

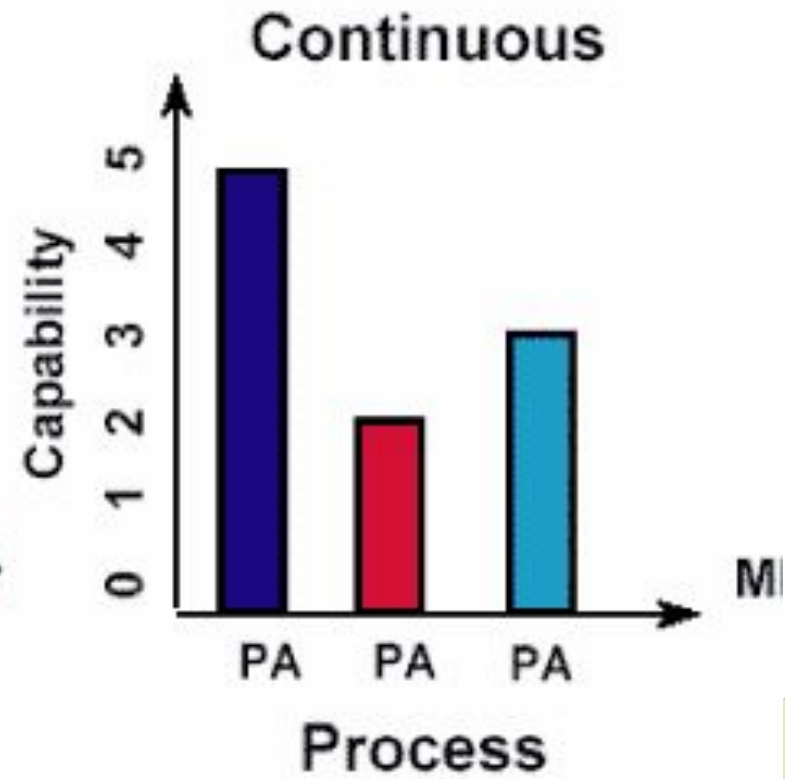
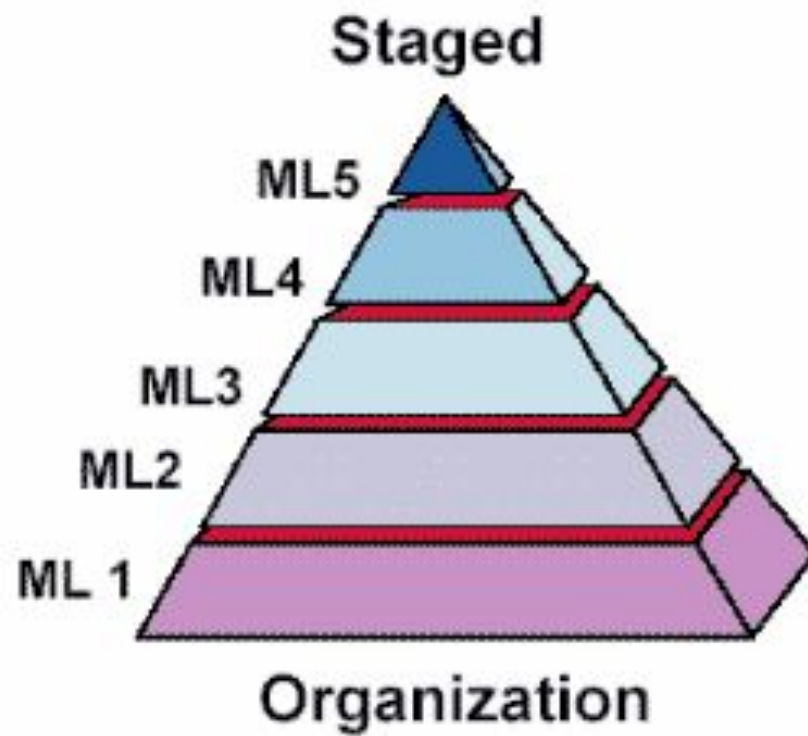
What is CMMI?

The Capability Maturity Model Integration (CMMI) is a process and behavioral model that helps organizations streamline process improvement and encourage productive, efficient behaviors that decrease risks in software, product, and service development.

