

Software Requirements Engineering (SE2001)



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Capability Maturity Model (CMM)

CMM was developed by the Software Engineering Institute (SEI) at Carnegie Mellon University in 1987.

- ❖ It is not a software process model.
- ❖ It is a framework that is used to:
 - Analyze the approach and techniques followed by any organization to develop software products.

Capability Maturity Model (CMM)

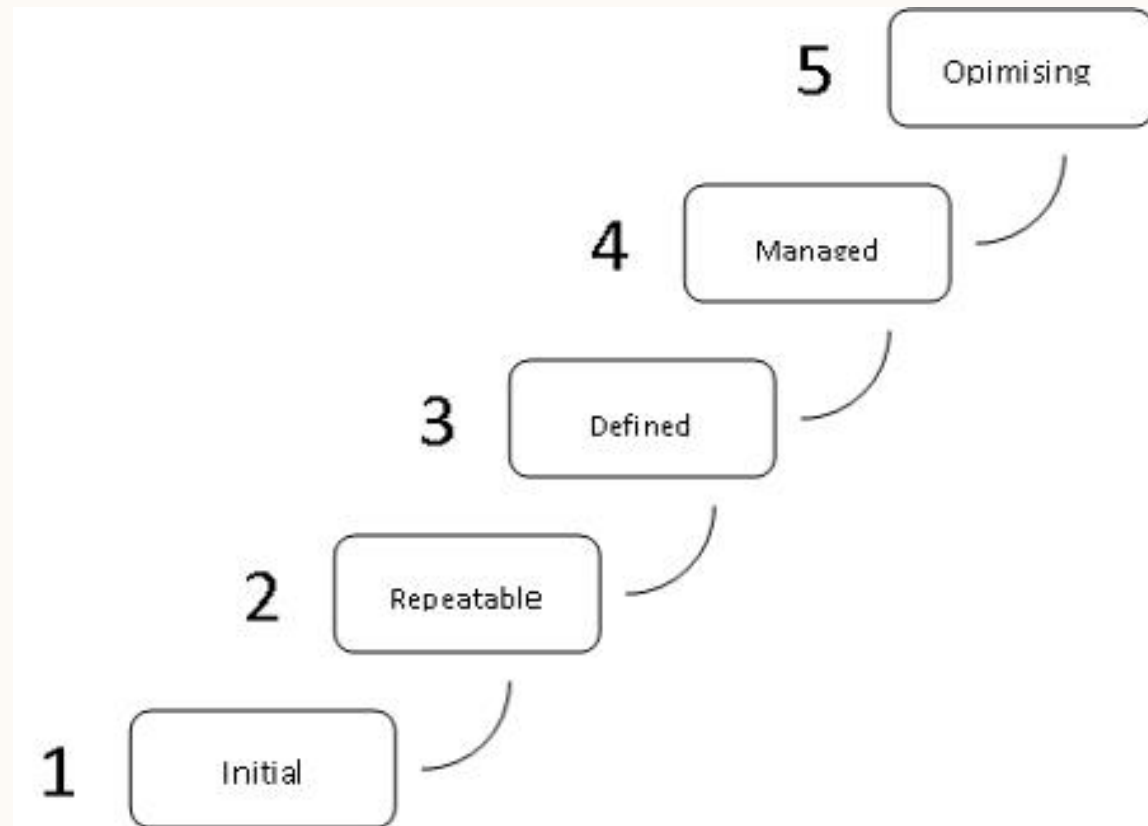
- ❖ It also provides guidelines to further enhance
 - The maturity of the process used to develop those software products.
- ❖ It is based on profound feedback and development practices adopted by the most successful organizations worldwide.

Capability Maturity Model (CMM)

- ❖ This model describes a strategy for software process improvement that should be followed by moving through 5 different levels.
- ❖ Each level of maturity shows a process capability level.
- ❖ All the levels except level-1 are further described by Key Process Areas (KPA's).

