When and How to Develop the Software Development Plan (SDP)

The SDP is a comprehensive planning document that the software manager uses to direct the software development and/or maintenance, in other words, a plan to develop the software. It is often due with the submission of the proposal, but can be updated throughout the project. If not required with the proposal, it should be developed as early as possible subject to the completion of all planning activities including:

- Size, cost, and schedule estimation which discusses staffing, milestones, and schedule
- Selecting a process paradigm or process model
- Identifying the organization
- Tailoring decisions

The SDP or Project Plan is a team effort and has inputs, processes, and outputs. The inputs come from both internal and external sources. The project plans should address Capability Maturity Model Integration® (CMMI) requirements. Project Planning (PA):

- Is a level 2 (repeatable) Process Area (PA)
- Defines the purpose of software project planning to establish reasonable plans for performing the software engineering and managing the software project
- Describes the software project planning as:
    - Developing the estimates to do the work
    - Identifying and assessing software risks
    - Selecting the life cycle model
    - Establishing necessary commitments
    - Defining the plan to do the work

- **Internal Inputs**
    - Winning cost / schedule strategy
    - System Engineering Management Plan (SEMP)
    - Existing system capabilities (reuse)
    - Best practices & procedures
    - Work Breakdown Structure (WBS)
    - Design-to-cost strategies
- **Process**
    - Define software planning tasks
    - Identify resource sources
    - Refine software schedule
    - Generate software plan
    - Tailor software standards
    - Generate draft and final SDP
- **Outputs**
    - SDP
    - Subtasks
    - Task interdependencies
    - Detailed schedule
    - Tailored Standards
    - Rationale notes
    - Personnel requisitions
- **External Inputs (Acquisition Organization)**
    - Request for Proposal (RFP)
    - Statement of Work (SOW)
    - Contract Data Requirements List (CDRL)
- **External Inputs (Customer Requirements)**
    - Environment
    - Mission requirements
    - Operational scenarios
    - Operability scenarios
    - Manning constraints
    - Specified operator tasks

The SDP generally covers the topics listed below. Along the right side are the topics that we cover in the course.

Software Development Plan

Section	Topic
1	Scope
1.1	Identification
1.2	System Overview
1.3	Document Overview

1.4……Relationship to Other Plans ← Planning
2……Referenced Documents
3……Overview of Required Work ← Must Be Compliant with Statement of Work
4……Plans for Performing General Software Development Activities
4.1……Software Development Process ← Development Process
4.2……General Plans for Software Development
4.2.1……Software Development Methods ← Development Methods
4.2.2……Standards for Software Products ← IEEE/EIA 12207, Corporate Standards, etc.
4.2.3……Reusable Software Products
4.2.4……Handling Critical Requirements
4.2.5……Computer Hardware Resource Utilization
4.2.6……Recording Rationale
4.2.7……Access for Acquirer Review ← Joint Application Development (JADS), SharePoint, Internet, etc.
5……Planning for Performing Detailed Software Development Activities
5.1……Project Planning and Oversight
5.2……Establishing a Software Development Environment
5.3 – 5.12……Development Life Cycle Activities ← Details to Project Notebook
5.13……Preparing for Software Transition
5.14……Software Configuration Management ← CMMI ® Level 2 Process Area
5.15……Software Product Evaluation ← Formal Testing
5.16……Software Quality Assurance ← CMMI ® Level 2 Process Area
5.17……Corrective Action
5.18……Joint Technical Management Reviews
5.19……Other Software Development Activities
5.19.1……Risk Management ← Risk
5.19.2……Software Management Indicators ← Metrics, Software and Cost Management
5.19.3……Security and Privacy
5.19.4……Subcontract Management ← CMMI ® Level 2 Process Area
5.19.5……Interface with Software Independent Verification and Validation Agents ← Typically when multiply contractors are involved
5.19.6……Coordination with Associate Developers
5.19.7……Improvement of Project Processes ← Continuous Process Improvement
5.19.8……Other Activities Not Covered ← Training, Software Engineering Process Group
6……Schedule and Activity Network ← Planning, Scheduling
7……Project Organization and Resources ← Organization Structure, Staffing
7.1……Project Organization ← Organization Structure
7.2……Project Resources ← Staffing, Cost and Schedule Management
8……Notes and Appendices

Project Notebook

The Project Notebook (or a Standards and Procedures Manual) supplements the SDP. It:

- Establishes the detailed standards, procedures, guidelines, and restrictions that developers will follow to develop the software.
- Is produced incrementally or "just in time" for each phase of the development effort.
- Generally includes or references organizational standards.
- Allows the software manager to defer detailed instructions including naming conventions, tool usage conventions, and inspection checklists, until enough data is available to make meaningful decisions.
- Eliminates details from the SDP (Typically the SDP is a deliverable and subject to customer review and approval. With the details omitted, the customer reviews and approves the overall process but not the details such as the checklists in the Project Notebook.).

- Results in a SDP that does not overwhelm the developers. (The SDP may reach 75 pages, while the Project Notebook which is intended to be a referenced not read could be 300 pages.)

PROJECT NOTEBOOK

Section	Topic
1.....	Scope
2.....	Referenced Documents
3.....	Requirements Analysis
4.....	Preliminary Design
5.....	Detailed Design
6.....	Database Definition & Control
7.....	Code & Unit Test
8.....	Inspections
9.....	Program Support Library
Appendix A...	Directives
Appendix B...	Project History