Objectives of CMMI :

1. Fulfilling customer needs and expectations.
2. Value creation for investors/stockholders.
3. Market growth is increased.
4. Improved quality of products and services.
5. Enhanced reputation in Industry.

CMMI Representation



Staged Representation :

- uses a pre-defined set of process areas to define improvement path.
- provides a sequence of improvements, where each part in the sequence serves as a foundation for the next.
- an improved path is defined by maturity level.
- maturity level describes the maturity of processes in organization.
- Staged CMMI representation allows comparison between different organizations for multiple maturity levels.

Continuous Representation :

- allows selection of specific process areas.
- uses capability levels that measures improvement of an individual process area.
- Continuous CMMI representation allows comparison between different organizations on a process-area-by-process-area basis.
- allows organizations to select processes which require more improvement.
- In this representation, order of improvement of various processes can be selected which allows the organizations to meet their objectives and eliminate risks.

CMMI Model – Maturity Levels :

1.Maturity level 1 : Initial

1. processes are poorly managed or controlled.
2. unpredictable outcomes of processes involved.
3. ad hoc and chaotic approach used.
4. No KPAs (Key Process Areas) defined.
5. Lowest quality and highest risk.

2.Maturity level 2 : Managed

1. requirements are managed.
2. processes are planned and controlled.
3. projects are managed and implemented according to their documented plans.
4. This risk involved is lower than Initial level, but still exists.
5. Quality is better than Initial level.

3.Maturity level 3 : Defined

1. processes are well characterized and described using standards, proper procedures, and methods, tools, etc.
2. Medium quality and medium risk involved.
3. Focus is process standardization.

4. Maturity level 4 : Quantitatively managed

5. quantitative objectives for process performance and quality are set.
6. quantitative objectives are based on customer requirements, organization needs, etc.
7. process performance measures are analyzed quantitatively.
8. higher quality of processes is achieved.
9. lower risk

5.Maturity level 5 : Optimizing

10. continuous improvement in processes and their performance.
11. improvement has to be both incremental and innovative.
12. highest quality of processes.
13. lowest risk in processes and their performance.

CMMI Model – Capability Levels

A capability level includes relevant specific and generic practices for a specific process area that can improve the organization's processes associated with that process area. For CMMI models with continuous representation, there are six capability levels as described below :

1.Capability level 0 : Incomplete

1. incomplete process – partially or not performed.
2. one or more specific goals of process area are not met.
3. No generic goals are specified for this level.
4. this capability level is same as maturity level 1.

2.Capability level 1 : Performed

1. process performance may not be stable.
2. objectives of quality, cost and schedule may not be met.
3. a capability level 1 process is expected to perform all specific and generic practices for this level.
4. only a start-step for process improvement.

3.Capability level 2 : Managed

1. process is planned, monitored and controlled.
2. managing the process by ensuring that objectives are achieved.
3. objectives are both model and other including cost, quality, schedule.
4. actively managing processing with the help of metrics.

4.Capability level 3 : Defined

5. a defined process is managed and meets the organization's set of guidelines and standards.
6. focus is process standardization.

5.Capability level 4 : Quantitatively Managed

7. process is controlled using statistical and quantitative techniques.
8. process performance and quality is understood in statistical terms and metrics.
9. quantitative objectives for process quality and performance are established.

6.Capability level 5 : Optimizing

10. focuses on continually improving process performance.
11. performance is improved in both ways – incremental and innovation.
12. emphasizes on studying the performance results across the organization to ensure that common causes or issues are identified and fixed.

Advantages and Disadvantages

Advantages of CMMI

1. Culture for maintaining Quality in projects starts in the mind of the junior programmers to the senior programmers and project managers
2. Centralized QMS for implementation in projects to ensure uniformity in the documentation which means less learning cycle for new resources, better management of project status and health
3. Incorporation of Software Engineering Best Practices in the Organizations as described in CMMI Model
4. Cost saving in terms of lesser effort due to less defects and less rework
5. This also results in increased Productivity
6. On-Time Deliveries
7. Increased Customer Satisfaction
8. Overall increased Return on Investment

Disadvantages of CMMI

1. CMMI-DEV is may not be suitable for every organization.
2. It may add overhead in terms of documentation.
3. May require additional resources and knowledge required in smaller organizations to initiate CMMI-based process improvement.
4. May require a considerable amount of time and effort for implementation.
5. Require a major shift in organizational culture and attitude.