

Project planning

Topics of the Lecture

- Project planning preconditions
- Project managers activities before project planning
- Project planning processes in PMBOK
- IT project planning in RUP and agile approaches

Project Planning Preconditions

To start with project planning following preconditions should be met:

- Project sponsor is determined and to the project and its manager available;
- Project manager is assigned to its role;
- Business needs, current understanding of the customer's needs and the new product, service, or result that is intended to satisfy are documented in project charter or in some other corresponding document;
- Project charter is signed – project is formally authorized;
- Project management team may be assigned. The members of the project team who are directly involved in project management activities.

Preparation of Project Planning

Preparation of project planning consists of choosing and assigning of project (management) team and holding of project kick-off meeting. Objectives of this meeting are as follows:

- to allow project manager to introduce team members,
- to discuss the project overview,
- to discuss project roles and responsibilities,
- to review any documentation created or collected to date
- to identify any training needs

Project Planning Nature and Context

Project planning is in its nature definition of project work and its arrangement (performance/business). In the context of information system change is project planning organizing of change processes and their control. Project planning location in project life cycle illustrates the following figure:



Figure 1. Project Planning Context

Project planning is not one-time action, done in the in the beginning of the project, but it is periodically performed through the entire project. Assuming that project timeline is divided by milestones and phases between them, then in any time when remained project work must be planned 3 things must be done:

- refine validity of commitments agreed in project charter or corresponding document (this activity belongs to project initiation process preceding planning process);
- refine general framework (or roadmap) of remaining project work (major milestones to product owner and how to reach them);
- arrange work of following time period (phase, iteration, spring) taking into consideration the nearest major milestone to product owner).

The next figure illustrates the decomposition of information system change process in different levels. This is only draft and may change during the course.

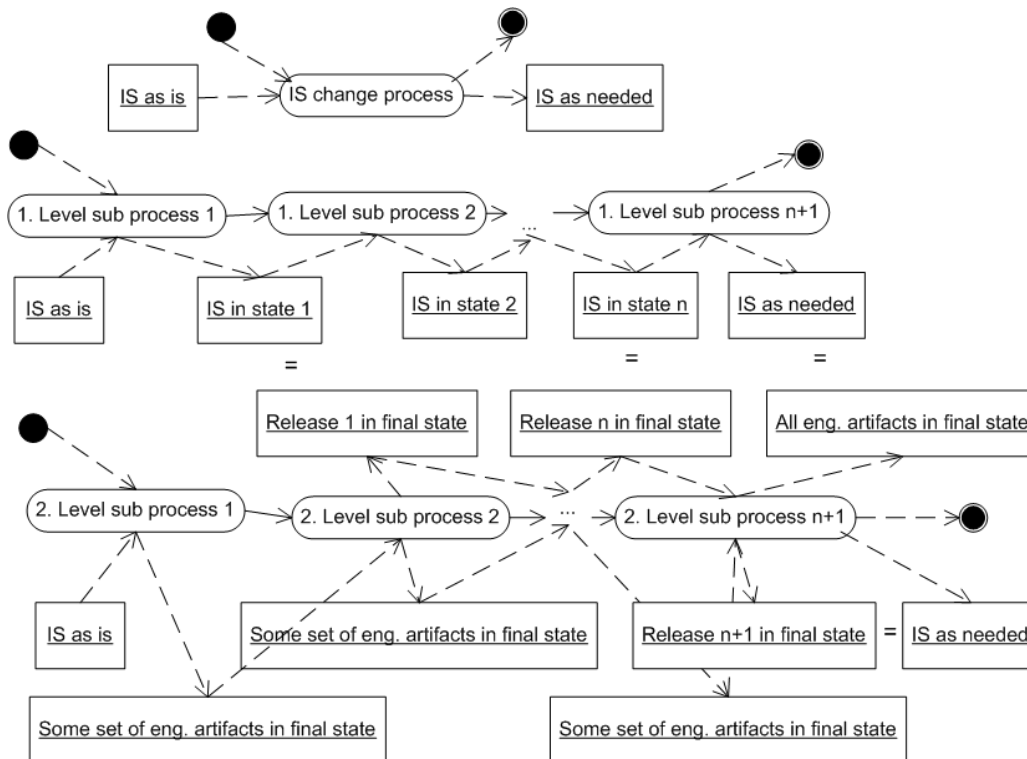


Figure 2. Decomposition of IS Change Process

Project Planning Processes in PMBOK

Are divided in 2 parts:

- developing the project management plan
- planning processes of concrete aspects (objects, areas) of the project

These processes are required to:

- establish the total scope of the effort,
- define and refine the objectives, and
- develop the course of action required to attain the objectives that the project was undertaken to achieve

The planning processes develop the project management plan and the project documents that will be used to carry out the project. The multi-dimensional nature of project management creates repeated feedback loops for additional analysis – so called „rolling wave planning” indicating that planning and documentation are iterative and ongoing processes.

