CLASS PROJECT – MANAGEMENT PRESENTATION

OBA PROJECT PRESENTATION

Writing of SDP

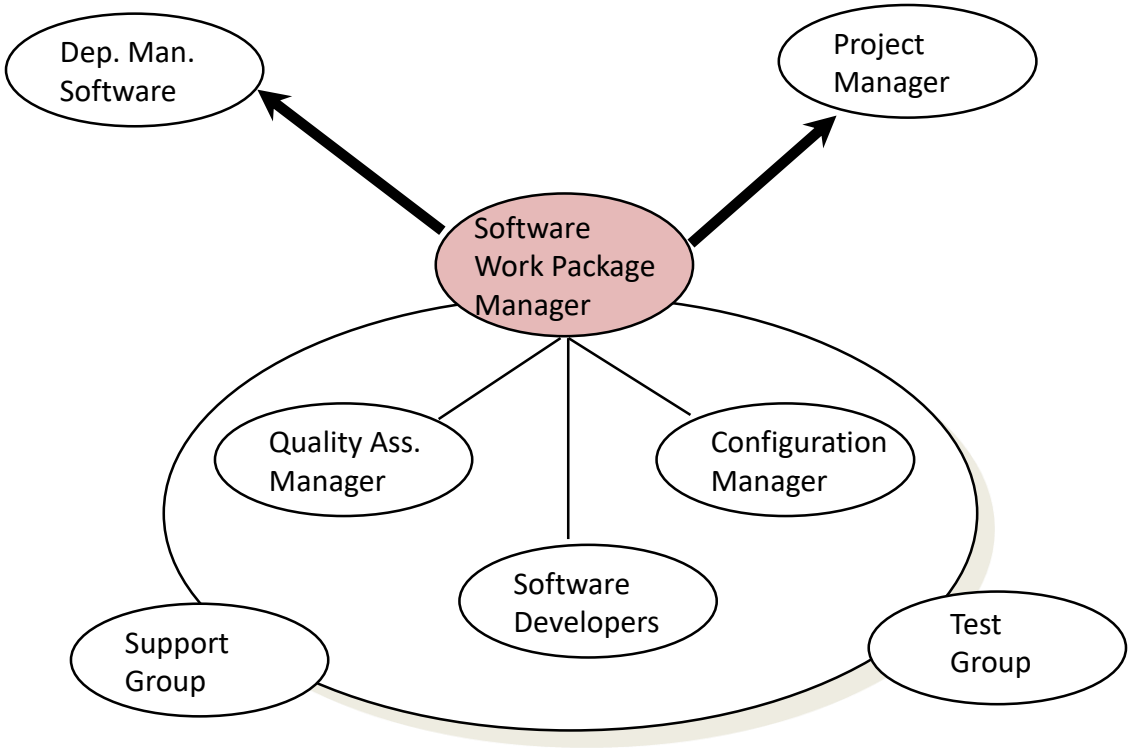
TOPIC 9:
SOFTWARE DEVELOPMENT PLAN REPORTING, REVIEW & EVALUATION

SDP

Objective	• To be the reference document for the preparation and follow-up of CSCI development
Context	• Description of the organization required to perform the software (more precisely, all the CSCI's in a system) development
Responsibility	• The software work package manager
Acceptance	• Must be approved by the project manager and the line management

The different actors

- Although the SWP manager is responsible for the SDP, the writing may be split between the different participants
- All those people involved in the SWP development *exploit* the SDP



Contents

Chapter 1: Scope

1.1: Identification

- This software development plan establishes the plan for the development of CSCIs & non deliverable software.
- Give the system its official name and identification number
- Give each CSCI its official name and identification number

1.2: System overview

- Describe the role of the system and of the CSCI within the system.

1.3: Document overview

- Summarize the purpose and content of this document

1.4: Relationship to other plans

- Describe the relations to other project management plans
- All these plans must be referenced in chapter 2.

Chapter 2: Referenced documents

2.1: Government documents

- International standards e.g.MIL-STD-498, ISO 12207, J-STD-016, DEF STAN 05-95, etc.

2.2: Contractual documents

- Statement Of Work (SOW), Contract Data Requirements List, etc.