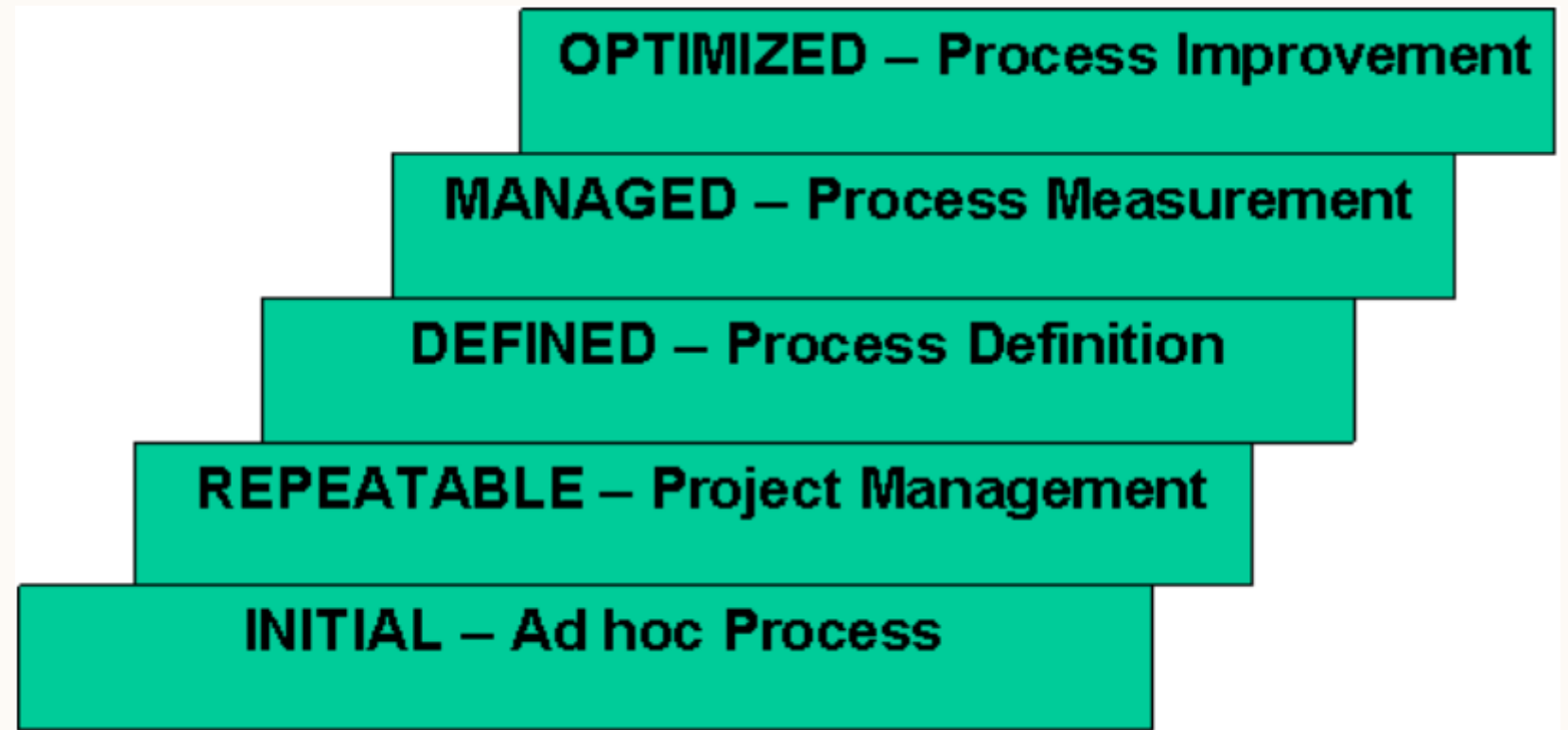
Capability Maturity Model (CMM)

- ❖ This framework has 5 different levels and an organization is placed into one of these 5 levels.
- ❖ The following figure shows the CMM framework.



