

CH-2: Maintenance Support Processes

- ◆ Maintenance Planning
- ◆ Evolution and Maintenance Testing
- ◆ Configuration Management
- ◆ Problem Management
- ◆ Maintenance supporting tools

- ✓ A process that is used, when required, by an operational process is said to be an operational support process.
- ✓ In most IS/IT organizations, developers, maintainers, and operations share the responsibility for these processes.

Maintenance Support Processes...

- ✓ Support processes typically include:
 - ✓ A documentation process
 - ✓ A software configuration and version management process and tools
 - ✓ A product quality assurance process
 - ✓ The verification and validation processes
 - ✓ The problem resolution process, which is often shared with operations
 - ✓ The reviews and audits processes

Maintenance Planning

- ✓ Software maintenance, being a large portion of IT costs, needs to be part of the strategic IT plan.
- ✓ Maintenance planning ensures the creation and updating of plans that describe the current and planned software maintenance activities
- ✓ Software maintenance planning is typically elaborated from three perspectives: organizational, tactical, and operational.

Maintenance Planning...

- ✓ At the organizational level, planning goals are strategic, general, and corporate, and include partners, the SLA, contracts, and licensing.
- ✓ At the tactical level, the planning goal is to identify and plan the activities of pre delivery and transition for new software and also the yearly plans associated with a specific customer account.
- ✓ Finally, at the operational level, the goals are specific:
 - (a) To conduct impact analysis on a given maintenance request,
 - (b) To plan the recovery/failure tests,
 - (c) To plan software versions/releases (e.g., assign each request to a future version/release of the software), and
 - (d) To plan software upgrades (especially the COTS) for the many platforms.

Maintenance Planning...

Goals of Maintenance Planning KPA

1. Ensure a proactive collection and documentation of customer/user, development, and computer operation requests (in the short term, medium term ...) to conduct detailed planning.
2. Identify, communicate, and obtain consensus on priorities of requests currently in queue and assigned.
3. Identify the required controls for each type of maintenance service and application software under maintenance.
4. Plan the recovery/failure tests for all software in maintenance.
5. Identify version management plans (also called release plans) for all software maintained.

Maintenance Planning...

6. Prepare software upgrade plans.
7. Establish a rationale for the allocation of new requests to maintenance engineers and for the capacity of maintenance.
8. Inform the stakeholders of maintenance work performed, waiting in queue, and in progress based on agreed priorities.
9. Inform stakeholders on the status of budgets and on the use of resources.

Maintenance Planning...

Expected Results from the KPA

After the successful implementation of the exemplary practices of this KPA, the following can be observed:

- ✓ A sound forecast is available on needed resources in software maintenance (strategic plan, tactical plan, and operational plan).
- ✓ SLA, agreement, license, and contract renewals are planned.
- ✓ The failure/recovery tests are planned for each software in maintenance.
- ✓ Requests are allocated to future versions of the software.
- ✓ Software upgrades are planned.
- ✓ Pre-delivery and transition services are planned.
- ✓ There is an optimal allocation of maintenance resources to work items.
- ✓ Software maintenance has a plan, and this plan is communicated and approved.
- ✓ The stakeholders are informed about the plans.

EVOLUTION AND MAINTENANCE TESTING

Maintenance Testing

- ✓ Maintenance Testing is done on the already deployed software.
- ✓ The deployed software needs to be enhanced, changed or migrated to other hardware.
- ✓ The Testing done during this enhancement, change and migration cycle is known as maintenance testing.

Maintenance Testing...

Usually maintenance testing is consisting of two parts:

- ✓ **First** one is, testing the changes that has been made because of the correction in the system or if the system is extended or because of some additional features added to it.
- ✓ **Second** one is regression tests to prove that the rest of the system has not been affected by the maintenance work.

Configuration Management

- ✓ **Software Configuration Management** encompasses the disciplines and techniques of initiating, evaluating and controlling change to software products during and after the software engineering process.
- ✓ Configuration management consists of determining the configuration and description of products and intermediate work products at a precise time.
- ✓ Its objective is to ensure systematic control over configuration changes and to maintain integrity and traceability throughout the life cycle of a request that will modify the existing software.