

PRACTICAL PROCESS IMPROVEMENT PLANNING

By Neil Potter and Mary Sakry

We have seen many approaches to improvement planning during the past 16 years. Two stand out as the most common. With the first approach, small teams develop a plan to document the tasks they typically perform when they develop software. The notion is that if their current practices are documented, they can be shared among the development group and the best ones will become “best practices.” Unfortunately, the result is often a stack of paper that is ignored.

With the second approach, a company strides toward the achievement of an improvement framework such as ISO9001 or the SEI CMM¹. The primary focus typically consists of developing an improvement plan to create procedures that describe how the company should operate. Because the framework requires that procedures must exist, documenting them appears to be a logical first step and the most direct path to the goal. The result is often a mixture of too-few benefits, universal frustration, and lots of paper.

In these two examples, the approach to improvement planning is the problem, not the use of a framework or the definition of best practices. These “process-centric” approaches have a high risk of failure because they

encourage teams to focus on a target (for example, process documentation) that is all-too-often seen as irrelevant to the real work of the organization.

An alternative approach is to focus the improvement plan on the organization’s goals and problems, and to tie improvement activities directly to current project work. With this approach, improvement focuses on the real issues of the organization, with each change driven by a specific

need. Improvement frameworks are adopted fully but in small pieces, with each piece fitted to a project problem or goal.

In this article we focus on developing an improvement action plan. Planning activities that occur before and after this step (i.e., scoping, identifying an owner, setting priorities, risk

management and scheduling) are described in [Potter02].

Developing the action plan – a project example

In this example we show the creation of a sample improvement plan for the goal and problems of one project (Figure 1).

(Continued on page 2)



Figure 1 – A goal and related problems for one project

¹Software Engineering Institute Capability Maturity Model

PRACTICAL PROCESS IMPROVEMENT PLANNING (Continued from page 1)

To develop an improvement action plan, follow these steps:

1. Enumerate actions using brainstorming and a process framework.
2. Organize the action plan based on the goals and problems.

Step 1: Enumerate Actions Using Brainstorming and a Process Framework

The following two questions help identify actions for your plan.

Question 1: What Actions Are Needed to Address the Problems and Achieve the Goals?

You can develop such actions by brainstorming with a group of colleagues or project team members. Actions that could be taken to address problem #3 include:

- Establish a review process with clients to negotiate features for a six-to-nine-month development cycle.
- Rate each feature based on value to the customer (1–10 points) and cost to develop (1–10 points).
- Establish an incremental delivery plan to phase in lower priority features.

Question 2: If a Process Improvement Framework Is Being Used, Which Elements Will Help the Problems and Goals Listed?

If you are using an improvement framework, choose individual elements from the reference material that address the problems and goals. With ISO9001, look for small pieces that specifically address your problems; don't select one whole section of the standard. Similarly with the CMM, select individual activities. CMM elements that could be taken to address problem #3 include:

- Review project commitments with senior managers, software engineers, and the customer to obtain agreement (based on Software Project Planning activity 4 [SPPac4]).

- Perform risk management related to the schedule, resource, and technical aspects of the project (based on Software Project Planning activity 13 [SPPac13]).

Applying elements from the framework to each problem provides a real-life context for using these elements. A framework (such as the CMM) is not implemented by developing a plan to write procedures and then determining how to use them (process-centric approach). It is implemented piece by piece to solve the real problems of the organization.

Step 2: Organize the Action Plan Based on the Goals and Problems

The format in Figure 2 is one suggested way of organizing the action plan. The table displays the information visually so that it is clear which actions support each goal.

The columns are defined as follows:

Primary Goal and Intermediate Goals:

This column states the primary and intermediate goals of the improvement project. Each intermediate goal in the action plan is based on one problem statement. For example, the problem statement "Changing requirements" can be rewritten as an intermediate goal "Manage changing requirements." The intermediate goal is a statement of the desired outcome when the problem has been solved.