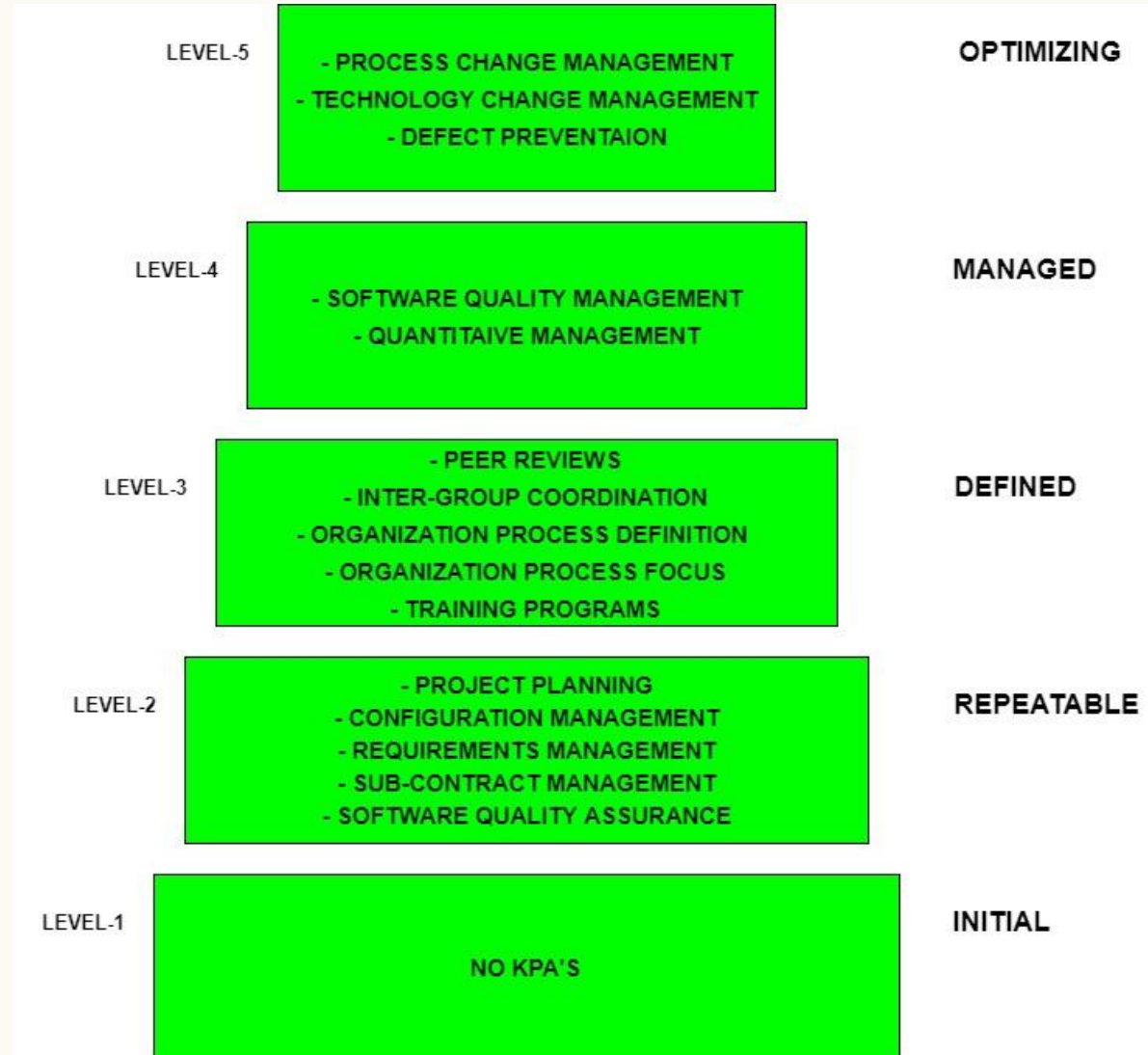
Capability Maturity Model (CMM)

❖ The following figure shows the CMM framework.



Capability Maturity Model (CMM)

Key Process Areas



Capability Maturity Model (CMM)

❖ Level 1 - Initial:

- No KPA's defined.
- Processes followed are Ad-hoc and immature and are not well defined.
- Organizations have an undisciplined process.
- It is left to individuals to decide:
 - How to manage the process.
 - Which development techniques to be use.

Capability Maturity Model (CMM)

❖ Level 2 - Repeatable:

- Organizations have basic cost and schedule management procedures in place.
- They are likely to be able to make consistent budget and schedule prediction for projects.

Capability Maturity Model (CMM)

❖ Level 2 - Repeatable:

- Focuses on establishing basic project management policies.
- Experience with earlier projects is used for managing new similar natured projects.

Capability Maturity Model (CMM)

❖ Level 3 - Defined:

- The software process for both management and engineering activities is documented, standardized, and integrated into a standard software process for the organization.

Capability Maturity Model (CMM)

❖ Level 3 - Defined:

- At this level, documentation of the standard guidelines and procedures takes place.
- It is a well-defined integrated set of project-specific software engineering and management processes.

Capability Maturity Model (CMM)

❖ Level 4 - Managed:

- Detailed measurements of both process and product quality are collected and used to control the process.

Capability Maturity Model (CMM)

❖ Level 4 - Managed:

- At this stage, quantitative quality goals are set for the organization for software products as well as software processes.
- The measurements made help the organization to predict the product and process quality within some limits defined quantitatively.

Capability Maturity Model (CMM)

❖ Level 5 - Optimizing:

- The organization has a continuous process improvement strategies, based on objective measurements, in place.

Capability Maturity Model (CMM)

❖ Level 5 - Optimizing:

- This is the highest level of process maturity in CMM and focuses on continuous process improvement in the organization using quantitative feedback.
- Use of new tools, techniques, and evaluation of software processes is done to prevent recurrence of known defects.

