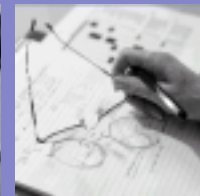


CMMI and Six Sigma

CMMI seamlessly fits into Six Sigma approaches and provides detailed best practices and guidance on its specific implementation in software development



IT Maturity Services

SEI Partner



Your Contacts



IT MATURITY SERVICES



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Malte Foegen worked for IBM for several years. He participated in the development of IBM's method for IT projects and was project manager of the international deployment project that in the end led to a CMM level 3 certification.

Today Malte Foegen is member of the board of directors of wibas GmbH and is responsible for the software process improvement division. He currently leads the process improvement project of one of our international clients.

He frequently leads both SPICE and CMMI assessments and is an official trainer for the SEI's CMMI class.



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Claudia Raak worked for more than 5 years in IBM projects and has specialized in quality assurance and test. She has in in-depth knowledge of quality assurance and process improvement. Claudia Raak is the CEO of wibas since the companies' foundation in 1997.

She currently supports one of the CMMI process improvement projects with one of our major clients. She frequently leads CMMI assessments for our clients. She is especially respected for her ability to practically apply process improvement in projects as well as in organizations.



The Capability Maturity Model Integration (CMMI) aims at the same goals and principles as Six Sigma.

Six Sigma

Operational Excellence

- Tools and methodologies targeted at reducing variation and cycle time through root cause analysis and dramatically improving processes
- Improved service quality and customer satisfaction, leading to increased revenues
- Less non-value-adding work – free up resources for growth
- Efficiency gains
- A culture of „continuously getting better“ with every single person contributing
- Over time, a basis for more aggressive competition, as well as more freedom and flexibility for strategic moves

Capability Maturity Model Integration

Operational Excellence **in software development**

- Tools and methodologies targeted at reducing variation and cycle time through root cause analysis and dramatically **improving software development** processes
- Improved **delivery on time, on budget and on quality (= improved customer satisfaction)**, leading to increased revenues
- Less non-value-adding work – free up resources for growth
- Efficiency gains
- A culture of „continuously getting better“ with every single person contributing
- Over time, a basis for more aggressive competition, as well as more freedom and flexibility for strategic moves



CMMI builds on the same change management principles as Six Sigma.

Six Sigma

Transformational Change

- Large-scale integration of fundamental changes throughout the organization – processes, culture, and customers – to achieve and sustain exceptional results

Key Success Factors

- Committed Leadership
- Client Focus
- Strategic Alignment
- Full Time Resourcing
- Business Process Framework
- Systematic Approach to Change
- Benefits and Tracking
- Performance Management
- Capabilities, Learning and Knowledge
- Programme and Deployment Management

Capability Maturity Model Integration

Transformational Change

- All topics on the left apply in order to make CMMI work and to sustain its results