Purpose of Goal: This column reminds you of your motive for this goal. The motive is determined by asking, *Why do I want to achieve this goal? What benefit does it provide?* Always complete this column. It will keep you focused and pull you through times when you are ready to give up.

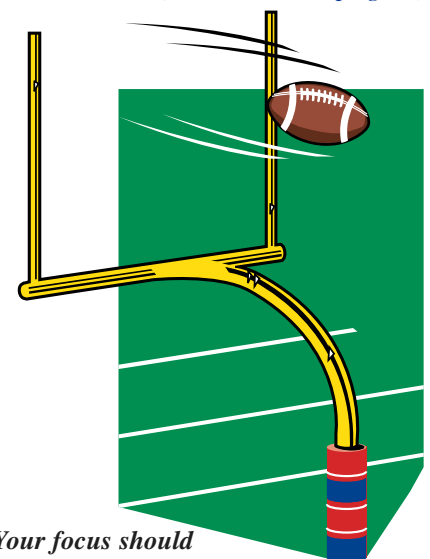
Actions: This column lists all the actions that contribute to achieving the intermediate goal. Some of these are small; some of them are more involved and will need breaking up into further

detail. If your improvement plan is for a group of projects or one large department, make each action specific to a project where it will be applied next. For example, the action "Interview customers to elicit requirements" can be restated as "Interview customers to elicit requirements for product J." Being specific makes the plan meaningful and directly focused on someone's need. If there are other known recipients for this action, they can be added as separate actions. If other recipients have not been identified yet, you can identify them later as you deploy your improvements.

Priority: This column records the priority of your actions. For each intermediate goal, mark approximately 20 percent of the actions with an asterisk. If there are only five or six actions in the list, mark two or three. Focus on the ones that you believe will help you make the greatest progress toward the intermediate goal. Your focus should be on achieving the intermediate goal you stated, not necessarily on doing all of the actions.

Time Estimate: This column is for an estimate of the time required for completing the action. The column can be totaled to determine how much time is required for each intermediate goal.

Who: This column is for the name of the person responsible for completing the action. *(Continued on page 3)*



Your focus should be on achieving the goal.

PRACTICAL PROCESS IMPROVEMENT PLANNING (Continued from page 2)

Primary Goal and Intermediate Goals (The results you want)	Purpose of Goal (Why do you want to achieve the goal?)	Actions	Priority (* =essential)	Time Estimate	Who
Reduce product development cycle to six-to-nine months for product X	Deliver earlier than competition				
Set feature priorities for a six-to-nine-month development cycle (based on problem 3).	Ensure that commitments are achievable.	Establish a review process with clients to negotiate features for a six-to-nine-month development cycle.	1*		
		Rate each feature based on value to the customer (1-10 points) and cost to develop (1-10 points).	2*		
		<i>Check progress and take corrective action.</i>	-		
		Review project commitments with senior managers, engineers and the customer to obtain agreement. [SPPac4]	3		
		Perform risk management related to the schedule, resource and technical aspects of the project. [SPPac13]	4		
		Establish incremental delivery plan to phase in lower priority features.	5		
<i>Next intermediate goal</i>	<i>Next purpose</i>	<i>Actions</i>			

Figure 2 – Action plan example

Summary

The goal-problem approach keeps your process improvement plan focused on compelling issues that people want to fix *now*. The plan centers on the organization's challenges, with small actions continuously taken to move the organization toward its goals. You can then use a framework as a source of ideas, solutions, and actions to achieve this scope. The resulting plan is both compelling and practical.

[Potter02] Potter, N., Sakry, M., "Making Process Improvement Work - A Concise Action Guide for Software Managers and Practitioners," Addison-Wesley, 2002.

See www.processgroup.com/tpgbook.htm.

Practical Solutions for your Software Development Challenges

❑ Understand customer needs. Clarify product requirements early.

