

Requirements Management Series

SOFTWARE MAINTENANCE ENHANCEMENTS

Specifying Customer Requirements For Software Changes

Software Maintenance Enhancements: *Specifying Customer Requirements for Software Changes* teaches participants how to model the business and software requirements necessary for making enhancements to existing applications in an *effective* and *efficient* manner.

Software maintenance is a topic that receives little attention from authors, which is surprising in part because IT organizations spend as much as 80% of their annual budgets to enhance existing application software. But these costs are only part of the issue. With business cycles and response times getting shorter, our IT organizations face increasing pressures to make the right software modifications faster than ever before. Unfortunately, many organizations respond to these business pressures with extreme approaches to their software enhancement work.

Some groups use informal, undefined processes that vary considerably among their maintenance specialists. These processes not only lack intermediate work products specifying requested changes to the business policies and rules, which are traditionally found within business requirements, but also fail to identify the software requirements including changes to an application's interfaces, files, and programs. Without these work products it's impossible for customers to validate the requirements and difficult for IT management to monitor the work's progress, often forcing teams into lengthy and costly cycles of re-work as they attempt to discover and implement the changes *really* needed by the business.

At the other extreme we find organizations subjecting all enhancement work to the same technical methods used for specifying requirements during new application development projects. While admirable for the recognition that a formal process is needed, this always results in a clumsy, overly burdensome requirements approach. The time and effort to complete the requirements specification are significantly disproportionate to the work required for software modifications. Because much of this specification is not applicable and of limited value to maintenance efforts, these teams also experience avoidable delays and costs.

Neither approach is sustainable over the long-term. *Finding the right balance to specifying and implementing software changes in a timely, cost effective way is of strategic importance to all IT organizations and their customers.*

Approach

Software Maintenance Enhancements: *Specifying Customer Requirements for Software Changes* strikes the right balance by offering a process that...

- Scales without modification from small, straightforward requests performed by a single maintenance specialist to large, complex ones requiring enhancement teams.
- Adapts easily to all of the IEEE defined types of software maintenance and enhancement work.

- Features a model-based approach to requirements specification adapted and streamlined from modeling techniques commonly used for process engineering.
- Uses table-driven templates for the capture of requirements requiring less time than traditional narrative documents.
- Incorporates objective refinement criteria for evaluating and improving requirements insuring their completeness and accuracy.
- Results in intermediate work products for review by customers, business analysts, maintenance specialists, and managers.
- Places an emphasis on understanding the business reasons for requested software changes and verifying those changes are the best way to achieve business goals.
- Enables the full forward and reverse tracing of business requirements, software requirements, and application changes.

What makes this process unique is that it successfully integrates the rigor of structured modeling techniques with the absolute need for keeping requirements work proportional to software changes being made. This gives IT organizations a lightweight, formal maintenance enhancement process that's easy to apply while always delivering repeatable, predictable results. For those organizations developing standard IT processes compliant with the *Software Engineering Institute's CMMI Level 3: Defined* stage of capabilities, this proven process is not just a useful addition, but an integral component.

Learning Objectives

During this seminar participants will learn how to...

- Appreciate the business realities facing IT organizations and their implications for software enhancement efforts.
- Identify the four types of IEEE defined software maintenance enhancement.
- Classify and prioritize customer requests according to their type of work.
- Capture the customer's initial requirements for software changes using the Requirements framework template.
- Express these initial requirements within a framework of business goals, software objectives, and desired enhancements.
- Refine the requirements within each category of the framework using objective, explicit criteria to identify and resolve incomplete requirements.
- Evaluate the requirements framework looking for more cost effective and faster ways to satisfy the stated business goals and/or software objectives.
- Identify all potential impacts to the software's components including its user interfaces, external application interfaces, files, and program modules.
- Organize the additions, changes, and deletions of these components into abstract design units representing groups of software actions with meaning to the end-users.
- Show the new design units in a graphical way using models adapted from established process engineering techniques.
- Define software component details without ambiguity using easy to create, template-based specifications.

- Use the software objectives and design units as the basis for comprehensive testing.

Audience

The target audience for this seminar includes those individuals responsible for developing requirements with the customers, for specifying the software impacts of the requirements, and for making the required modifications to existing applications. These are usually the designated systems analysts, business analysts, software developers, and maintenance specialists. IT managers responsible for managing existing application enhancement efforts will also greatly benefit from attending this seminar.

Prerequisites

None.

Duration

Software Maintenance Enhancements: *Specifying Customer Requirements for Software Changes* is a comprehensive three-day seminar. Each day is a full eight hours and does include time for lunch and breaks. No homework is usually required.

Format

This workshop-based seminar uses an instructor-led format that introduces topics through lectures filled with examples, illustrations, and analogies while encouraging participants to share their experiences and ask questions. Individual and team workshops reinforce the concepts presented during lectures. All workshops get reviewed and critiqued during class discussions.

Materials

Seminar manuals use a distinctive narrative-bullet style to convey complete thoughts instead of the fragmented phrase-based approach common to many presentation materials. This fresh style enriches the lecture experience enabling participants to better understand the topics as they are discussed and becomes a valuable reference aid after completing the seminar. Each participant receives all presentation materials, which include the seminar manual, workshop handouts, workshop answers, and white papers.

Author

Software Maintenance Enhancements: *Specifying Customer Requirements for Software Changes* was developed by James Warren at the request of a major client to specifically address the unique business challenges of managing and making enhancements to existing software applications. Mr. Warren has taught and consulted on Requirements Engineering techniques for more than a decade. He has made significant contributions to the technical methods found within Data, Process, and Software Engineering disciplines.

Scheduling and Pricing

This seminar is usually conducted on-site for a specific client. Please review the general scheduling and pricing policies. A complete price quote will be provided upon request.

Contact Information

For additional information about this seminar, contact Tryon and Associates at (918) 455-3300.