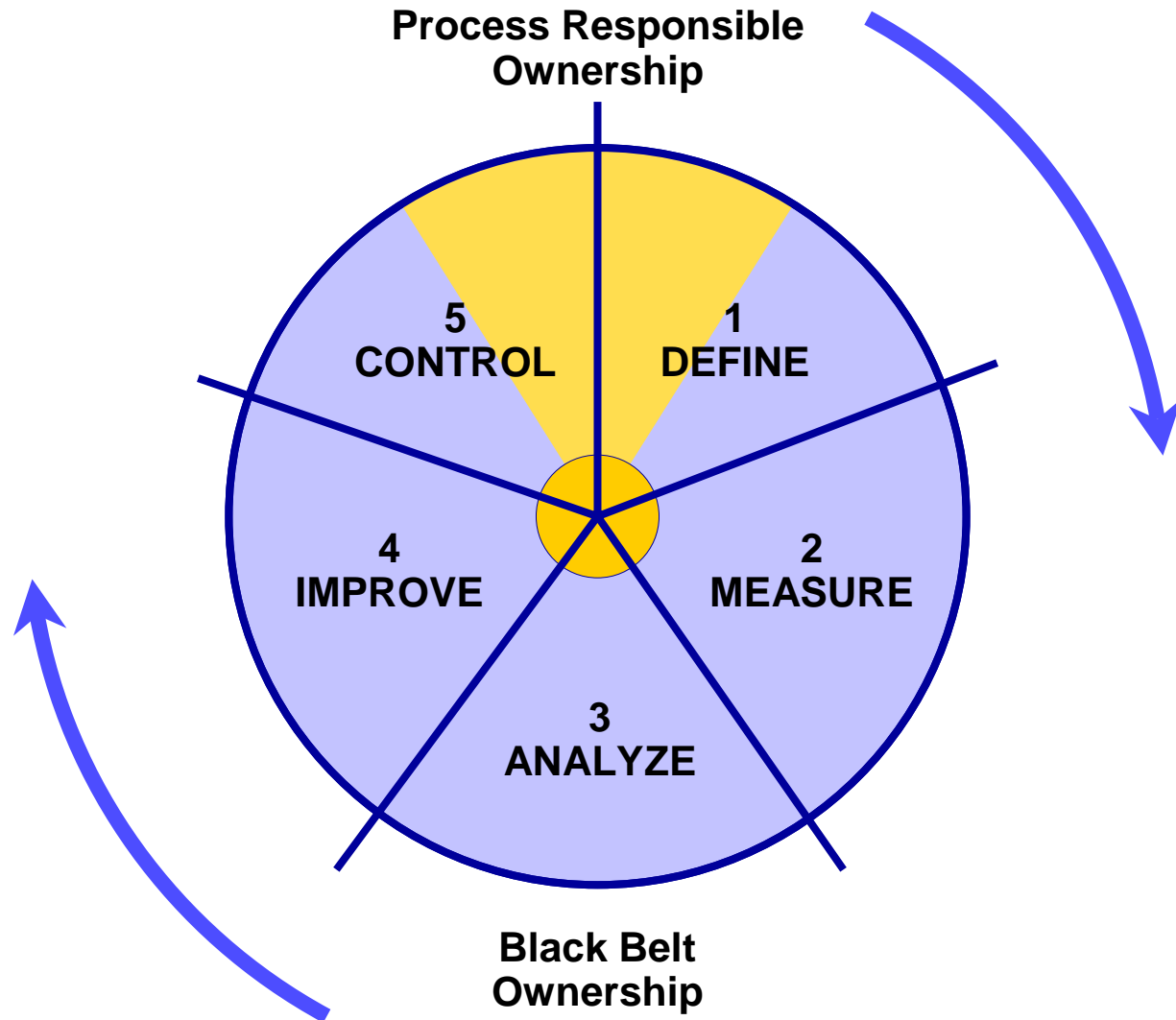
Key Success Factors

- All key success factors on the left apply



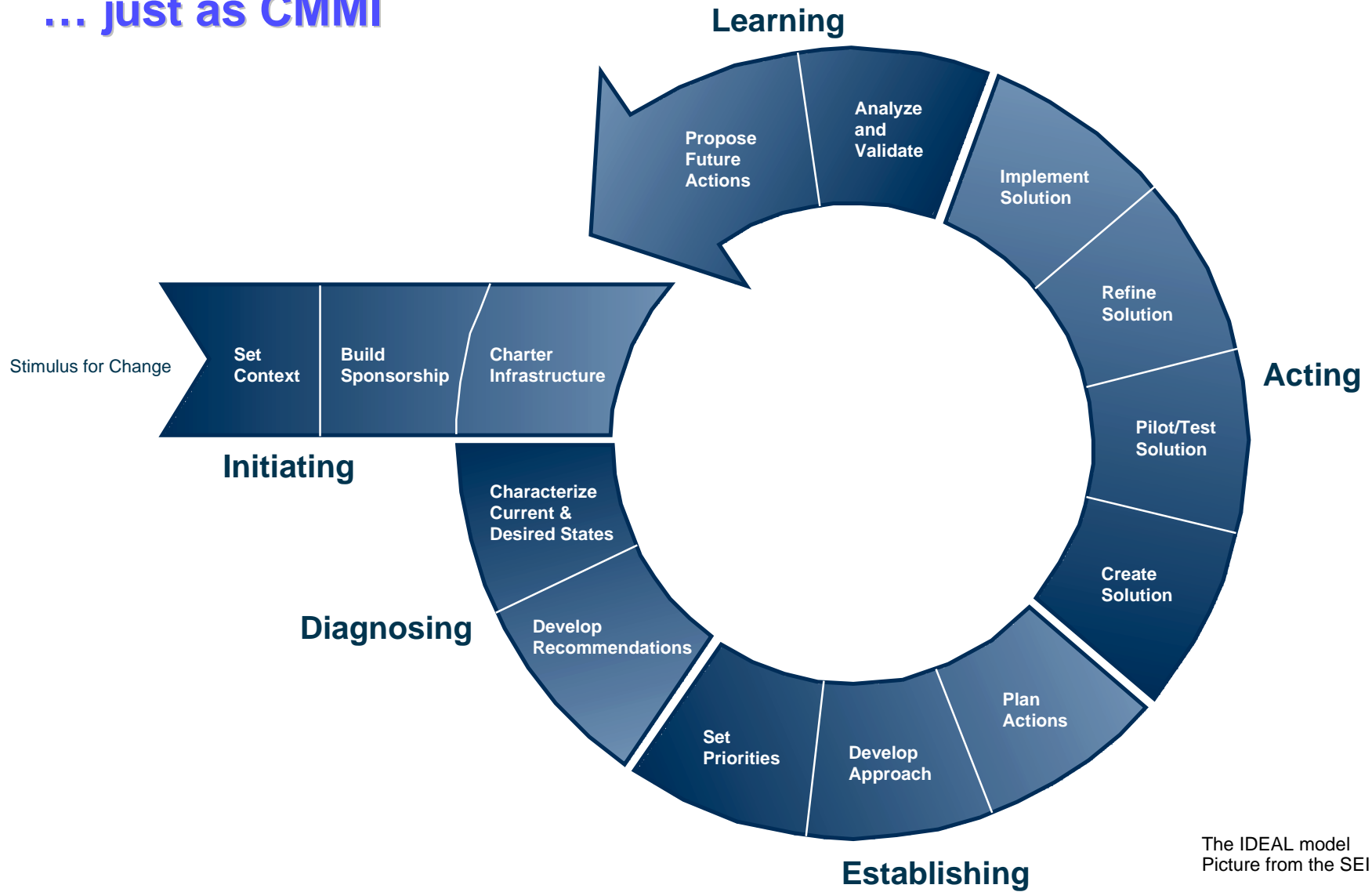
Six Sigma builds on iterative improvements ...

