&T business units to analyze and improve their network management and promotional strategies. She joined AT&T in 1985 with a B.A. in physics from Adelphi University, Garden City, New York; and an M.S.E.E. from the New Jersey Institute of Technology, Newark.*

AT&T's experience with process management suggests that using it to redefine our current project management practices will help the company remain competitive in the future. Process management has advantages over the traditional approach that manages projects as unique events. AT&T has employed process management principles and techniques on many projects, and has increased their success rate. The AT&T organizations practicing process management have benefitted from greater customer satisfaction, improved product quality and performance, increased productivity, reduced costs, and increased revenue and market share. By defining project management as a process, we identify a mechanism to learn from experience. From project to project, we can sustain what works and improve what does not. The results are continuous improvement and products and services that exceed the customers' expectations. This paper discusses why and how we can manage a project as a process and the advantages gained when we do.

Introduction

World-class competitor companies use process management techniques to provide quality products and services in a business world marked by rapid change. By focusing on process management, these businesses have the mechanisms in place to recognize changing customer expectations, to track competitors, and to continually improve their own performance.

At AT&T, we are working to apply the principles of process management—and its customer and supplier philosophy—to give our customers top quality products and services at competitive prices. But we are not taking full advantage of the power and benefits of process management and improvement. Most of the time, we continue to manage projects as singular occurrences. To the extent we ignore the

power of process management to help us control and improve projects, we place ourselves at a competitive disadvantage. Our approach to meeting this challenge is to use process management—with its customer-supplier philosophy—to completely change our approach to managing projects. (Panel 1 offers standard definitions of terms common to process and project management[1]).

The Foundation

The foundation of process management is the concept of customers and suppliers, and the recognition that they are both external and internal. External customers purchase our products or services; internal customers receive or depend on the outputs of our process. For example, residential customers who use AT&T's long distance service are the company's external customers. However, a Bell Laboratories development organization is an internal customer of the Systems Engineering organization that provides the product or service requirements. Similarly, external suppliers sell us materials or services needed to produce our products and services. Internal suppliers are our organization's employees who provide the inputs for our particular process.

The customer-supplier model (see Figure 1) gives AT&T a structure to establish and maintain customer-supplier relationships. The figure illustrates the importance of requirements and feedback to convert supplier inputs into customer outputs.[2]

Project Management Is A Process

Is it appropriate to manage a project as a process? A quick overview of the characteristics of project management reveals that it meets all necessary criteria.

Although the word *process* has acquired many meanings, at its most basic it is *a set of activities that attain an end.* A process adds value by taking its inputs and transforming them into a desired set of outputs. Based on this definition, it is clear that project management is a process.

A *project* is a planned set of activities that meets specific goals and produces specific outputs. Every project moves through a life cycle: a series of phases from conception to retirement. Figure 2 illustrates a typical project life cycle.

Project management is the planning, organizing, monitoring, and directing of project activities to produce a desired set of outputs. Regardless of the scope or nature of the project, the management functions are performed from conception through retirement. From project to project, this *process* is repeated.

Advantages of Process Management

The traditional approach to project management focuses on the project, not its processes. Although some AT&T organizations use project management techniques, they sometimes fall short of their objectives. What are the fundamental elements of process management that make it so useful to project management?

Process management means planning and executing the daily activities required to sustain process performance, and identifying opportunities for improved customer satisfaction and reduced costs.[2] Applying process management principles to project management results in continuous improvement and innovation, and in products and services that exceed customer expectations. This leads to increased revenues and reduced costs by ensuring we consistently do it right the first time, i.e., develop and deliver the products and services that our customers want and need. Clearly, process management offers a structure for defining, monitoring and improving our projects. Figure 3 illustrates the continuous cycle of process management.

Customer Focus. Process management allows consistent delivery of products and services to meet customer needs. As noted, process management rests on the concept of both internal and external customers and suppliers. It introduces a formal, disciplined method to focus on the needs of *all* customers, and to link them to each phase of the project life cycle. As customers needs are understood, accurate requirements for suppliers can

Panel 1. Terms Used In This Paper

Conformance — Affirmative indication or judgment that a product or service has met specified requirements, contract, or regulation; the state of meeting the requirements

Customer expectations — Customer perceptions of the value they will receive from purchasing a product or service

Customer satisfaction — The degree to which a customer's experience with a product or service meets customer expectations for that product or service

Customer-supplier model — A representation of tasks and work flows in terms of a process, its customer, and its supplier, linked through information flows in the form of requirements and feedback

External customer — The purchaser of a product or service

Feedback — Information from customers to suppliers about how process output meets customer expectations

Inputs — Products or services obtained from others (i.e., suppliers) in order to perform job tasks