2.3: Other documents

- PMP, SQPP, etc.
- Guidelines from the Thomson-CSF SDRS e.g. RDL 318

Chapter 3: Software development management

3.1: Project organization and resources

3.2: Schedule and milestones

3.3: Risk management

3.4: Security

3.5: Interface with associate contractors

3.6: Interface with software IV & V agents

3.7: Subcontractor management

3.8: Formal reviews

3.9: Software development library

3.10: Corrective action process

3.11: Problem/Change Report (PCR)

Chapter 3: Software development management

Goal: To plan and keep track of the software development process

Plan the development process

- Identify and organize the work, define the life cycle, set up a management plan, define corrective action process

Track the development process

- Organize the reviews and audits, keep track and report about cost and schedule

Manage the relationships between the participants

Chapter 3.1: Project organization and resources

3.1.1: Contractor facilities

Description of the contractors facilities, e.g. office information systems, number of rooms needed, location of the facilities, ….

3.1.2: Government furnished equipment, software and services

Equipment supplied by the customer, e.g. test equipment.

3.1.3: Organizational structure

Description of the software project organizational struture and responsibilities.

Note: Do not detail the software development team (para. 4.1, 5.1, 6.1, 7.1)

3.1.4: Personnel

Description of the total number of personnel in this software project.

Note: Names shall only be given if stated in the contract

Chapter 3.2: Schedule and milestones

3.2.1: Activities

Description of each development activity and event and its associated schedule; the schedule can be furnished in graphic form, e.g. GANNT diagram

3.2.2: Activity network

Description of the sequential relationship among the activities of the project, e.g. PERT network.

3.2.3: Source identification

Who has to make available the required resources.

Chapter 3.3: Risk management

- Description how to manage the risks:
  - a. Identify the risk areas
  - b. Identify the risk factors
  - c. Describe procedures for risk management:
    - monitoring the risk factors
    - reducing the potential occurrence of each risk
- Risks are evaluated at each progress meeting

Chapter 3.4: Security

- Description of the implementation of the security requirement's:
    a. Protected areas
    b. Classified documents

Chapter 3.5: Interface with associate contractors

- Description of the contractor's assumptions how to coordinate the information with the co-contractors.

Chapter 3.6: Interface with software IV&V agents

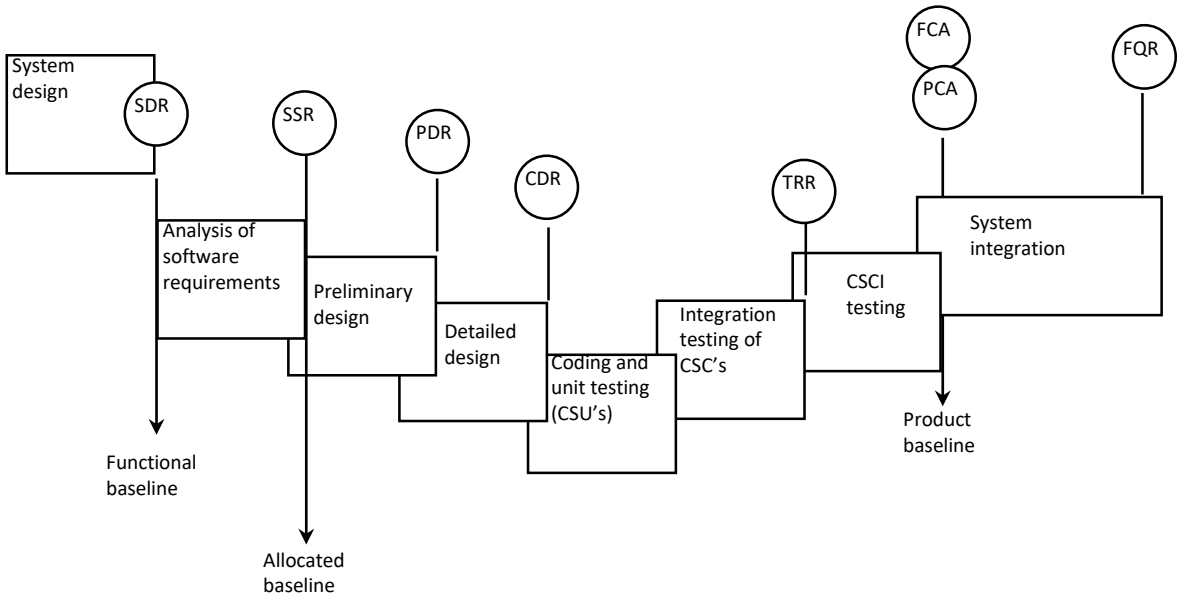
- Description of the interface between IV&V personnel and developer in order to achieve the success of the project.
- Not applicable for OBA.

Chapter 3.7: Subcontractor management

- The purpose of Software Subcontract Management is to select qualified software contractors (and subcontractors) and manage them effectively.
- Description of the contractor's assumptions concerning:
    a. Contract negotiation
    b. Tracking of the subcontracted work
    c. Acceptance procedure of the subcontracted SWP.