The Six Sigma D-M-A-I-C cycle





... just as CMMI



The IDEAL model
Picture from the SEI



The organizational change structure of Six Sigma – using black, green and yellow belts – is also used in a CMMI programme

Master Black Belts

- **Process improvement specialists, supporting the overall CMMI programme**

Black Belts

- **Team members of the process improvement project, working full time**

Green Belts

- **Team members of the process improvement project, working part time**

Yellow Belts

- **Owners of improvement tasks; These tasks are continuously identified in the organization and tracked till closure**



CMMI implements the 3Ms of Six Sigma.

Measure

- Is specifically addressed through Measurement and Analysis, Organizational Process Performance, and Quantitative Project Management

Method

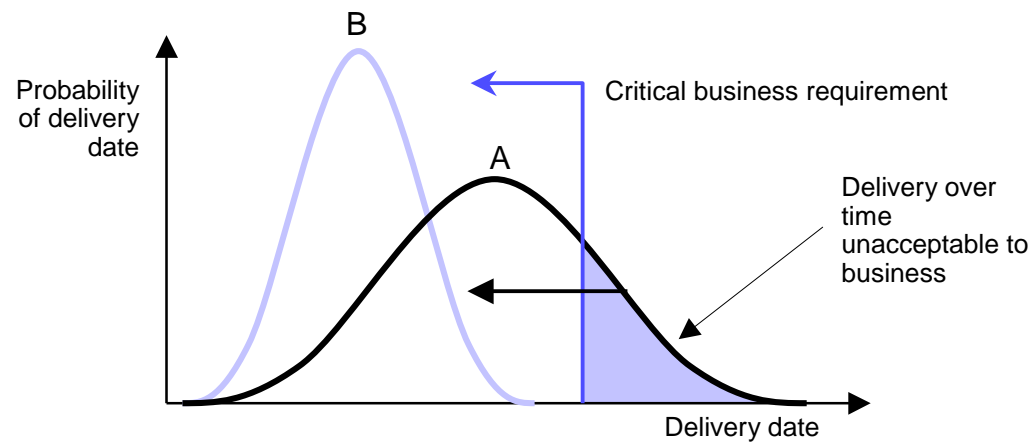
- A broad and deep set of methods, tools and best practices specific for operational excellence („mature processes“) in the software development organization

Management Approach

- All practices of CMMI aiming at process institutionalization in order to ensure the commitment and ability to perform as well as directing and verifying the implementation

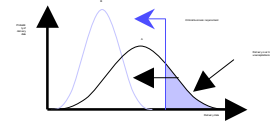


CMMI aims like Six Sigma on measuring, understanding variance and reducing variance