Internal customer — A downstream internal work group, individual, or operation that depends on outputs or results of a given process; or an employee of the business that depends on these outputs or results

Process — The system of tasks, work flows, information flows, and other interdependencies that produce a specific set of outputs and results. *How* work is done, *how* output is produced, *how* results are achieved, and *how* value is provided to the business and its customers

Process improvement — Activities that introduce beneficial change, i.e., activities directed at planning to prevent problems, eliminating root causes of problems, providing new sources of value to customers, increasing productivity, and increasing efficiency

Process management — Activities directed at establishing responsibilities, defining the process, managing customer-supplier relationships, evaluating process performance, and identifying improvement opportunities

Process management team — A team of employees organized to carry out the activities associated with process management

Process owner — The person ultimately accountable and responsible for process performance. This person coordinates process management activities, has authority or ability to change the process, and manages the process end-to-end to ensure optimal overall performance

Quality — The ability of a product or service to consistently meet customer expectations

Root cause — The original reason for nonconformance within a process, that, once eliminated or corrected, eliminates the nonconformance

Supplier — Source of material or information input to a process; may be internal or external to the company, organization, or group

Value — The extent to which a product or service meets a customer's needs or wants, measured in willingness to pay

be developed. Therefore, process management enables us to manage a project from start to finish with the customer as the primary focus.

One Process Owner. Process definition is a fundamental element of process management. It provides a common understanding of the project's purpose and how the process actually works. In traditional project management, several project managers can be responsible for one project. Because the project effectively has multiple owners, roles and responsibilities can be vague and

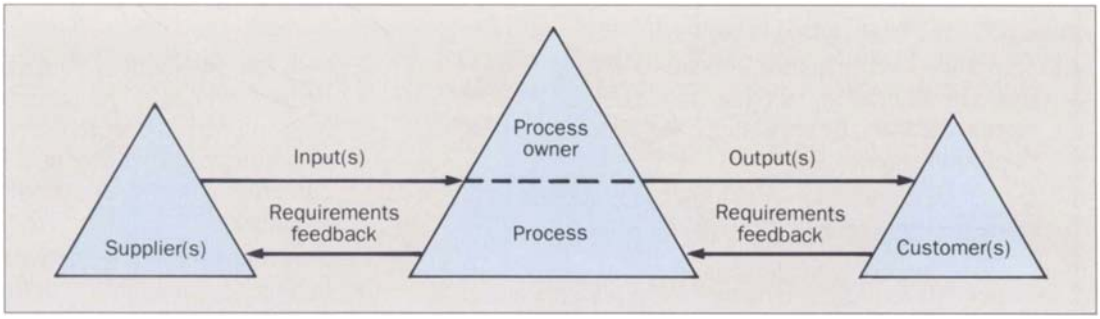


Figure 1. The customer/supplier model illustrates the relationship of customers and suppliers to the process. It is the foundation for AT&T's approach to process management.

poorly defined. For example, multiple managers may assume an ownership role, but lack appropriate authority to accompany that ownership. The result of such a multiple owner situation will be a project environment characterized by confusion and frustration, duplication of effort, and communication breakdowns across the project interfaces and boundaries.

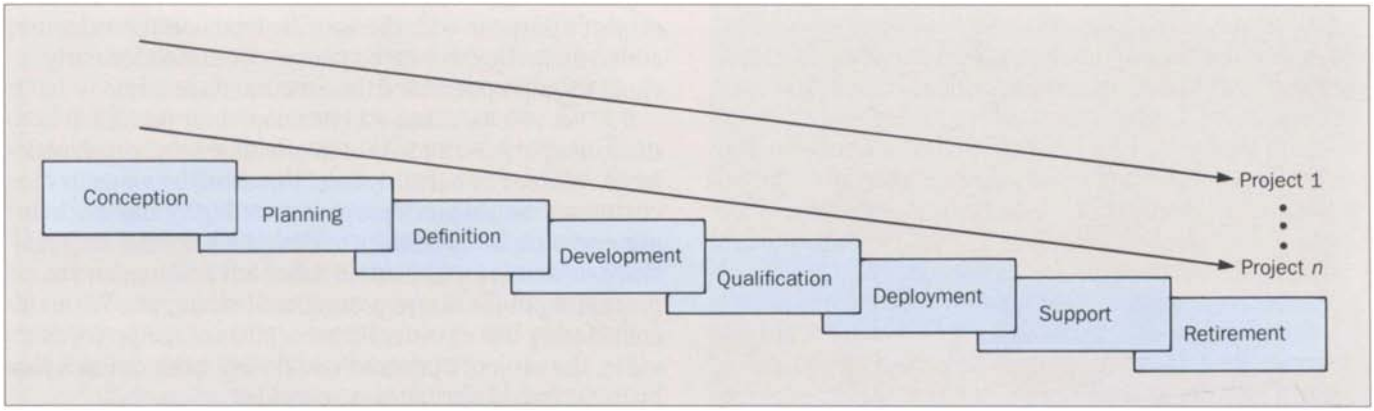
Though the process owner may appoint someone else to manage the process on a daily basis, process definition requires a single person to be in charge of the process and be accountable for its overall performance. In addition, it ensures that the process owner is at the right management level to commit resources and effect change. By establishing and communicating the responsibilities, roles, and interfaces, process management sets a solid foundation for ongoing project management.