Chapter 3.8: Formal reviews

- Description of the formal and informal reviews concerning:
  a. The number of reviews
  b. The participants *(differs between formal and informal)*
  c. Review progress: necessary documents, meeting planning and location, recording into corrective action reports, the review outcome.



SDR: System Design Review
SSR: Software Specification Review
PDR: Preliminary Design Review
CDR: Critical Design Review
TRR: Test Readiness Review
FCA: Functional Configuration Audit
PCA: Physical Configuration Audit
FQR: Final Qualification Review

Chapter 3.9: Software development library

- Controlled collection of software, documentation, tools and associated procedures used to facilitate software sequenced development and logistic support.
- The configuration management is based on the SDL.
- Provides storage of and controlled access to software and documentation in human-readable form, machine-readable form, or both.
- The library may also contain management data pertinent to the software development project.

Chapter 3.10: Corrective action process

- Description of the corrective action process regarding:
    a. The problem detection
    b. The problem reporting
    c. The follow up of the problem correction.

Chapter 3.11: Problem/change reports

- Description of the format to be used for the problem/change reports.

Chapter 4: Software engineering

- 4.1: Organization and resources
- 4.2: Software standards and procedures
- 4.3: Non-developmental software

Chapter 4: Software engineering

Goal: Produce a software product that can be delivered and that is traceable to the requirements

- Draw up the development environment
- Define the methods, tools, languages and associated procedures
- Analyse the software requirements
- Design, code and test the software
- Trace the software requirements ==> fundamental concept

Chapter 4.1: Organization and resources

4.1.1: Organizational structure

Description of the CSCI development team and the relation to other for this project important organizations. Detailed description of para. 3.1.

4.1.2: Personnel

Describe the number and the skills of personnel who will perform the software engineering activities. The personnel must be defined in terms of title and minimum qualification for the job.

Note: Names shall only be given if stated in the contract.

4.1.3: Software engineering environment

Description of the software and hardware environment.

- 4.1.3.1: Software items
- 4.1.3.2: Hardware and firmware items
- 4.1.3.3: Proprietary nature and Government rights
- 4.1.3.4: Installation, control and maintenance

Chapter 4.2: Software standards and procedures

4.2.1: Software development techniques and methodologies

Description of the techniques and methodologies planned to use for:

- Software requirements analysis (ex. SART)
- Preliminary design (ex. OOD)
- Detailed design (ex. OOD)
- Coding and unit testing (ex. C, Ada)
- CSC integration and testing
- CSCI integration

Include the lists the deliverable documents

Note: Tools are described in para. 4.2.3

Coding standards should be cited in para 4.2.4.

Chapter 4.2: Software standards and procedures

4.2.2: Software development files

The development of each CSU, CSC and CSCI shall be documented in the Software Development Files (SDF). The content includes:

- design considerations and constraints
- information on the schedule and progress (detailed planning)
- the test procedures and results
- …….

The SDFs provide a centralized and accessible collection of data pertaining to the requirements, design data, schedules, coding, and testing of software units and aggregates of units.

They will be used for progress assessment and quality control by software management.

Chapter 4.2: Software standards and procedures

4.2.3: Design standards

Describe the design standards the contractor is going to use.

4.2.4: Coding standards

Describe the coding standards the contractor is going to use.

Chapter 4.3: Non-developmental software

An NDS can be:

- a piece of software available on the market (make-buy decision)
- a piece of re-usable software made by the contractor
- a piece of software furnished by the customer.

This paragraph shall briefly describe the rationale for using a non-developmental software item

This paragraph shall briefly describe the documentation of the non-developmental software item

Chapter 5: Formal qualification testing

5.1: Organization and resources

5.2: Test approach/philosophy

5.3: Test planning assumptions and constraints

Chapter 5: Formal qualification testing

Goal:
Test the software product's conformity to the requirements

- Identify the necessary test for each CSCI
- Estimate the test scheduling and environment
- Develop the tests
- Execute the tests, analyze the results and report

The formal qualification testing is a process which allows the customer to determine if the CSCI meets the requirements that have been allocated to it.

Chapter 5.1: Organization and resources

5.1.1: Organizational structure

Description of the test team and the relation to other for this project important organizations. Detailed description of para. 3.1.

It is suitable that the CSCI team members will not be involved in formal qualification testing.

5.1.2: Personnel

Describe the number and the skills of personnel who will perform the formal qualification testing activities. The personnel must be defined in terms of title and minimum qualification for the job.

Note: Names shall only be given if stated in the contract.