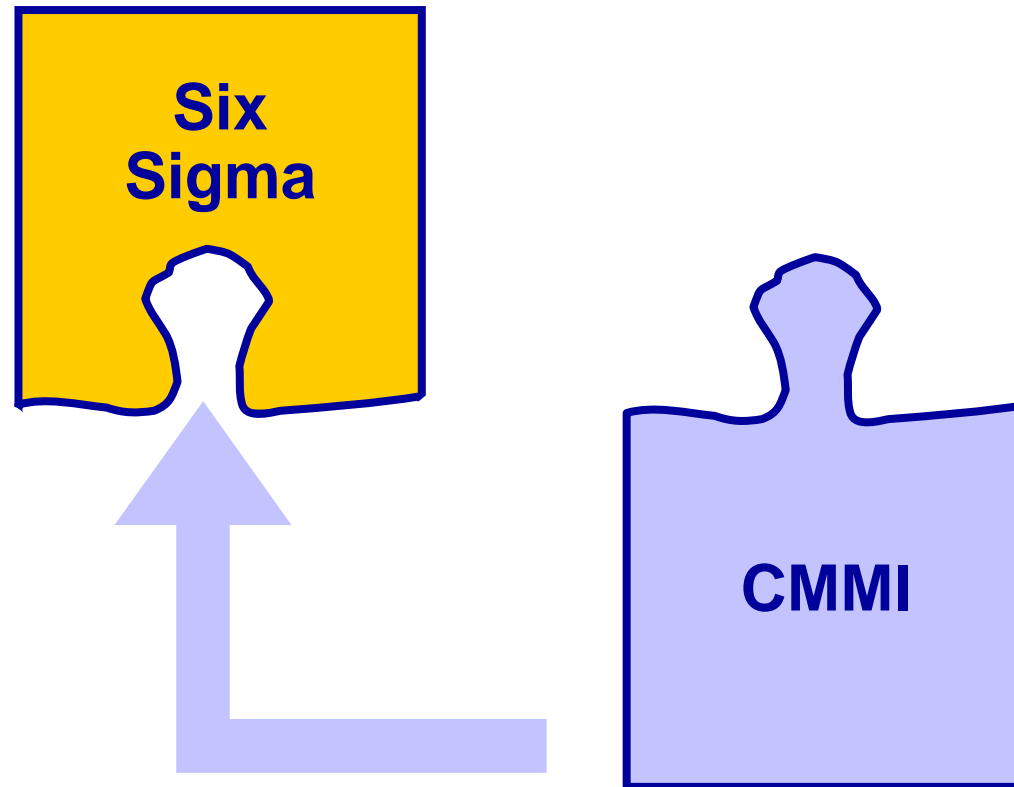
The benefit of CMMI: Improvement of processes, improvement of estimations, reduction of costs.



