

Key Process Areas

Except for level 1, each maturity level is decomposed into several key process areas that indicate the areas (KPA) an organization should focus on to improve its software process. Key process areas identify the issues that must be addressed to achieve a maturity level. Each key process area identifies a cluster of related activities that, when performed collectively, achieve a set of goals considered important for enhancing process capability. The key process areas and their purposes are listed below. The name of each key process area is followed by its two-letter abbreviation [PAUL 94, PAUL 95, WIEG 98].

By definition there are no key process areas for level 1.

The key process areas at level 2 focus on the software project's concerns related to establishing basic project management controls, as summarized below:

Requirements Management (RM)	Establish a common relationship between the customer requirements and the developers in order to understand the requirements of the project.
Software Project Planning (PP)	Establish reasonable plans for performing the software engineering and for managing the software project.
Software Project Tracking and Oversight (PT)	Establish adequate visibility into actual progress so that management can take effective actions when the software project's performance deviates significantly from the software plans.
Software Subcontract Management (SM)	Select qualified software subcontractors and manage them effectively.
Software Quality Assurance (QA)	Provide management with appropriate visibility into the process being used by the software project and of the products being built.
Software Configuration Management (CM)	Establish and maintain the integrity of the products of the software project throughout the project's software life cycle.

The key process areas at level 3 address both project and organizational issues, as the organization establishes an infrastructure that institutionalizes effective software engineering and management processes across all projects, as summarized below:

Organization Process Focus (PF)	Establish the organizational responsibility for software process activities that improve the organization's overall software process capability.
Organization Process Definition (PD)	Develop and maintain a usable set of software process assets that improve process performance across the projects and provide a basis for cumulative, long-term benefits to the organization.

Training Program (TP)

Integrated Software Management (IM)

Software Product Engineering (PE)

Inter group Coordination (IC)

Peer Reviews (PR)

Develop the skills and knowledge of individuals so that they can perform their roles effectively and efficiently.

Integrate the software engineering and management activities into a coherent, defined software process that is tailored from the organization's standard software process and related process assets.

Consistently perform a well-defined engineering process that integrates all the software engineering activities to produce correct, consistent software products effectively and efficiently.

Establish a means for the software engineering group to participate actively with the other engineering groups so the project is better able to satisfy the customer's needs effectively and efficiently.

Remove defects from the software work products early and efficiently. An important corollary effect is to develop a better understanding of the software work products and of the defects that can be prevented.

The key process areas of level 4 focuses on establishing a quantitative understanding of both the software process and the software work products being built, as summarized below:

Quantitative Process Management (QP)

Control the process performance of the software project quantitatively.

Software Quality Management (QM)

Develop a quantitative understanding of the quality of the project's software products and achieve specific quality goals.

The key process areas at level 5 cover the issues that both the organization and the projects must address to implement continuous and measurable software process improvement, as summarized below:

Defect Prevention (DP)

Identify the causes of defects and prevent them from recurring.

Technology Change Management (TM)

Identify beneficial new technologies (i.e., tools, methods, and processes) and transfer them into the organization in an orderly manner.

Process Change Management (PC)

Continually improve the software processes used in the organization with the intent of improving software quality, increasing productivity, and decreasing the cycle time for product development.