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### **PSP** Definition

"The personal software process (PSP) is a self-improvement process designed to help you control, manage, and improve the way you work. It is a structured framework of forms, guidelines, and procedures for developing software. Properly used, the PSP provides the historical data you need to better make and meet commitments and it makes routine elements of your job more predictable and more efficient."

*(Humphrey, 1995, p. 1)* AU INSY 560, Singapore 1997, Dan Turk















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#### What is Software Process? (Humphrey, 1995, p. 4, 5)

A "software process is the sequence of steps required to develop or maintain software... [It] sets out the technical and management framework for applying methods, tools, and people to the software task."

AU INSY 560, Singapore 1997, Dan Turk

## Software Process Definition

(Humphrey, 1995, p. 5)

- A "<u>software process definition</u> is a description of [the SW development] process. When properly designed and presented, the definition guides software engineers as they work...
- [It] identifies roles and specifies tasks... establishes measures and provides exit and entry criteria for every major step.
- An effectively designed definition helps to ensure that every work item is properly assigned and its status is tracked.
- It also provides an orderly mechanism for learning. As better methods are found, they are incorporated into the organization's official process definitions. A defined process thus permits each new project to build on its own experiences as well as its predecessors'."
- cf. Kellner's list of benefits of operationally defining a process. (Humphrey, p. 5)

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## Process Maturity (Humphrey, 1995, p. 6)

- An organization's level of software development process maturity indicates the following about its development process:
  - How well defined it is
  - How repeatable
  - How well managed
  - Whether it is optimizing / improving

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#### Key Process Areas of the CMM (cf. Humphrey, 1995, p. 7)

CMM Level	Key Process Areas
1. Initial	• Ad Hoc, Chaotic
	• Process dependent on each individual
	developer
2. Repeatable	• SW Config Mgt
	• SW QA
	• SW Subcontract Mgt
	• SW Proj Tracking & Oversight
	• SW Proj Planning
	• Req's Mgt
3. Defined	• Peer Reviews
	<ul> <li>Intergroup coordination</li> </ul>
	• SW Prod Engineering
	• Integrated SW Mgt
	• Training
	SW Process Definition
	• SW Process Focus
4. Managed	• Quality Mgt
	• Quantitative Process Mgt
5. Optimizing	• Process Change Mgt
	• Technology Change Mgt
	• Defect Prevention

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## Logic of the PSP (cf. Humphrey, 1995, p. 14)

- 1. SW professionals will <u>better understand</u> what they do if they define, measure, and track their work.
- 2. They will then have a defined process <u>structure</u> and measurable <u>criteria</u> for evaluating and <u>learning</u> from their own and others' experiences.
- With this knowledge & experience, they can <u>select</u> those <u>methods and practices</u> which best suit their particular tasks and abilities.
- 4. By using a customized set of orderly, consistently practiced, and high-quality personal practices, they will be <u>more effective members</u> of their development teams and projects.

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# PSP's Underlying Principles

(cf. Humphrey, 1995, p. 14-19)

- 1. Defined / structured process can improve working efficiency.
  - There are both creative & repetitive parts of work.
  - Just because some parts of work are creative is no reason to treat them all that way.
- Personal processes need to fit individual preferences.
- 3. SW professionals should define their own processes and continually refine them.
- 4. Processes should evolve with users to meet changes in industry, etc.
- 5. Feedback enhances process improvement.

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### Caveats (cf. Humphrey, 1995, p. 25)

- This course / book concentrates on design, code, and test. The PSP may be applied to other aspects of SW development too (req's spec, maint, test planning, etc.)
- Tools for supporting the PSP are not discussed. Obviously they could be beneficial. But it is best to first learn the process by hand so that you understand and can better customize the process.
- A combination of defined process, tools, and learning / improvement perspective is better than any one approach alone (i.e. a "systems"

*perspective).* AU INSY 560, Singapore 1997, Dan Turk