Monitor The Process. Another essential element of process management is *monitoring*, i.e., evaluating process performance according to the customer's needs, the internal requirements, and the competition. However, with the traditional project management approach, a project manager may also serve as the crisis manager who resolves the unforeseen problems that arise.

AT&T project teams tend to be lean and are rarely overstaffed. Without any available delegates, the project manager assumes by default the task of managing crises. Crisis management is time-consuming and leaves the project manager with little time to monitor the various project phases and processes. This often leads to costly changes and delays in the schedule. Adding process management, however, automatically assigns problem resolution to the process manager and allows the project manager to concentrate on the project. Ideally, in complex projects that cut across several organizational boundaries, any individual serving as a process manager should *not* be the project manager. These roles should be filled by separate individuals reporting to an upper manager who has high-level responsibility for the project as well as the processes.

The process manager can identify nonconformances and the root cause of recurring problems by monitoring a process. A process cannot be improved if we react to problem *symptoms* but never identify and remove the *causes*. Daily monitoring evaluates process metrics and feedback from the customers, suppliers, and the people who work the process. An important aspect of a feedback system is to capture and validate not only the facts, but also the *perceptions*. It is important to share the feedback with upper management and everyone involved in the process. This promotes a current awareness of the customer's needs and a willingness to improve. Monitoring provides diagnostics to detect problems early for efficient and effective resolution.

Continuous Improvement. Project management alone does not promote lasting improvements from project to project. If the learning experience is not captured, the same problems recur. This results in a *reactive* environment where efforts are directed more at resolving



problems than preventing them. Typically, over time, processes become inefficient and ineffective and are improved only after a crisis. Process management discourages sporadic problem-solving and emphasizes *continuous* improvement to promote positive change.

By defining project management as a process, we identify a mechanism to learn from experience. By looking at project management as a repetitive process, we discover what works and what doesn't. From project to project, we can sustain what is working well and change what is not. The results are continuous improvement, and products and services that exceed the customer's expectations. The key to remember is that improvement takes place project by project.[3]

Figure 2. Every project moves through a series of phases from conception through retirement. Each time a project evolves through its life cycle, the project management process is repeated.

Implementing Process Management

We are proposing a change in the way projects are managed. Upper-level managers must motivate this change. By championing the collaborative efforts of process and project management, those managers can demonstrate leadership and support. To provide this, upper management must:

- Help focus the organization on the customers' needs and values
- Provide the infrastructure and resources to support the new approach
- Understand the problems of the current mode of project management
- Understand the principles and benefits of process management
- Encourage employees to sharpen their project management and process management expertise
- Foster reuse, i.e., ways to share the lessons learned from project A with project B, with project C, etc.
- Recognize and reward the successes related to process management and improvement.

The key to success is for high level managers to recognize and accept responsibility for being both project and process owners. Often at AT&T, a high level manager does not have the time to devote to the daily activities of managing both the project and processes. Thus, especially for complex projects spanning several organizations, the process and project owner will appoint someone to manage the project, and a different person to act as process manager. Only the routine management activities can be delegated. The owner retains responsibility for the authority to effect change, accountability for

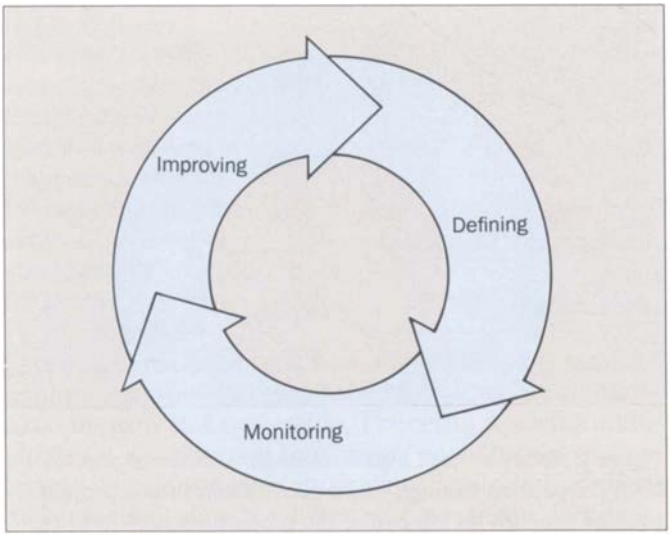


Figure 3. Process management is a continuous cycle of defining, monitoring, and improving.

the process results, allocation of resources, and aligning the process with the organization's goals.

