SOFTWARE PROCESS and ARTIFACTS

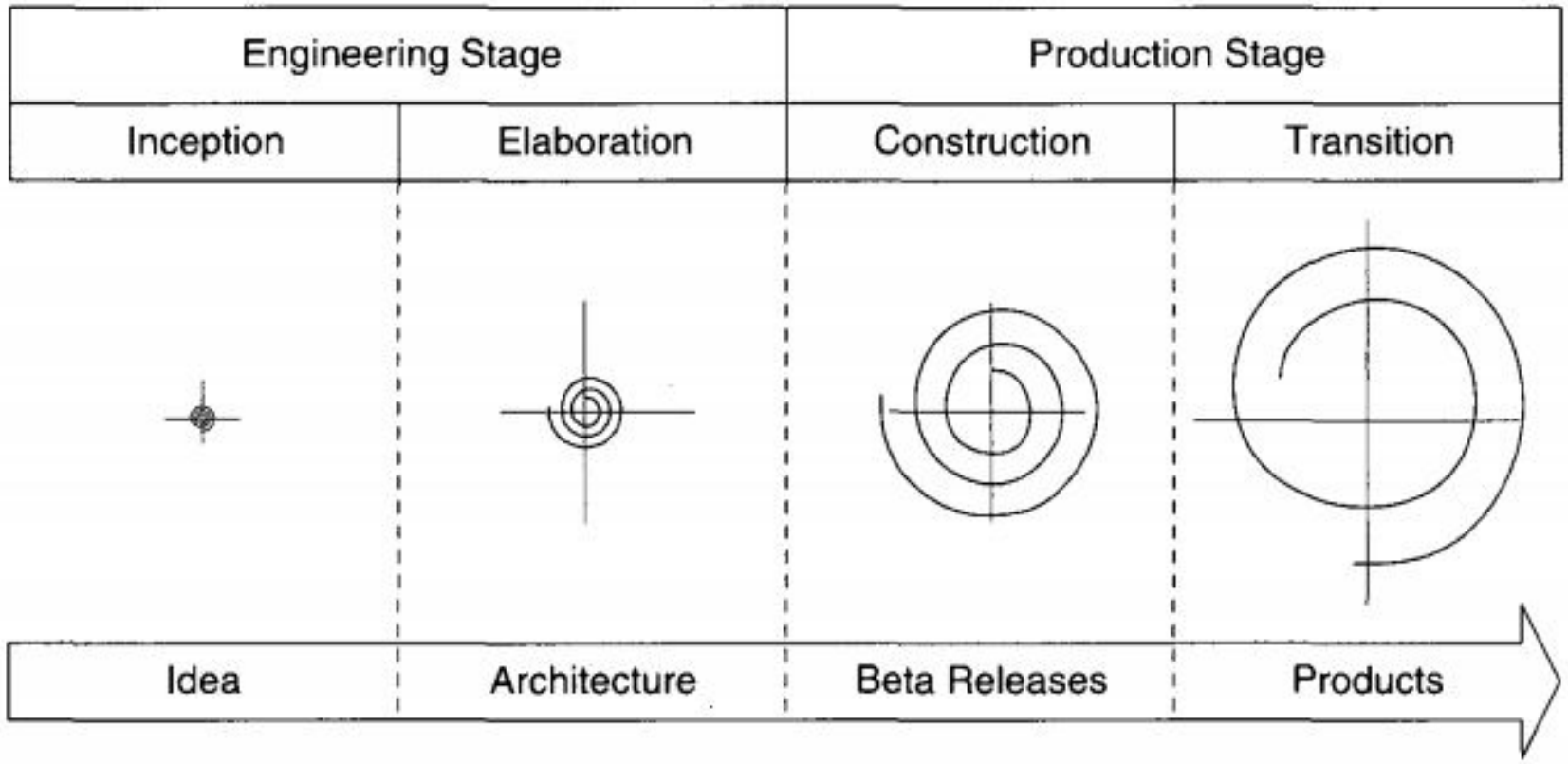
OBJECTIVES

- Software process phases.
- Software process artifacts. Sets of artifacts.
- SPMP and SRS like leading artifacts.

OUTCOMES FOR LESSON

- Students will:
  - Know what are artifacts of software development process
  - Distinguish sets of artifacts
  - Understand which artifacts are primary for projects of any size
  - Be able to write SPMP
  - Be able to write SRS

SOFTWARE PROCESS PHASES



SOFTWARE PROCESS PHASES: INCEPTION

- Formulating the scope of the project
- Synthesizing the architecture
- Planning and preparing the business case

SOFTWARE PROCESS PHASES: ELABORATION

- Elaborating the vision
- Elaborating the process and infrastructure
- Elaborating the architecture and selecting the components

SOFTWARE PROCESS PHASES: CONSTRUCTION

- Resource management, control and process optimization
- Complete component development and testing against evaluation criteria
- Assessments of product releases against acceptance criteria of the vision

SOFTWARE PROCESS PHASES: TRANSITION

- Beta testing to validate the new system
- Conversations of operational databases
- Training of users and maintainers

SOFTWARE PROCESS PHASES: Artifacts

- What is it artifact in general meaning?
- What is it artifact in context of software development process?