Chapter 5.2: Test approach/philosophy

Description of the test approach, e.g. if the test is performed on a target computer or in a simulated environment.

Chapter 5.3: Test Planning Assumptions & Constraints

Description of the test assumptions and constraints.

Chapter 6: Software product evaluations

6.1: Organization and resources

6.2: Software product evaluations and tools

6.3: Subcontractor products

6.4: Software product evaluation records

6.5: Activity-dependent product evaluations

Chapter 6: Software product evaluations

Goal: Control (the quality of) the software product (documentation and source code) and the formal qualification testing (test documents)

Controls are based on a list of criteria

- Coherence inside and between documents
- Comprehensibility, traceability, …..

Write, record and maintain evaluation reports

Write problem reports of the problems found

Chapter 6.1: Organization and resources

6.1.1: Organizational structure

Description of the organizations responsible for performing the software product evaluations. Detailed description of para. 3.1.

6.1.2: Personnel

Describe the number and the skills of personnel who will perform the software product evaluations. The personnel must be defined in terms of title and minimum qualification for the job.

Note: Names shall only be given if stated in the contract.

Chapter 6.2: Software product evaluations and tools

6.2.1: Procedures

Description of the CSCI evaluation procedures:

a. code inspections

b. internal reviews

c. ……..

6.2.2: Tools

In addition to the software engineering tools we may quote tools particular to the product evaluation:

a. evaluation forms

b. quality management tools

c. ……..

Chapter 6.3: Subcontractor products

Description of the contractors assumptions and procedures to evaluate the subcontractor products

Chapter 6.4: Software product evaluation records

Description of the contractor's plans for preparing and maintaining records of each product evaluation performed

Chapter 6.5: Activity dependant product evaluations

- Description of the contractor's plans for conducting product evaluations for each software development product

  Note:Each software product will be treated in a separate paragraph.

Chapter 7: Software configuration management

- 7.1: Organization and resources
- 7.2: Configuration identification
- 7.3: Configuration control
- 7.4: Configuration status accounting
- 7.5: Configuration audits
- 7.6: Preparation for specification authentication
- 7.7: Configuration management major milestones

Chapter 7: Software configuration management

Goal: Identifying, organizing and controlling modifications to the software being built at all time

Identify the software product

Control the modifications of the product

Maintain records of the evolvement of the product

Validate that the identified configuration fulfills the software function to be performed

Chapter 7.1: Organization and resources

7.1.1: Organizational structure

Description of the organization responsible for performing the configuration management. Detailed description of para. 3.1.

7.1.2: Personnel

Describe the number and the skills of personnel who will perform the software product evaluations. The personnel must be defined in terms of title and minimum qualification for the job.

Note: Names shall only be given if stated in the contract.

Chapter 7.2: Configuration identification

7.2.1: Developmental configuration identification

Describe the contractor's internal Developmental Configuration(s) to be used in the development of the CSCI(s).

7.2.2: Identification methods

Describe the methods to be used in identifying (e.g. naming, numbering) CSCI's, CSC's and CSU's.

Describe how the revisions to these documents shall be identified.

Chapter 7.3: Configuration control

7.3.1: Flow of configuration control

Describe the process by which problems and changes are submitted, reviewed and subsequently are approve or disapproved.

7.3.2: Reporting documentation description

Describe the different reporting documentation (see para. 3.11)

7.3.3: Review procedure

Describe the role and procedures for the SCCB.

7.3.4: Storage handling and delivery of project media

Describe the storage, handling and delivery of the software.

7.3.5: Additional controls

Not applicable in OBA.

Chapter 7.4: Configuration status accounting

Description of the configuration status accounting reports:

a. content
b. form
c. purpose

Chapter 7.5: Configuration audits

- Description of the plans to support the configuration audits.

Chapter 7.6: Preparation for specifications authentification

Not applicable for OBA

Chapter 7.7: Configuration management major milestones

Not applicable for OBA

Chapter 8: Other software development functions & Chapter 9: Notes

Chapter 8: Other software development functions

Description of any other function involved in the software development ==> not applicable

Chapter 9: Notes

Contains general information that aids in understanding this document

It is advisable to make distinct paragraphs

Example: a glossary containing an alphabetical list of acronyms and abbreviations

Concluding remarks

Software Development Plan is a tailoring of the DoD-Std-2167A standard regarding software development

You can only measure if you know the facts, therefore you need a project tracking system (SDP) :

- management of requirements (trace-ability)
- risk control
- indicators tracking
- progress meetings

Concluding remarks (cont.)

The SDP is the roadmap for software development