Level	Structure of project	Benefit
5		
4		
3		
2		
1		

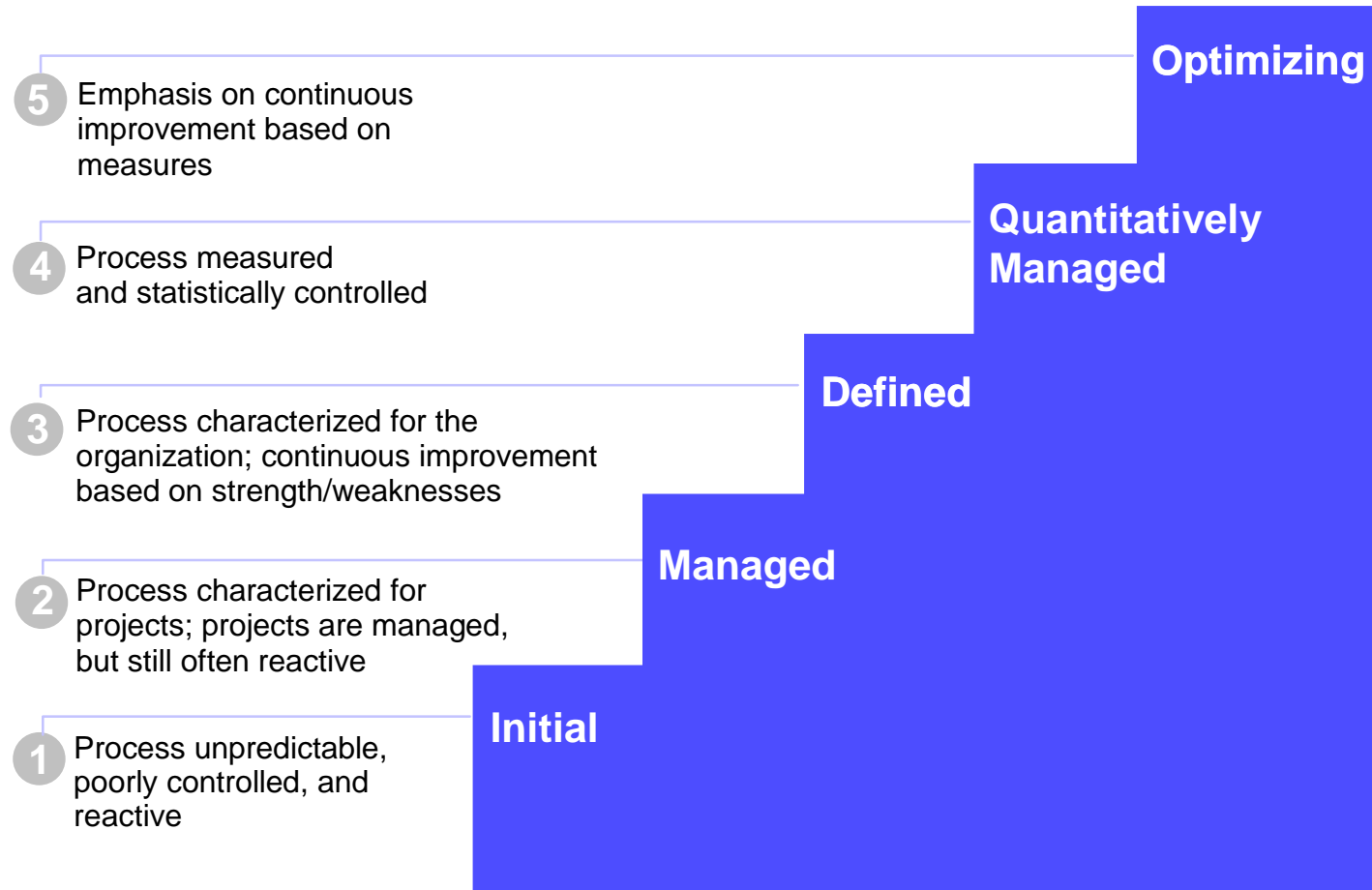


In addition to Six Sigma, CMMI provides much detail and best practices on how to implement operational excellence in a product development organization.





CMMI provides a proven roadmap for the organization to long-term improvement. Each maturity level establishes the practices needed for the next level.





Each level consists of a set of related processes that must be established.

Level	Focus	Process Areas
5	Continuous Process Improvement	Organizational Innovation and Deployment Causal Analysis and Resolution
4	Quantitative Management	Organizational Process Performance Quantitative Project Management
3	Process Standardization	Requirements Development Technical Solution Product Integration Verification Validation Organizational Process Focus Organizational Process Definition Organizational Training Integrated Project Management Risk Management Integrated Teaming Integrated Supplier Management Decision Analysis and Resolution Organizational Environment for Integration
2	Basic Project Management	Requirements Management Project Planning Project Monitoring and Control Supplier Agreement Management Measurement and Analysis Process and Product Quality Assurance Configuration Management
1		