In this workshop, IN SEARCH OF EXCELLENT REQUIREMENTS, software engineers, managers, requirements analysts and user representatives learn how to gather, document, analyze and manage customer requirements for software applications.

❑ Decrease product development time-to-market. Reduce costs.

In this workshop, ACCELERATING PRODUCT DEVELOPMENT FOR SOFTWARE PROJECTS THROUGH LEAN CYCLE TIME REDUCTION, project managers and their teams learn how to accelerate delivery through specialized schedule optimization and “Lean Thinking” techniques.

❑ Manage projects effectively. Meet project deadlines and reduce risks.

In this three-day SOFTWARE PROJECT PLANNING AND MANAGEMENT workshop, project managers and their teams learn how to meet deadlines through better estimation, reduce surprises using risk management, schedule work for better optimization, understand and negotiate project trade-offs, and track progress.

❑ Meet project deadlines. Scope and estimate the project work.

This one-day SOFTWARE ESTIMATION workshop (a subset of Software Project Planning and Management) helps teams develop more accurate estimates.

❑ Avoid schedule delays caused by needless product rework. Find defects rapidly.

This two-day INSPECTION (PEER REVIEWS) workshop teaches teams to efficiently find defects in code and documentation. (Includes moderator skills.)

❑ Hands-on SEI CMM/CMMI. Perform a mini-CMM gap-analysis.

The following workshops are available:

- ❑ SEI LEVEL 2 (one day), SEI LEVEL 3 (two days), SEI LEVEL 4 (one day).
- ❑ SEI CMMI—Overview of CMMI-v1.1 (one half-day presentation).
- ❑ SEI INTRODUCTION TO CMMI (three days).

❑ Identify critical changes to improve organizational results. Benchmark against the CMM.

A SOFTWARE PROCESS ASSESSMENT examines your organization’s software practices and generates a focused list of the critical areas for improvement. Our SEI-authorized Lead Assessors conduct customized CMM-based appraisals.

❑ Goal/problem-based improvement.

This two-day MAKING PROCESS IMPROVEMENT WORK workshop provides a systematic approach for organizations to improve their development capability. It includes: getting management support, focusing the organization on the critical issues, planning the improvement and effecting change.

❑ Tailored assistance. Dedicated phone-based assistance.

This service consists of customized education and coaching on your specific problems (e.g., meeting deadlines, quality and cultural change.)

❑ Audio cassettes:

- “The Role and Focus of a Software Engineering Process Group (SEPG)”
- “Making Change Happen—a 10-Piece Tool Box”

Detailed information on our services is available at www.processgroup.com.

Contact us at **972-418-9541** or help@processgroup.com to discuss your needs.

Come see our book!

www.processgroup.com/tpgbook.htm

Here is the book’s Table of Contents:

Foreword by
Karl Wieggers.

Preface.

Acknowledgements.

Chapter 1. Developing a Plan.

- Scope the Improvement.
- Develop an Action Plan.
- Determine Risks and Plan to Mitigate.
- Chapter Summary.

Chapter 2. Implementing the Plan.

- Sell Solutions Based on Need.
- Work with the Willing and Needy First.
- Keep Focused on the Goals and Problems.
- Align the Behaviors of Managers and Practitioners.
- Chapter Summary.

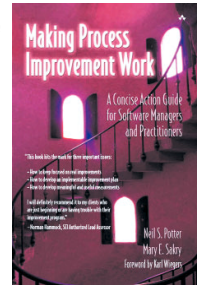
Chapter 3. Checking Progress.

- Are We Making Progress on the Goals?
- Are We Making Progress on our Improvement Plan?
- Are We Making Progress on the Improvement Framework?
- What Lessons Have We Learned So Far?
- Chapter Summary.

Conclusion.

Appendices.

References.



The Process Group

Mailing address: The Process Group
P.O. Box 700012
Dallas, TX 75370

Telephone number: 972-418-9541

Fax number: 972-618-6283

E-mail: help@processgroup.com

Web: www.processgroup.com

POST back issues are on line