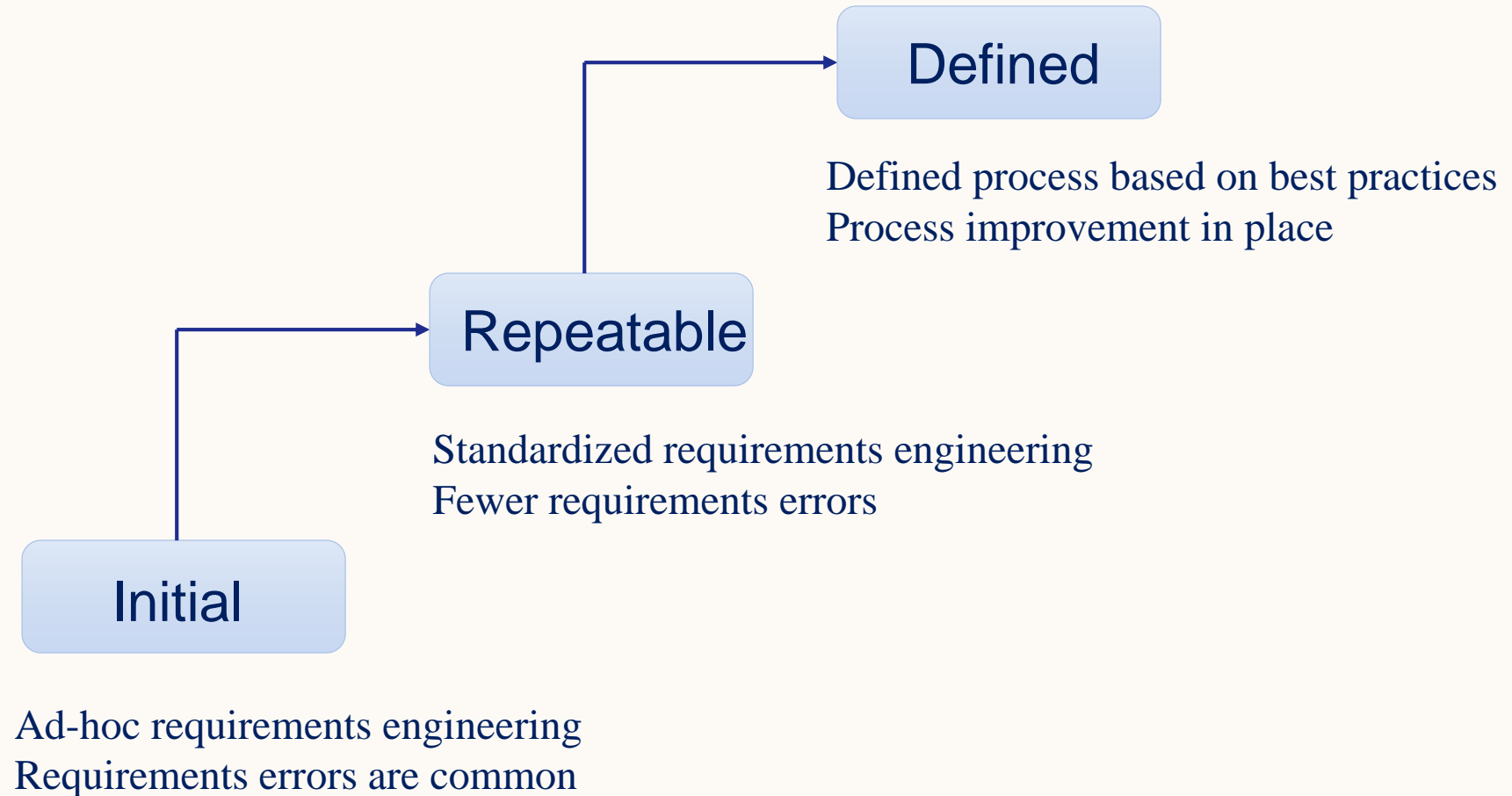
RE Process Maturity Model

- Requirements engineering process maturity is the extent to which an organization has a defined requirements engineering process based on good requirements engineering practices.
- It will use appropriate methods and techniques for requirements engineering.
- Will have defined standards for requirements documents, requirements descriptions.

RE Process Maturity Model

- Organizations may use automated tools to support process activities.
- It will have management policies and procedures to ensure that the process is followed.

RE Process Maturity Model



RE Process Maturity Model

❖ Level 1: Initial Level

- There is no defined RE process.
- It suffer from requirements problems such as requirements volatility, unsatisfied stakeholders and high rework costs.
- It is dependent on individual skills and experience.

RE Process Maturity Model

❖ Level 2: Repeatable Level

- Defined standards for requirements documents and requirements descriptions.
- Also have introduced policies and procedures for requirements management.

RE Process Maturity Model

❖ Level 3: Defined Level

- Defined requirements engineering process based on good practices and techniques.
- Active process improvement process is in place.



THANK YOU

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