

Process Framework

Process capability and maturity should conform to the Capability Maturity Model Integration (CMMI) guidelines.

CMMI continuous model measure the Capability level of a process area. (Project Planning, Req. mgmt, Measurement & Analysis, Configuration Mgmt, Process Product Quality Assurance) (0-5)

- Level 0: Incomplete
- Level 1: Performed
- Level 2: Managed
- Level 3: Defined
- Level 4: Quantitatively Managed
- Level 5: Optimized

Low capability of process areas
↓
best/highest capability of process areas

CMMI staged model defines each process area in terms of Specific Goals (SG), Generic Goals (GG) • Specific Practices (SP)

Specific Generic Practices (GP) refine goals into process related activities

eg: SG1 Establish estimates

SP1.1-1 Estimate scope of project

SP1.2-1 Estimate work product & task attributes

⋮

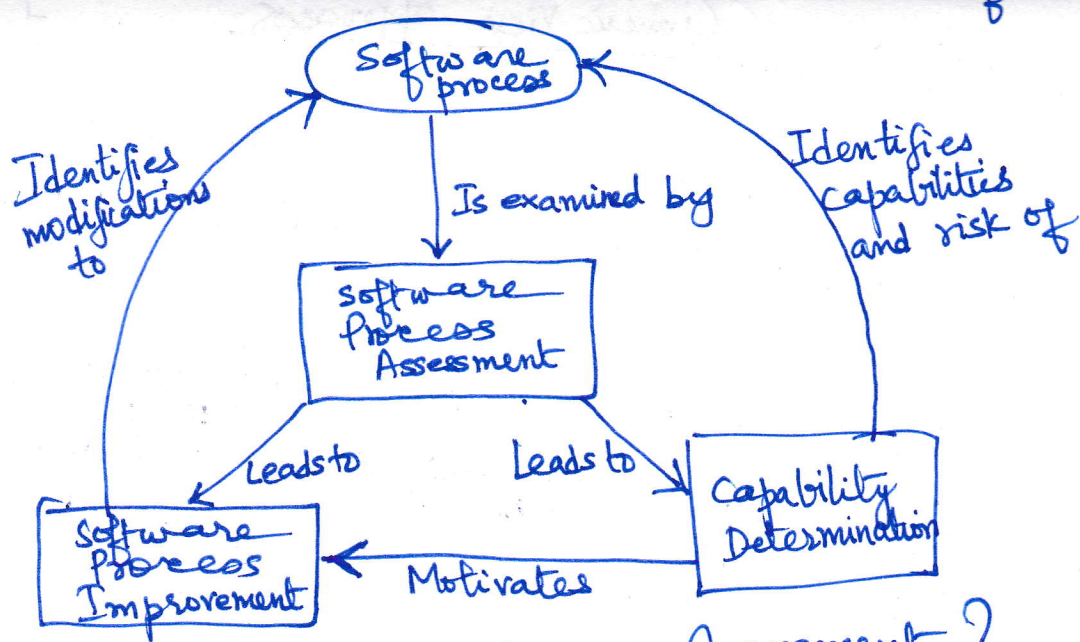
GG1: Achieve specific goals

GP1.1 Perform base practices

Process Assessment: The goal is to understand the current process condition and then improve it.

Approaches for process assessment

- Standard CMMI Assessment method for Process Improvement (SCAMPI)
- CMM-Based Appraisal for Internal Process Improvement (~~CBAIPI~~) (CBAIPI)
- SPICE (ISO/IEC 15504)
- ISO 9001:2000 for Software



Why Software Process Assessment?

ISO 9001:2000 has adopted a "plan-do-check-act" cycle to quality management elements of a software project

Personal Software Process: This process should suit the needs of each software engineers and also meet broader goals of team & organization. It ~~measures~~ emphasizes personal measurement of work product and quality of work product. In addition it empowers individual with project planning and quality control of work products

Framework activities

- Planning
- High-level design
- High-level design review
- Development
- Postmortem

} improves software productivity and software quality

Team Software Process: This process may be adapted by a team to produce a "self-directed" team that produces high-quality software

Framework activities

- launch
- High-level design
- Implementation ~~integration~~
- Integration and Test
- Postmortem

launch means what?

- Review project objectives with mgmt.
- Establish team roles
- Define team development process
- Make quality plan
- Produce overall development plan
- Add detailed plans for each engineer

Best software teams are self-directed

Process and Product.

A weak process produces a ^{low quality} (weak) product.

A quality process may produce a quality product.
It creates a quality work process that may create a good working environment (satisfaction) for people involved in the process.

Software process can be defined as collection of patterns that define activities, actions, work tasks, work products related to develop software.

Process pattern provides us with a template to describe a characteristic of a process.
A template provides us ~~more~~ with means to describe a pattern in a consistent manner.

All process patterns use same template

Pattern name:

Intent:

Type:

Initial context:

Problem:

Solution:

Resulting context:

Related Patterns:

eg: Pattern name: Prototyping
Intent: To build a prototype to understand and solidify soft. reqs that are not clearly understood

Type: Phase pattern

Initial context:

Problem: Req. are hazy or non-existent
Stakeholders are unsure of requirements

Solution: Build a prototype and take customer/stakeholder feedback

Resulting context: the requirements are identified and approved by stakeholders...

Related Patterns: customer-communication, iterative design....