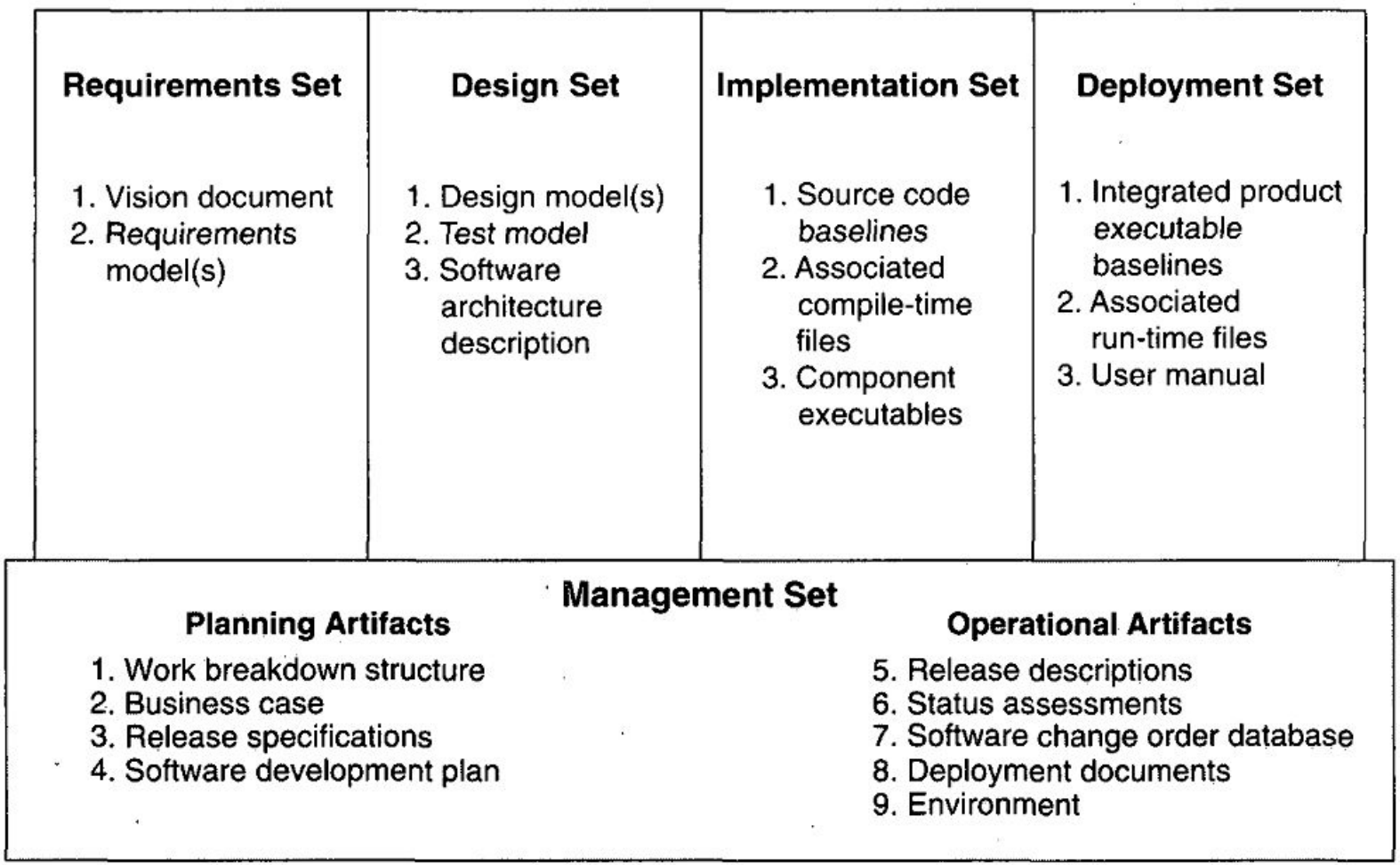
SOFTWARE PROCESS PHASES: Artifacts

- Deliverables
- Non-deliverables

SOFTWARE PROCESS ARTIFACTS: FOCUSED GROUPS.

- For Developers
- For Users
- For Customers

SOFTWARE PROCESS ARTIFACTS. SETS OF ARTIFACTS.