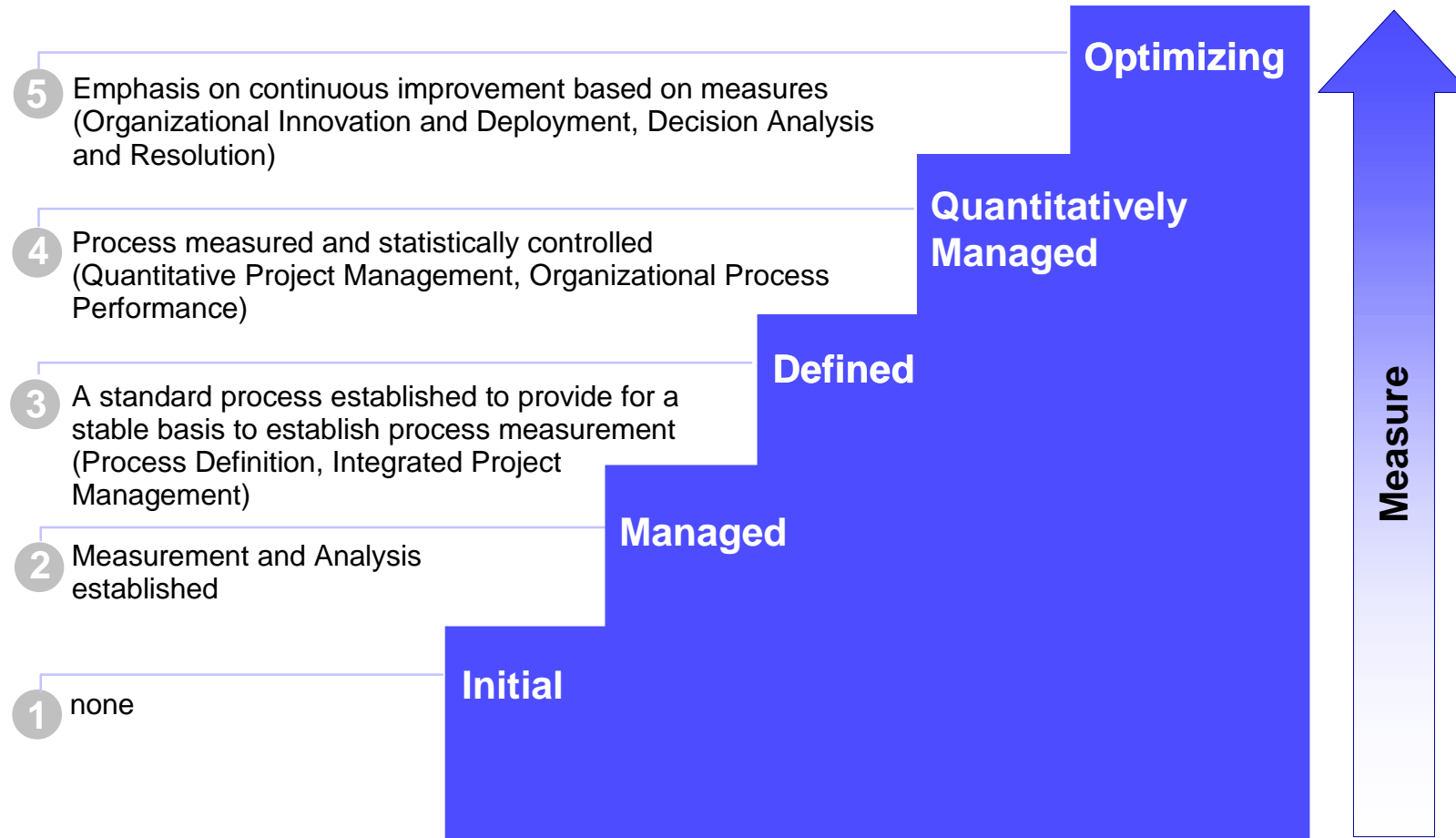
Quality
Productivity

Risk
Rework

Picture from the SEI

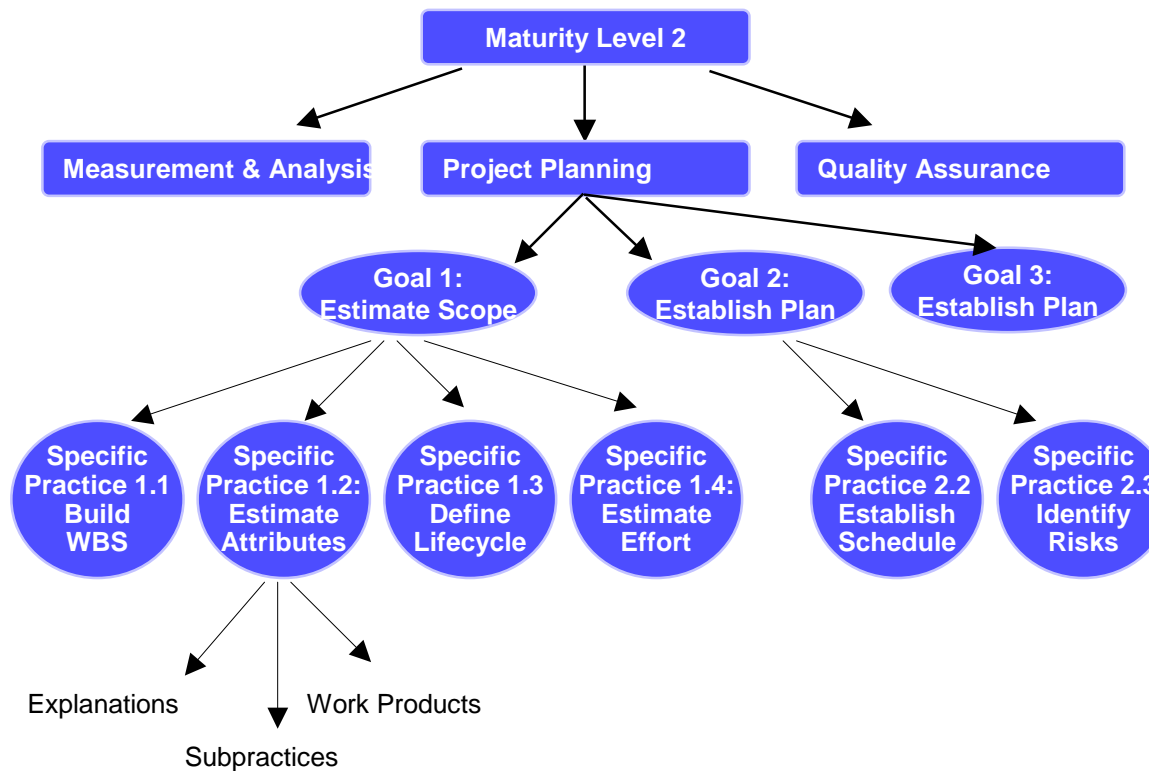


Six Sigma's "Measure" is established in several steps





CMMI provides detailed guidance for each process



PROJECT PLANNING

Purpose:

The purpose of Project Planning is to establish and maintain plans that define project activities.