The project manager's feedback helps the process manager determine and maintain what is working well, and to identify what needs to be changed. This is the mechanism that captures the learning and experience from a project. Also, we now have a means to improve the existing process and to share it with other projects that follow a similar process.

AT&T's Success With Process Management

This section reviews some of AT&T's successes applying process management to the project management environment.

Focus On The Customer. Many project managers and process managers have trouble defining their processes in terms of the *value-added* as viewed by their customers. This may seem minor, but it is a crucial step that sets the tone for the entire project. Defining the project's purpose with the specific focus on the value added from the customer's perspective provides early clues to help understand the customer's needs.

A software tool was developed for an AT&T marketing organization that manipulated and displayed large volumes of network data. Focusing on value to the customer, the project's purpose was to give the marketing organization the ability to evaluate a special long distance promotion and its associated advertising, and to provide input for future promotional strategies. Without considering the customer's perception of the project's value, the project's purpose could have been defined just by its technical attributes: to provide the capability to display network usage and patterns without identifying the impacts of the promotion. Obviously, the first purpose requires more information about the customer and the intended use of the tool. Investigating this information from the start helped meet an aggressive prototype schedule, and resulted in high customer satisfaction.

Where To Begin. What do you do if your project has all ready begun or seems too large to handle all at once? Consider selecting a process: either one that has just begun or that the project will be passing through shortly. Our example is an approach used for a complex switched network software project that involved many organizations within AT&T. With the software's past releases, there had been problems with delivery schedules and customer satisfaction, even though project management techniques were being used. The project manager wanted to improve the new release, but the project was past the planning stages and was beginning development. Though the ideal would have been to implement project and process management at the start, process management techniques allowed guidelines to be developed for monitoring the development phase of the software project. Although this project was well into its life cycle, process management was still applied with beneficial results. Focusing on the development interfaces and outputs helped internal customers and suppliers understand each other and resulted in better

project communication.

Another example of applying process management to an existing network hardware project is a process to identify and document customer needs. First, a customer needs template was designed and tested. Then a process was developed to focus on how to define, document, and validate the complete set of customer needs. The manager who was both the project and process owner recognized the value of this process, and fostered its reuse with similar hardware projects. Thus, experience was gathered from several projects and provided valuable input for improving the process.

Overcoming the Hindrances. A major hindrance to successful process management can be lack of leadership and support. If your management is not committed to the principles of process management, you can begin on your own. Select a process for which you are responsible, and be careful not to choose a desired solution before you have studied the process. If possible, the process should be one of interest to your upper management, so they will take interest and notice the results. Start with small improvements: tackle the larger ones only after you have gained some experience in applying process management. Be sure to publicize your successes and have process data to substantiate them. Generally, this approach will begin to ripple through an organization and gain upper management support and commitment. Process management and lasting improvements can be achieved through one person or a team effort.

Process Management Works. Our experience shows that applying process management to our current mode of project management can help AT&T maintain its competitive position in the future. The company has increased the success rate on many projects by using process management principles and techniques. Process management has eliminated many recurring problems by identifying and removing their root causes. Recognizing that we must achieve a proactive environment that prevents problems from occurring has helped reduce the time devoted to crisis management. In addition, process management clarifies roles and responsibilities, and reduces duplication of effort. AT&T has experienced better coordination among the organizations working in the project environment, and a willingness to share information freely.

Yet the transition from the old mode of project management to the recommended process management approach is slow. During the transition stage, we must constantly focus on our customers and strive to provide products and services that meet their needs and rising expectations. Applying process management to our projects can give us the structure to improve project by project and keep us focused on our customers.

Acknowledgments

I want to thank my AT&T colleagues who provided valuable assistance and made improvements to this paper: Margaret W. Dellinger, Katherine A. Edward, Brian M. Leary, James P. Moreland, and Roger F. Nicholson.

References

1. AT&T Bell Laboratories, *The AT&T Quality Glossary*, Select Code 500-745, AT&T Customer Information Center, Indianapolis, Indiana, 1990.
2. AT&T, *Process Quality Management & Improvement Guidelines*, Issue 1.1, Select Code 500-049, AT&T Customer Information Center, Indianapolis, Indiana, 1988.
3. J. M. Juran, *Juran On Leadership For Quality: An Executive Handbook*, New York, The Free Press, 1989.

(Manuscript received December 3, 1990)