



Planning I: The Planning Process

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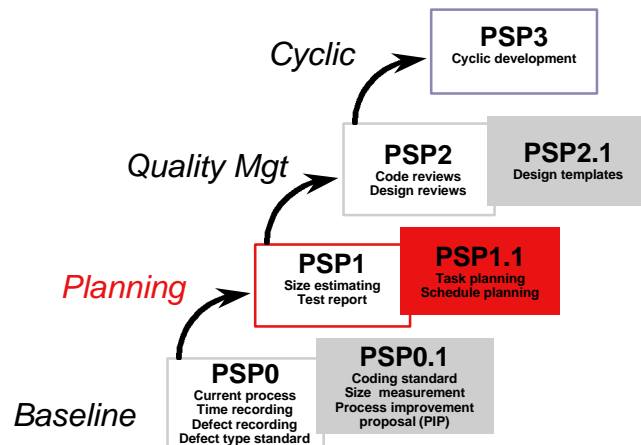
Outline

- *Review of PSP Levels*
- *Definition of a Plan*
- *Why Planning Comes First in the PSP*
- *Reasons for Planning*
- *Contents of a SW Plan*
- *Four Steps in Planning a SW Project*
- *Valuable Project Planning Techniques & Tools*
- *The Planning Framework*
- *Six Aspects of a High Quality Plan*

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Review of PSP Levels (Humphrey, 1995, p. 11)



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Definition of a Plan

- A plan is a predetermined set of activities which, when followed, are expected to lead to the accomplishment of one or more goals.
— Turk
- Plans may be vague or well-defined.
- A well-defined plan indicates these activities and their sequencing in sufficient detail so that it is clear to those who must use or assess the plan what must be done and that the plan may be reliably repeated.

— Turk
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Three Reasons Why Planning Comes First in the PSP (Humphrey, 1995, p. 57)

- *Even modestly-sized SW projects cannot be managed without good plans.*
- *You can learn planning skills and improve them with practice.*
- *You do better SW work when you have good planning skills.*

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Reasons for Planning

(cf. Humphrey, 1995, p. 57-60)

- *Before the project*
 - *To provide a basis for agreeing on the cost and schedule for a job, and thus to help make commitments you can keep.*
 - *Identify tasks & dependency relationships*
 - *Plan schedule, completion date*
 - *Identify costs, & budget (bid & profit)*
 - *To provide a framework for obtaining required resources.*
 - *To record initial commitment.*
- *During the project*
 - *To guide your work (provides an organizing structure).*
 - *To help track your progress.*
 - *To provide a framework for management control of the project.*
- *After the project*
 - *To provide a reference point for evaluating the project.*

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Reasons for Planning (cont.)

(cf. Humphrey, 1995, p. 59-60)

- *"The connection between plans and commitments is... extremely important."*
- *"When you start a major project you are all alone..."*
- *"With a plan, you can negotiate with people and convince them to give your needs priority over their other existing commitments. In short, a plan is the essential first step in creating a project."*
- *Plans are usually incomplete & inaccurate.*
- *Specific written plans facilitate checking for completeness, accuracy, etc. (e.g. IBM's project estimate which only covered coding & unit testing, but not the 2x additional budget needed for documentation, other testing, & QA...)*

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Contents of a SW Plan - Dependent on Plan's Users & Their Needs

(cf. Humphrey, 1995, p. 60-61)

Your needs:

- **Job sizing**
 - How big?
 - How long?
- **Job structure**
 - Tasks, ordering.
- **Job status**
 - Where am I?
 - When will I finish?
 - Are the costs under control?
- **Assessment**
 - How good was my plan?
 - What should I do differently or the same in the future?

Your customer's needs:

- **Commitment**
 - What is to be delivered, when, and at what cost?
- **Quality**
 - How good is the product likely to be?
 - Is it what we want?
- **Monitoring**
 - Can we monitor progress?
 - Is work planned that will ensure accomplishment of our needs?
 - Can we make interim checks?
 - Will we have early warnings of quality, schedule, and cost problems? Can we do something about it?
- **Subsequent evaluation**
 - Will we be able to evaluate later on how well the job was done and what caused various problems?

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General Contents of a SW Plan

(cf. Humphrey, 1995, p. 61-62)

- *Based on doing a defined piece of work.*
- *Clear, measurable steps.*
- *A way to check the plan with the customer.*
- *A way to make periodic progress statements.*

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Four Steps in Planning a Software Project

(cf. Humphrey, 1995, p. 62)

- 1. Write explicit statement of work to be done.
Check statement with customer.*
 - 2. Break work into multiple smaller tasks and
estimate each separately.*
 - 3. Base estimates on historical data.*
 - 4. Record estimates and compare later with
actual results.*
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- *Following these steps helps build a stable
and effective estimating process.*

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Valuable Project Planning Techniques and Tools

(cf. Nicholas, 1990; Clark, 1996)

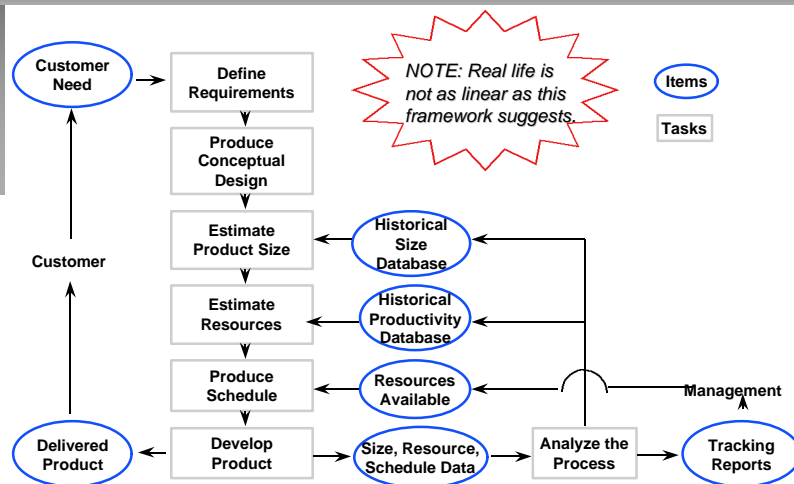
- Activity-based Planning
- Project Networks (Activity-Based)
 - Gantt
 - Task Breakdown
 - CPM (Critical Path Method)
 - Sequencing Dependencies
 - PERT (Program Evaluation & Review Technique)
 - CPM + Probability-based
- Project-Management Software

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The Planning Framework

(cf. Humphrey, 1995, p. 65)



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Six Aspects of a High Quality Plan (cf. Humphrey, 1995, p. 65-67, 73)

1. *Complete*
 - *All necessary information is included.*
 2. *Accessible*
 - *Can be found, in proper format, not cluttered with extraneous material.*
 3. *Clear*
 - *Neat, clear, readable, organized, ...*
 - **READ THE TEXT'S PARAGRAPH AND TAKE IT TO HEART!**
 4. *Specific*
 - *Absolutely clear on what, when, by whom, & cost.*
 5. *Precise*
 - *Level of granularity or detail of the measure compared with the total magnitude of measurement.*
 6. *Accurate*
 - *Amount of over- / under-estimation. Reliability over multiple people & projects. Chapters 5-6 focus on this.*
- ***Well-designed forms help accomplish all of these.***

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