Introductory Notes

The Project Planning process also involves the following:

Practice-to-Goal Relationship Table

SG 1 Establish Estimates	SP 1.1 Estimate the Scope of the Project
	SP 1.2 Establish Estimates of Work Product and Task Attributes
	SP 1.3 Define Project Life Cycle
	SP 1.4 Determine Estimates of Effort and Cost
SG 2 Develop a Project Plan	SP 2.1 Establish the Budget and Schedule
	SP 2.2 Identify Project Roles
	SP 2.3 Plan for Data Management
	SP 2.4 Plan for Project Resources
	SP 2.5 Plan for Needed Knowledge and Skills
	SP 2.6 Plan Stakeholder Involvement
	SP 2.7 Establish the Project Plan
SG 3 Obtain Commitment to the Plan	SP 3.1 Review Plans that Affect the Project
	SP 3.2 Reconcile Work and Resource Levels
	SP 3.3 Obtain Plan Commitment
GG 2 Institutionalize a Managed Process	GP 2.1 (OO 1) Establish an Organizational Policy
	GP 2.2 (AB 1) Plan the Process
	GP 2.3 (AR 2) Provide Resources
	GP 2.4 (AS 3) Assign Responsibility
	GP 2.5 (AE 4) Train People
	GP 2.6 (DI 1) Manage Configurations
	GP 2.7 (DI 2) Identify and Involve Relevant Stakeholders
	GP 2.8 (DI 3) Monitor and Control the Process
	GP 2.9 (VE 1) Objectively Evaluate Adherence
	GP 2.10 (VE 2) Review Status with Higher Level Management
(The following goal is not required and its practices are not expected for a maturity level 2 rating, but are required and expected for a maturity level 3 rating and above.)	
GG 3 Institutionalize a Defined Process	GP 3.1 Establish a Defined Process
	GP 3.2 Collect Improvement Information

Specific Practices by Goal

SG 1 Establish Estimates

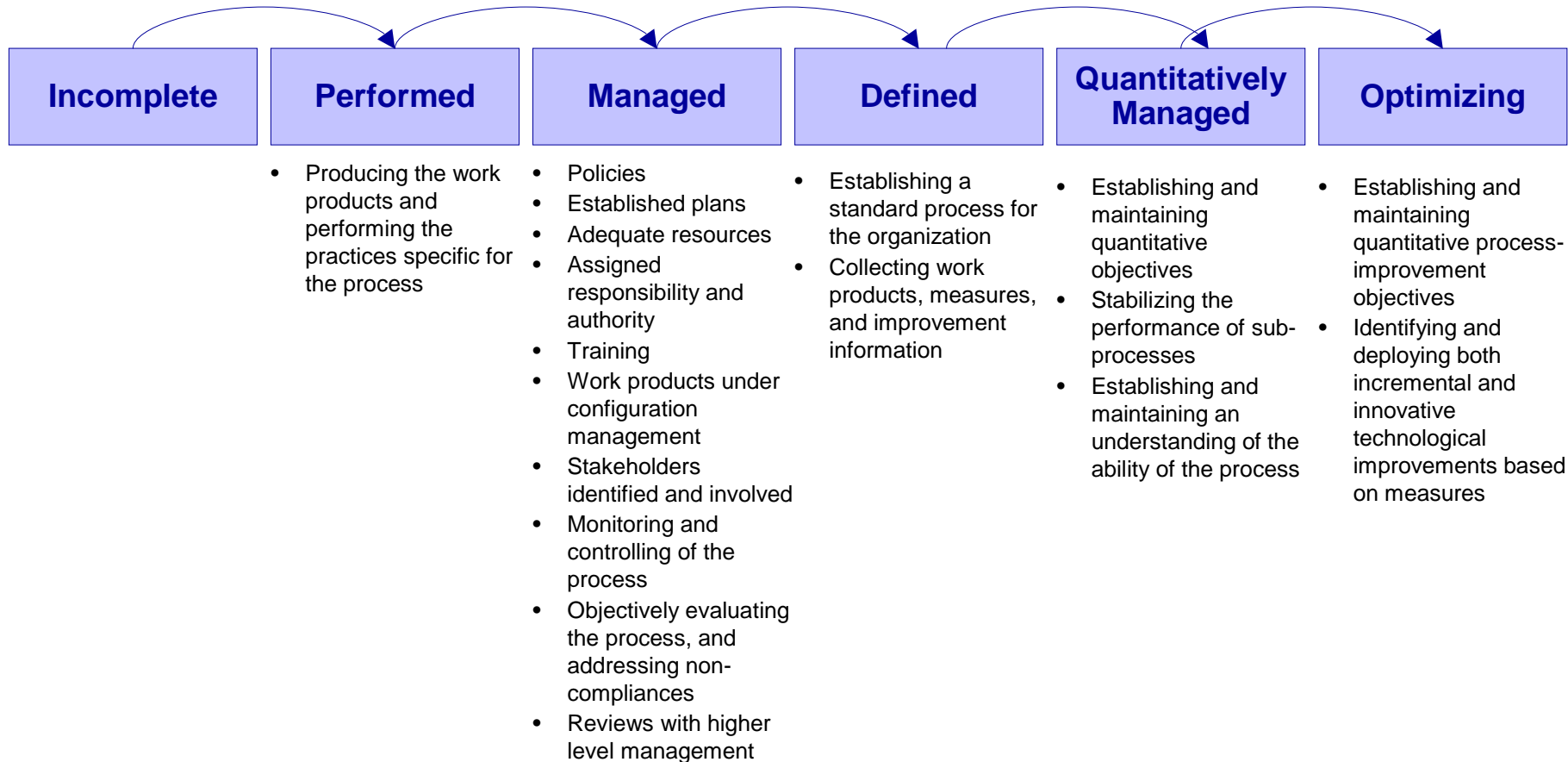
Estimates of project planning parameters are established and maintained.