Planning processes inputs and outputs are presented on the next figure:

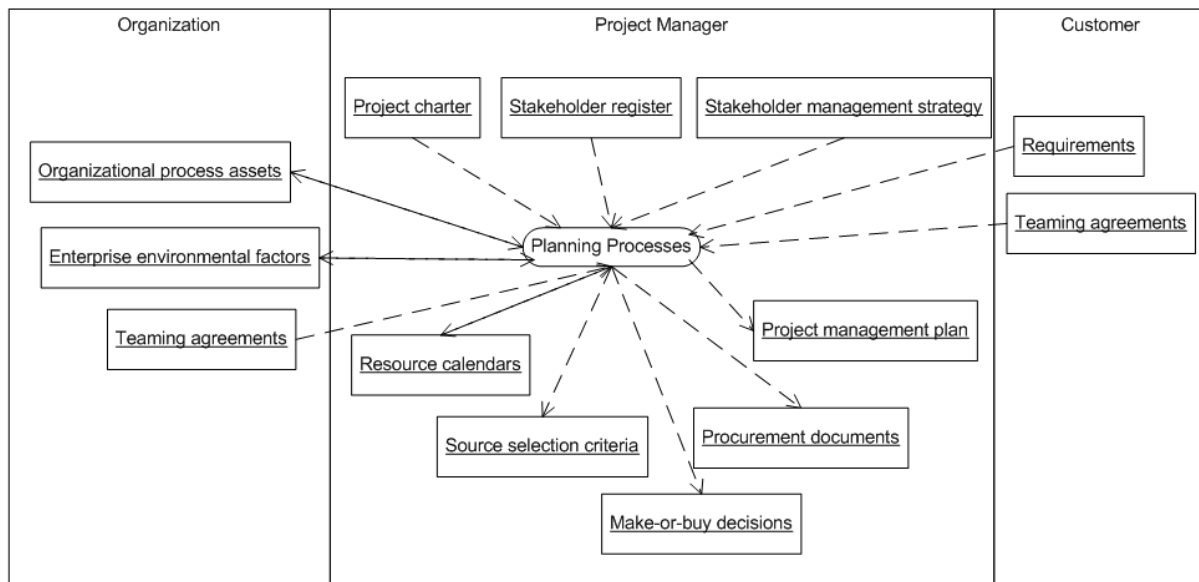


Figure 3. Planning Processes Inputs and Outputs

The general output from these processes is the project management plan consisting of different project aspects management plans. These plans are presented on the next figure:

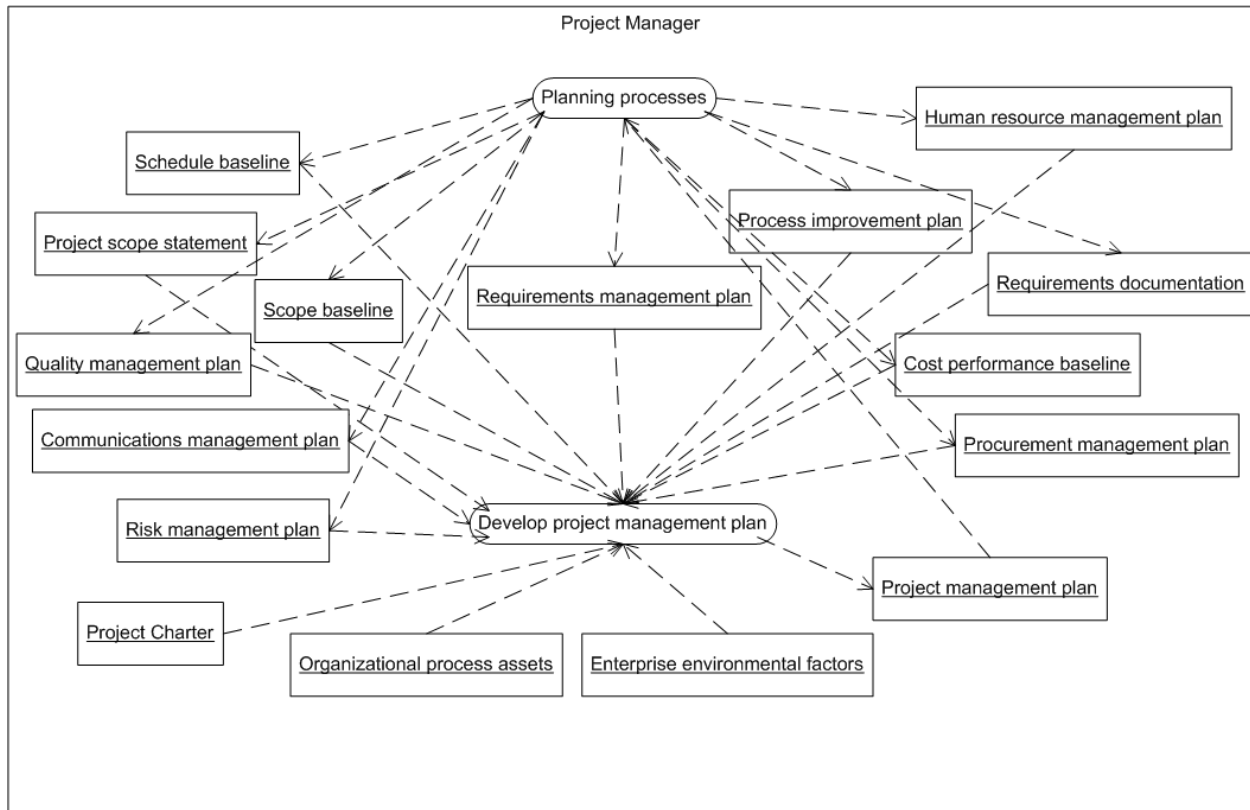


Figure 4. Project Aspects Management Plans

Planning processes and their relationships are presented on the following figure:

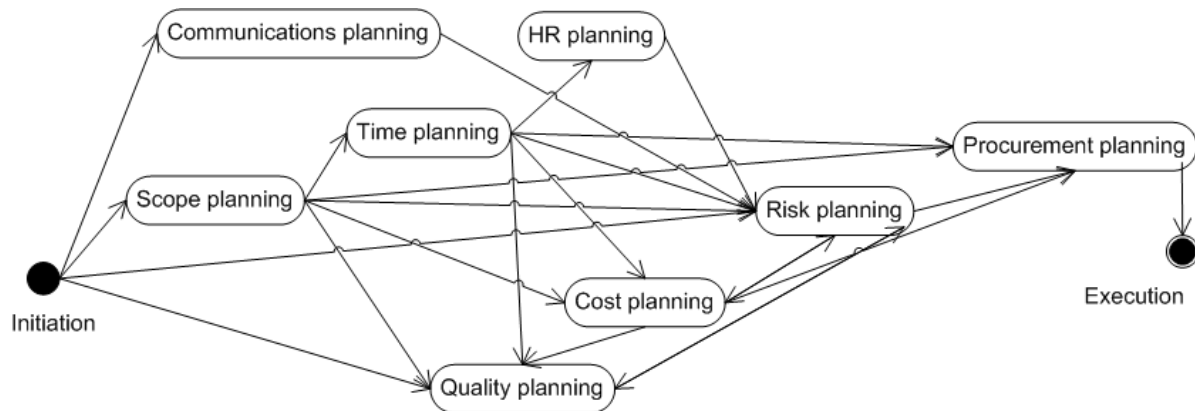


Figure 5. Planning Processes and Their Relationships

[Developing Project Management Plan](#)

It is the process of documenting the actions necessary to define, prepare, integrate, and coordinate all subsidiary plans. The project management plan becomes the primary source of information for how the project will be planned, executed, monitored and controlled, and closed. Inputs for project management plan developing process are:

- project charter
- outputs from planning processes
- enterprise environmental factors
- organizational process assets

Corresponding enterprise environmental factors are:

- Configuration management system; information collection and distribution system
- Organizational structure and culture
- Existing facilities
- Personnel administration (hiring and firing guidelines etc)

Corresponding organizational process assets are:

- Standardized guidelines, work instructions, proposal evaluation criteria, and performance measurement criteria,
- Project management plan template — elements of the project management plan that may be updated include, but are not limited to:
 - guidelines and criteria for tailoring the organization's set of standard processes to satisfy the specific needs of the project, and
 - project closure guidelines or requirements like the product validation and acceptance criteria,
- Change control procedures including the steps
 - by which official company standards, policies, plans, and procedures, or any project documents will be modified and
 - how any changes will be approved and validated,
- Project files from past projects
 - (e.g., scope, cost, schedule and performance measurement baselines, project calendars, project schedule network diagrams, risk registers, planned response actions, and defined risk impact),
- Historical information and lessons learned knowledge base
- Configuration management knowledge base containing
 - the versions and baselines of all official company standards, policies, procedures, and any project documents.

