Applying CMMI® to a Production Support (Software Maintenance) Environment

SEPG 2004
March 10, 2004

Susie Harvey/Barb Weaver
EDS

Agenda

- Definition

- Goals

- Challenges

- Solution

- Examples by Process Area

- Summary

Definition

Production Support:

The process of operating and maintaining a computer application over time. It consists of cyclic and non-cyclic activities that allow a system to be maintained. These activities and procedures are required to ensure the successful operation of the system.

Goals:
Maintenance Process Improvement

- Gain control of maintenance chaos by applying Project Management discipline to Production Support environment

- Provide management insight into production support work through measurement and analysis

- Ensure maintenance activities are aligned with customer business goals and those of the provider
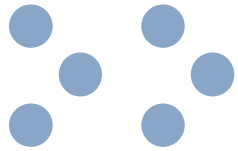
Enabler:

Take advantage of the CMMI®

Goals:
Maintenance Process Improvement

Why use the Capability Maturity Model Integration® (CMMI®)?

- Provides a framework/model

- Recognizes/endorses scalability and tailoring to meet the needs of the organization

- Attends to managing and controlling the work as the first priority (project management)

- Moves toward organizational standardization and commonality to share, sustain and improve results gained through process
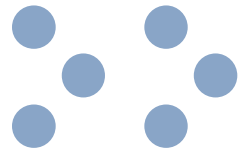
Challenge: Effectively apply project management and CMMI® to small support requests

Common Complaints

- Planning too involved for small work efforts

- Customer controls the workload and dictates schedule dates

- Nature of the work is reactive

- Workload is unpredictable both in the short-term and long-term

- Maintenance team members are not typically trained in project management

- Too much paperwork!

Solution: Umbrella Projects!

Pop Quiz

How is an umbrella used in software maintenance?

a) To deflect the tomatoes thrown by unhappy customers.

b) To keep the rain off the software maintenance staff (don't they always get the worst offices?)

c) To put in the drinks downed at happy hour to forget all the maintenance problems at the office

9

Umbrella Project Concept

- Define projects by client, service level agreement, related applications, etc

- All production support services are planned and tracked under this umbrella project

  - Change requests

  - Smaller enhancements

  - Help desk support

  - Production fixes

- Major plan components are managed at this level

Typical Umbrella Project Planning

Scope Statement

Roles & Responsibilities

CM Plan

Communication Plan

Resource Plan

Composite Schedule

QA Plan

Measurement Plan

Risk Plan

Planning at Change Request Level
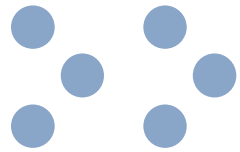
Detailed Requirements

Risk Identification

Estimates

Designs

Start and End Dates

Test Cases

How are Engineering Work Products Handled?

Requirements Development

- Umbrella-Level

  - Document overall support requirements by service (help desk, production monitoring, abend resolution, small enhancements)

  - Identify the lower level requirements for each service

  - Develop and maintain a Requirements Traceability Matrix

- Individual Service Requests

  - Document requirements specific to each request at an appropriate level of detail

Requirements Management

- Umbrella-Level

  - Handle changes in scope related to the services provided (project scope)

  - CCB for prioritization of service requests

- Individual Service Requests

  - Customer representative has authorization to approve changes to in-progress service requests within established thresholds

  - Routine requests for some services (help desk, production fix) are pre-authorized

Technical Solution

- Umbrella-Level
  - Design and develop the solution for each service
    - Processes and procedures for:
      - Tracking, routing & resolving Help Desk calls
      - Resolving abends
      - Managing enhancement and maintenance service requests

- Individual Service Requests
  - Design and develop the solution for individual requests

Product Integration

- Umbrella-Level
  - Integrate, review, test and deliver the solution for each service
    - Review interfaces between services
    - Install and integrate support tools
    - Distribute support/user documentation
    - Provide training on service procedures and tools (support team and customer)

Product Integration

- Individual Service Requests

  – Integrate, review, test and deliver the solution for individual requests

    - Integrate enhancements into a test environment, test, and move to production

    - Implement and document the abend resolution

    - Record, respond to, and close out help desk inquiries

Verification

- Umbrella-Level

  - Review each service as it is developed and periodically to ensure it meets the requirements

    - Procedures

    - User/Support Manuals

    - Tools

Verification

- Individual Service Requests
  - Review each request to ensure the requirements are in scope for the service
  - Review work products at selected milestones to ensure request requirements are satisfied
  - Review non-standard Help Desk responses
  - Test abend resolution actions

Validation

- Umbrella-Level

  - Validate the solution for each service with the customer

    - Walk-through procedures

    - Test support/user manuals

    - Pilot new services

- Individual Service Requests

  - Validate deliverables through techniques such as prototyping or Formal Acceptance Testing

  - Help Desk follow-up questionnaires

Summary

- If production support is an important part of your business, treat it with as much care as you give development work

- Use the 'umbrella' concept to leverage project management across related support areas and gain control of the support work

- Apply the CMMI® appropriately at both the 'umbrella' and service request levels

References

- CMMI® for Systems Engineering/Software Engineering/Integrated Product and Process Development, Version 1.1, Carnegie Mellon, Software Engineering Institute, 2002

- New Rules for Old Software: Tailoring your CMMI Process for Maintenance Projects, Philadelphia SPIN, October 2003, Bill Phifer

- Interpreting Capability Maturity Model® Integration (CMMI®) for Service Organizations--a Systems Engineering and Integration Services Example, Mary Anne Herndon, Robert Moore, Mike Phillips, Julie Walker, Laura West, November 2003.

eds.com

Susie Harvey
susie.harvey@eds.com
317 240-5613

Barb Weaver
barbara.weaver@eds.com
317 578-5732