

SEI CMM Model

- **Capability Maturity Model**
 - Software Engineering Institute (CMU)
- **Key Practice Areas (KPA's)**
 - Specific activities
 - Required to achieve each level
 - More on these later . . .

CMM Level 1

- **No stable environment**
 - ➔ In crisis, reverts to coding and testing
 - ➔ Planned procedures abandoned

CMM Level 1

- **No stable environment**
 - ➔ Exceptional manager
 - ➔ Seasoned and effective team
 - ➔ Withstand pressure to take shortcuts
 - ➔ Stability lost when individuals leave
- **Success depends on individuals**

CMM Level 1

- **No stable environment**
 - ➔ Schedules
 - ➔ Budgets
 - ➔ Functionality
 - ➔ Product quality
 - ➔ Ad hoc process
- **Success depends on individuals**
- **Unpredictable**

CMM Level 2 - Repeatable

- **Establish procedures**
 - ➔ Planning and management
 - ➔ Based on similar past experience
 - ➔ Disciplined process capability

CMM Level 2 - Repeatable

- **Establish procedures**
 - ➔ Practiced
 - ➔ Documented
 - ➔ Enforced
 - ➔ Trained
 - ➔ Measured
 - ➔ Able to improve
- **Institutionalize processes**

CMM Level 2 - Repeatable

- **Establish procedures**
- **Institutionalize processes**
- **Management controls**

- Realistic commitments
- Track costs, schedules, functionality
- Repeat earlier successes

CMM Level 2 - Repeatable

- **Establish procedures**
- **Institutionalize processes**
- **Management controls**
- **Project standards**

- Defined
- Enforced

CMM Level 3 - Defined

- **Standard, documented**

- Defined process
- Both engineering and management
- Across entire organization

CMM Level 3 - Defined

- **Standard, documented**
- **SEPG & training**

- Software engineering process group
- Organization-wide training
 - Staff
 - Managers

CMM Level 3 - Defined

- **Standard, documented**
- **SEPG & training**
- **Project process**

- Readiness
- Inputs
- Work standards
- Verification mechanisms
- Outputs
- Completion criteria

CMM Level 3 - Defined

- **Standard, documented**
- **SEPG & training**
- **Project process**
- **Consistent capability**

- Control
 - Cost
 - Schedule
 - Functionality
- Track software quality

CMM Level 4 - Managed

- **Quantitative quality goals**
 - Software products
 - Processes

CMM Level 4 - Managed

- **Quantitative quality goals**
- **Measure**
 - Productivity
 - Quality

- Instrumented processes
- Defined and consistent measures

CMM Level 4 - Managed

- **Quantitative quality goals**
- **Measure**
 - Productivity
 - Quality
- **Narrow variation**

- Acceptable quantitative limits
- Action taken when limits are exceeded

CMM Level 5 - Optimizing

- **Continuous improvement**

- Identify process weaknesses
- Strengthen processes proactively

CMM Level 5 - Optimizing

- **Continuous improvement**
- **Cost/benefit analysis**

- New technology
- Proposed process changes

CMM Level 5 - Optimizing

- **Continuous improvement**
- **Cost/benefit analysis**
- **Defect prevention**

- Defect analysis
- Process evaluation
- Knowledge dissemination