[Project Management Plan](#)

Project management plan integrates and consolidates all of the subsidiary management plans and baselines from the planning processes and includes but is not limited to:

- The life cycle selected for the project and the processes that will be applied to each phase
- Results of the tailoring by the project management team

- How work will be executed to accomplish the project objectives
- A change management plan that documents how changes will be monitored and controlled,
- A configuration management plan that documents how configuration management will be performed,
- How integrity of the performance measurement baselines will be maintained,
- Need and techniques for communication among stakeholders,
- Key management reviews for content, extent, and timing to facilitate addressing open issues and pending decisions

Results of the tailoring by the project management team are as follows:

- Project management processes selected by the project management team
- Level of implementation of each selected process
- Descriptions of the tools and techniques to be used for accomplishing those processes
- How the selected processes will be used to manage the specific project, including the dependencies and interactions among those processes and the essential inputs and outputs

Project baselines include, but are not limited to:

- Schedule baseline
- Cost performance baseline
- Scope baseline

Often the scope, schedule, and cost baseline will be combined into a performance measurement baseline that is used as an overall project baseline against which integrated performance can be measured. The performance measurement baseline is used for earned value measurements.

Project subsidiary plans and documents are presented in the next table:

Table 1. Project Subsidiary Plans and Documents

Project Management Plan	Project Documents	
Change management plan	Activity attributes	Quality metrics
Communications management plan	Activity cost estimates	Responsibility assignment matrix
Configuration management plan	Activity list	Requirements traceability matrix
Cost management plan	Assumption log	Resource breakdown structure
Cost performance baseline	Basis of estimates	Resource calendars
Human resources plan	Change log	Resource requirements
Process improvement plan	Charter	Risk register
Procurement management plan	Contracts	Roles and responsibilities
Quality management plan	Duration estimates	Sellers list
Requirements management plan	Forecasts	Source selection criteria
Risk management plan	Issue log	Stakeholder analysis
Schedule baseline	Milestone list	Stakeholder management strategy
Schedule management plan	Performance reports	Stakeholder register
Scope baseline: • WBS dictionary • WBS • Scope statement	Project funding requirements	Stakeholder requirements
	Proposals	Statement of work
	Procurement documents	Teaming agreements
	Project organizational structure	Team performance assessments
Scope management plan	Quality control measurements	Work performance information
	Quality checklists	Work performance measurements

Remark! In the table presented plans and documents are not related. These are only presented in sorted way.

Project Planning in RUP

To development of project management plan in PMBOK equals RUP workflow called “develop software development plan”. Activities in this workflow are presented on the next figure:

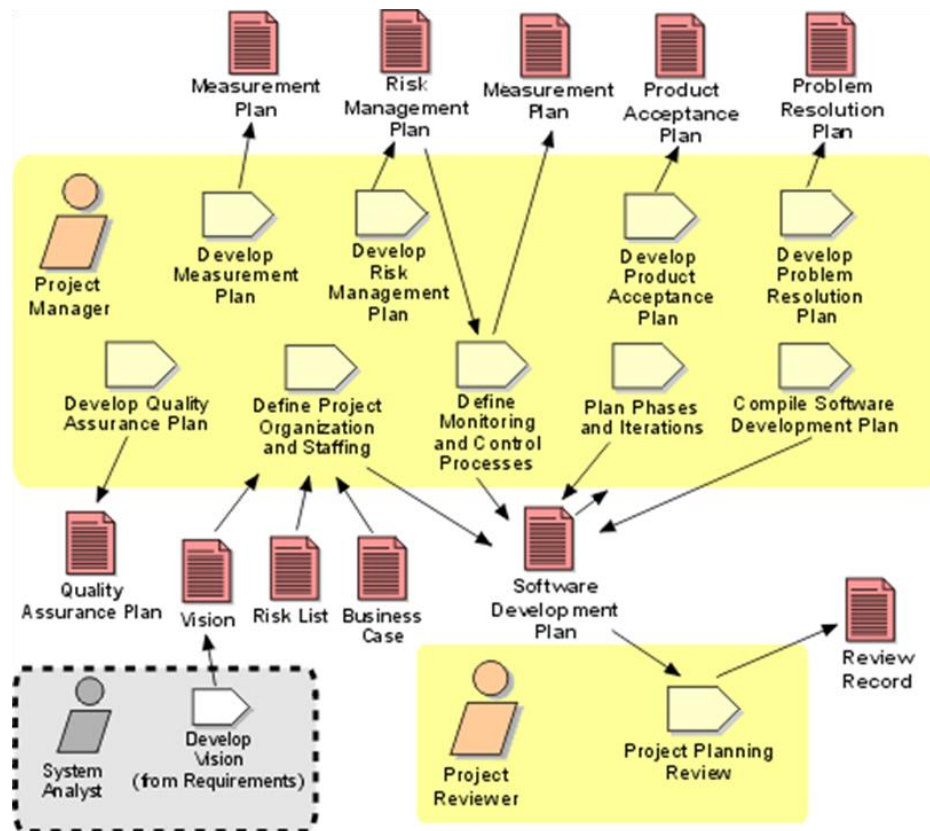


Figure 6. Activities, Inputs and Outputs of Developing Software Development Plan

The purpose of this workflow detail is to develop the components and enclosures of the Iteration Plan). The major effort in creating these artifacts comes early in the inception phase; thereafter, when this workflow detail is invoked at the beginning of each iteration, it is to revise the Software Development Plan (and its enclosures) on the basis of the previous iteration's experience and the Iteration Plan for the next.

The software development plan is a comprehensive, composite artifact that gathers all information required to manage the project. It encloses a number of artifacts developed during the Inception phase and is maintained throughout the project. The typical software development plan consists of following parts:

- I. Context (scope, objectives)
- II. Software development process
 - A. Project primitives
 - 1. Life-cycle phases
 - 2. Artifacts
 - Workflows
 - Checkpoints
 - B. Major milestone scope and content

- C. Process improvement procedures
- III. Software engineering environment
 - A. Process automation (hardware and software configuration)
 - B. Resource allocation procedures (sharing across organizations, security access)
- IV. Software change management
 - A. Configuration control board plan and resources
 - B. Software change order definitions and procedures
 - C. Configurations baseline definitions and procedures
- V. Software assessment
 - A. Metrics collection and reporting procedures
 - B. Risk management procedures (risk identification, tracking, and resourcing)
 - C. Status assessment plan
 - D. Acceptance test plan
- VI. Standards and procedures
 - A. Standards and procedures for technical standards
- VII. Evolutionary appendixes
 - A. Minor milestone scope and content
 - B. Human resources (organization, staffing plan, training plan)

Project Planning in Agile Approaches

Project planning in agile approaches has typically done in 5 levels:

- Product Vision
- Product Roadmap
- Release Plan
- Sprint Plan
- Daily Commitment

This concept is pictorially illustrated on the next figure:

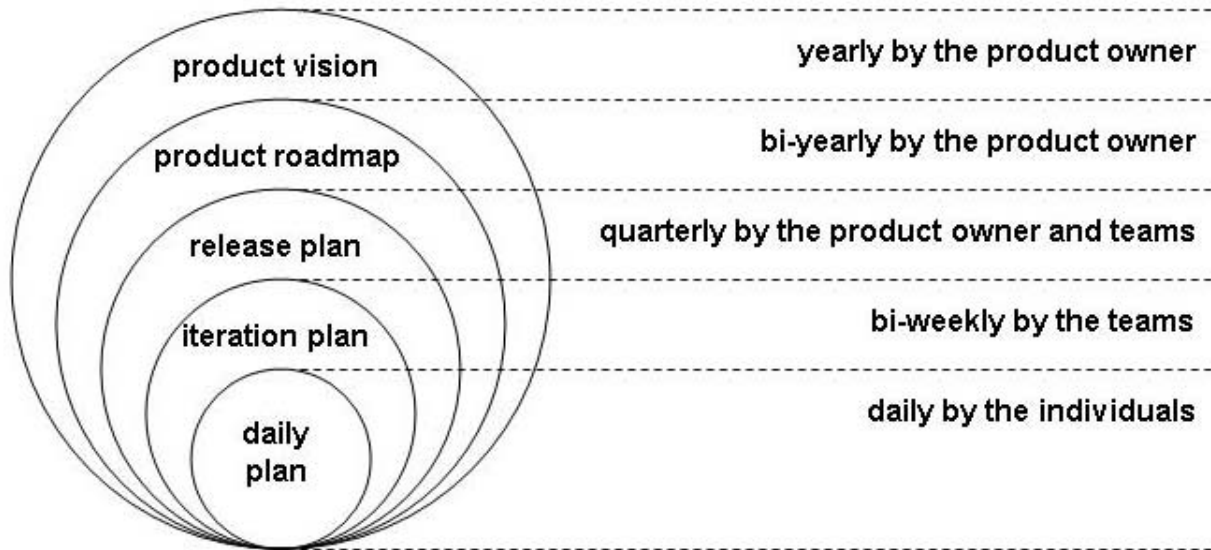


Figure 7. 5 Level Planning

One more example:

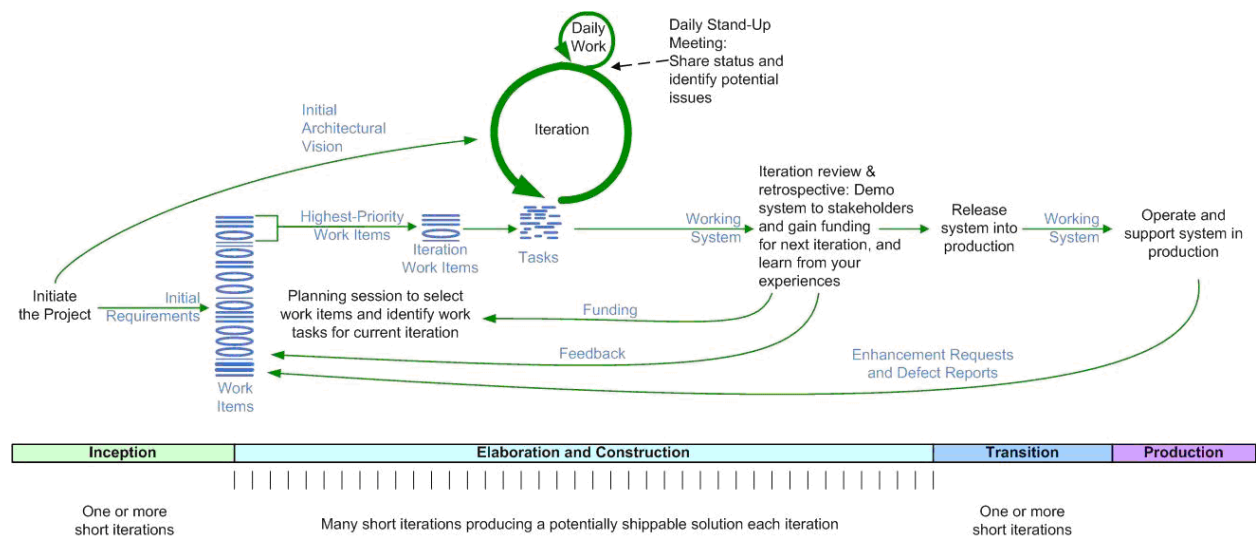


Figure 8. One more Example of Agile Planning

Used Literature

- Project Management Institute, A Guide to the Project Management Body of Knowledge (PMBOK® Guide) - Fourth Edition
- Project Management Plan Template, <http://www.projectmanagementdocs.com/templates/project-management-plan.html>
- Walker Royce: Software Project Management, 1998

- Develop Software Development Plan Workflow in RUP,
http://sce.uhcl.edu/helm/rationalunifiedprocess/process/artifact/ar_sdp.htm
- Software Development Plan Template in RUP
http://sce.uhcl.edu/helm/rationalunifiedprocess/webtmpl/templates/mgmt/rup_sdpln.htm
- Hubert Smits „5 Levels of Agile Planning: From Enterprise Product Vision to Team Stand-up“ <http://www.itu.dk/courses/SASU/F2009/CDM4.pdf>
- Dean Leffingwell „Enterprise Agility – The Big Picture“
<http://scalingsoftwareagilityblog.com/wp-content/uploads/2009/11/the-big-picture-of-enterprise-agilitywhitepaper.pdf>
- Dean Leffingwell, Scaled Agile Framework Big Picture,
<http://scaledagileframework.com/>
- Scott W. Ambler, The Agile Scaling Model (ASM): Adapting Agile Methods for Complex Environments, 2009,
<ftp://ftp.software.ibm.com/common/ssi/sa/wh/n/raw14204usen/RAW14204USEN.PDF>