SOFTWARE PROCESS ARTIFACTS. SETS OF ARTIFACTS: Management Set

- **Work breakdown structure**
- Business case
- Release specifications
- **Software development plan**
- Release description
- Status assessments
- Software change order
- Deployment document

SOFTWARE PROCESS ARTIFACTS. SETS OF ARTIFACTS: Requirement Set

- Vision statement
- **Software Requirement Specification**
- User mockups
- **Prototypes**
- UML diagrams (USE CASE)

SOFTWARE PROCESS ARTIFACTS. SETS OF ARTIFACTS: Design Set

- Design model
- Test model
- **Software architecture description**

SOFTWARE PROCESS ARTIFACTS. SETS OF ARTIFACTS: Implementation Set

- **Source code**
- Custom components
- APIes of commercial components

SOFTWARE PROCESS ARTIFACTS. SETS OF ARTIFACTS: Deployment Set

- Executable run-time files
- User manuals

SOFTWARE PROJECT MANAGEMENT PLAN

1. Overview.
2. Scope and goals.
3. Organization.
4. Schedule and Budget.
5. Risk management.
6. Sub-contract management.
7. Communications and reporting.
8. Delivery plan.
9. Quality assurance.
10. Configuration and change management.
11. Security aspects.
12. Definitions, abbreviations, references, revision.

SPMP: Overview

- *What the motivation for this project is*
- *Who the customer is*
- *What the project will deliver. Is it a new product or an extension of an existing one?*
- *What it will cost*
- *How long it will take*
- *Which organizations are involved*
- *Which other projects depend on the project result*
- *Which other projects contribute with their results*

SPMP: Scope and goals

- *Functional goals*
- *Strategic goals*
- *Business goals (e.g.: time-to-market, cost)*
- *Technological goals*
- *Quality goals*
- *Organizational goals*
- *Other goals, e.g.: usability, portability, etc.*
- *Constraints*

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Scope: *Clarify what the project will (and will not) deliver, in order to avoid future shifts in the level of ambition. List of deliverables & corresp. receivers.*

SPMP: Organization

- ***Boundaries & interfaces***

a) *Owners*
b) *Receivers*
c) *Sub-contractors*
d) *Suppliers*
e) *Cross Functions*
f) *Other projects*

- ***Project responsibilities***

a) *Project management*
b) *Projects teams*

SPMP: Schedule & Budget

- *WBS*
- *Schedule and Milestones*
- *Budget*
- *Development Process*
- *Development Environment*
- *Measurements Program*

Milestones		Description	Milestone Criteria	Planned Date
M0		Start Project	Budget Release	<yyyy-mm-dd>
		e.g.: Project goals and scope defined	PRS or SRS reviewed Stakeholders identified Impl. Proposal reviewed	<yyyy-mm-dd>
M1		Start Planning		<yyyy-mm-dd>
		<milestone description, e.g. Life Cycle Objectives LCO defined>	Scope and concept described	<yyyy-mm-dd>
M2		Start Execution		<yyyy-mm-dd>
		<milestone description, e.g. Life Cycle Architecture LCA defined>	Requirements agreed, project plan reviewed, resources committed	<yyyy-mm-dd>
M3		Confirm Execution		<yyyy-mm-dd>
		<milestone description, e.g. alpa version>	Architecture reviewed and stable	<yyyy-mm-dd>
M4		Start Introduction		<yyyy-mm-dd>
		<milestone description, e.g. system test passed>	Coding of new functionality finished, Draft documentation	<yyyy-mm-dd>
M5		Release Product		<yyyy-mm-dd>
		<milestone description>	Product system tested, documentation reviewed	<yyyy-mm-dd>
M6		Close Project		<yyyy-mm-dd>

SPMP: Risk Management

- Describe the procedure to be used for managing risks in the project. The procedure should specify who is responsible for risk management, when risk situation is regularly considered (e.g. at each project status meeting), and which roles risks are communicated to, etc.

SPMP: Sub-contract management (if any)

- *List which part of work is out-sourced to which sub-contractor.*
- *Refer to the sub-contractor's agreement that should include or refer to the statement of work, the execution process, milestones, quality assurance, configuration management, communication structure, hand-over procedure, acceptance criteria, and quality audits.*

SPMP: Communication and Reporting

- State the principles for reporting and distributing information within the project for the different groups of internal and external stakeholders. Include, for example, how often the reporting will take place, the type of reports or information, the type of media in which it is presented, and the type of meetings that will take place.

SPMP: Delivery Plan

- List here all deliverables from the project and who the receivers of the deliverables are. Indicate also the planned delivery date. Take in consideration both strategic and technical aspects

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