Project planning parameters include all information needed by the project to perform the necessary planning, organizing, staffing, directing, coordinating, reporting, and budgeting.

96 Maturity Level 2, Project Planning



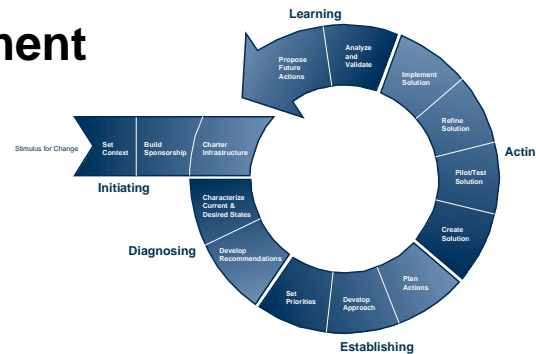
CMMI provides proven improvements steps (capability levels) for each process





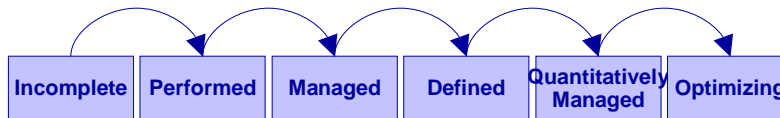
Depending on scope, CMMI and Six Sigma achieve goals within the comparable timeframes.

Single Improvement



- For each improvement activity, CMMI suggests an improvement cycle. These improvement activities compare to the Six Sigma DMAIC in terms of scope and duration.

Process Capability



- Within each step, CMMI defines for each process a a sequence of improvement steps.

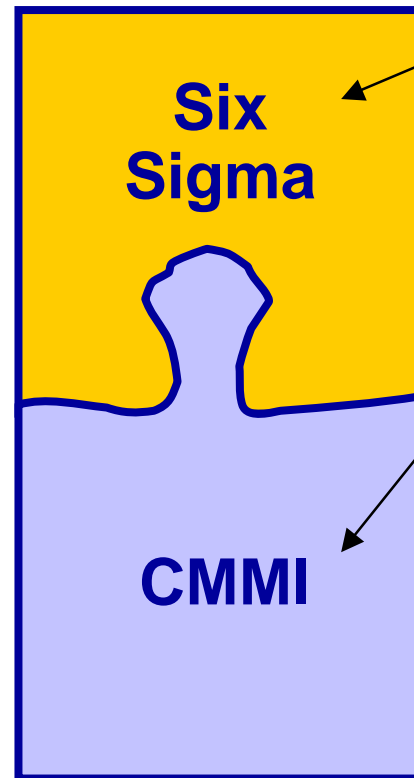
Organization Maturity



- CMMI defines a sequence of improvement steps for the overall organization.

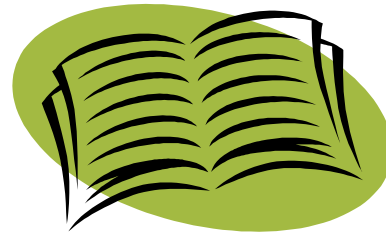


CMMI fits seamlessly into Six Sigma. CMMI provides the necessary detailed implementation guidance and proven best practices to implement Six Sigma in software development.



- Six Sigma is a change management and an improvement approach.
- Six Sigma is a measurement approach.

- CMMI provides the necessary depth, guidance and best practices to implement Six Sigma.
- CMMI provides proven improvements steps to implement Six Sigma.
- CMMI is necessary to establish detailed actions, and to measure progress.
- CMMI allows to objectively evaluate and communicate the maturity of a product development organization.



CMMI is like a handbook where many people have written down what they did when implementing Six Sigma in other IT organizations.



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wibas IT Maturity Services is official SEI Partner of the Software Engineering Institute of the Carnegie Mellon University for SCAMPI appraisals and CMMI training. For inquiries, call:

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Assessments – Change Management – Operational Excellence – SEI Training



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