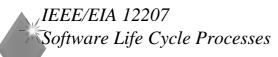
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Unit 2



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Unit 2 - ISO/IEC 12207

- ♦ History
 - ◆ Purpose of 12207
 - ♦ History of 12207
- ♦ Key concepts
- ♦ ISO/IEC 12207 processes

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Purpose of 12207

- ◆ To establish a common framework for the life cycle of software
 - Acquire, supply, develop, operate, and maintain software
 - ◆ Undertakes broader scope than previous standards
 - ◆ Manage, control, and improve the framework
 - ◆ Recognizes that software is part of a system and that a project is part of an enterprise
- ◆ To establish a basis for world trade in software

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Motivations for 12207

Previous standards ...

- ◆ ... focused on the single contract or project in isolation
- ◆ ... described a single monolithic process
- ◆ ... failed to encourage investment in the discipline and capitalization of processes

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Unit 2 - ISO/IEC 12207

- ◆ History
- ♦ Key concepts
- ♦ ISO/IEC 12207 processes

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Key concept of ISO/IEC 12207: Process/activity/task hierarchy

- Processes are subdivided into cohesive activities.
- ◆ Activities are subdivided into *tasks*.
- ◆ You may think of tasks as being the *specifications* for the execution of an activity.
- ◆ A task may be a self-declaration of intent, a requirement, a recommendation, or a permissible action.

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Key concept of ISO/IEC 12207: Processes and parties

- ◆ Identification of processes is based on two principles:
 - ◆ Modularity: Processes should be cohesive and should have low coupling to other.
 - ◆ Responsibility: Each process should be executable by a single party.
 - ◆ A particular *organization* may become the party responsible for executing a process

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Key concept of ISO/IEC 12207: Continuing responsibilities

- ◆ The activities and tasks of a 12207 process are *not* steps to be performed.
- ◆ 12207 does *not* require that the activities and tasks are to be performed in any particular order.
- ◆ The activities and tasks of 12207 are *continuing responsibilities* whose execution is assigned to the party for the duration of the process.

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Key concept of ISO/IEC 12207: Categories of processes

- ◆ Primary:
 - ◆ Acquisition, Supply
 - ◆ Development, Operation, Maintenance
- ◆ Supporting: processes used as "subroutines" by other processes
- ◆ Organizational: processes inherent to the organization and "instantiated" by the project
- ◆ Also, a special *tailoring* process

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Key concept of ISO/IEC 12207: Integral evaluation

- Evaluation is *not* a distinct process or activity.
- Evaluation is treated as an *internal*, *integral* task of many activities in the standard.
- In general, the evaluations have stated purposes and stated criteria.
- Other processes may supplement internal evaluations: Verification, Validation, Joint Review, Audit, Quality Assurance, Improvement.

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Key concept of ISO/IEC 12207: Temporal issues

- ◆ The standard does *not* specify a life cycle *model*, e.g. waterfall, spiral, etc.
- ◆ The standard does not place ordering dependencies or time dependencies on the tasks -- that is the job of the chosen life cycle model and the project plan.
- ◆ Tasks may be iterated, repeated, recursively invoked, etc.

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Key concept of ISO/IEC 12207: Approach to documentation

- ◆ The standard requires some outputs to be documented.
- ◆ The standard does *not* prescribe format, media, or content of the documentation.
- ◆ The Documentation Process permits the user to make these decisions.

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Key concept of ISO/IEC 12207: Approach to baselining

- ◆ Standard differentiates between *items* and *configuration items*. The CM process can handle both, but the latter are handled more rigorously.
- A baseline is a formally approved version of a CI. Baselines (as clarified by the IEEE/EIA version) are established by the primary processes, not by the CM process.

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Unit 2 - ISO/IEC 12207

- ♦ History
- ♦ Key concepts
- ◆ ISO/IEC 12207 processes

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ISO/IEC 12207 processes

- ◆ Primary
- **◆** Supporting
- ♦ Organizational

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SO/IEC 12207 processes:

Primary processes

- ◆ Primary processes are executed by parties who initiate or perform major roles in the software life cycle:
 - ◆ Acquisition
- ◆ Development
- **♦** Supply
- ◆ Operation
- ◆ Maintenance

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ISO/IEC 12207 processes:

Supporting processes

- A supporting process supports another process as an integral part with a distinct purpose:
 - ◆ Documentation
- ♦ Validation
- ◆ Configuration Management
- ◆ Joint Review
- Quality Assurance
- ◆ Audit
- ◆ Verification
- ◆ Problem Resolution
- But fundamental responsibility remains integral to the primary process.

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ISO/IEC 12207 processes: Organizational processes

- ◆ **Organizational** processes inherently exist outside the scope of the project but *instances* of them are employed by the project:
 - ◆ Management
 - ◆ Infrastructure
 - ◆ Improvement
 - **◆** Training

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ISO/IEC 12207 processes: Tailoring process

- ◆ A special case
- ◆ The tailoring process is used to tailor the standard for usage on a particular project.
- ◆ Tailoring permits deletion of any process, activity or task.
- ◆ (Tailoring is discouraged in the IEEE/EIA adaptation of the standard.)

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