

Why TMMi?

- TMMi is based on TMM (partially published in 1996)
- New CMMI replacing the old SW-CMM
- Need for independent test maturity assessment
- Need for standard certification
- Focus on testing and integration with CMMI

Companies from UK, India, Korea and Japan have used this model.

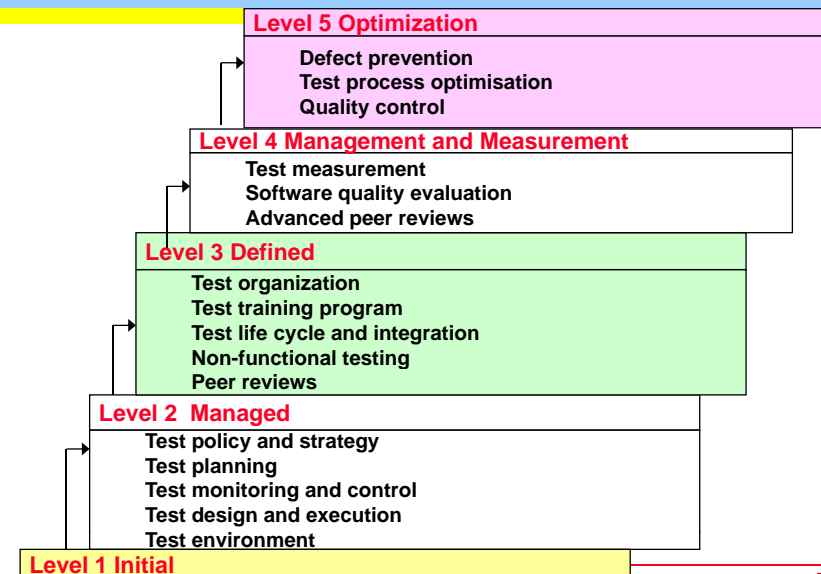
- A non-profit making organization
- Dedicated to improving **test** processes and practice.
- **Focus:** development of a common, robust model of test process assessment and improvement in IT organizations – non-commercial test improvement model
- As of Dec. 2009, 329 members representing 32 nationalities

TMMi Foundation

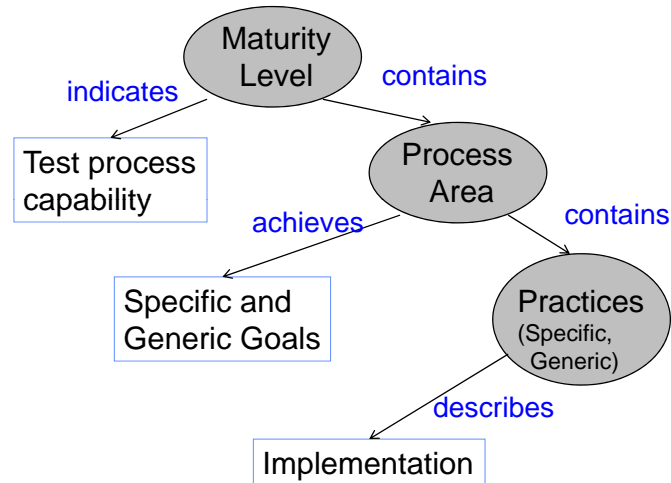
Provides

- A standard **staged** TMMI model that can be used in isolation or in support of other Software Process Improvement models
- An independently managed data repository to support TMMI assessment method accreditation, assessor and assessment certification/validation and validated assessment data and certificates
- Assessment method accreditation/audit framework for TMMI in accordance with ISO15504
- Certification and training/examination process, procedures and standards for formal, public accreditation of assessors and lead assessors and the on-going management.

TMMi Levels

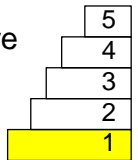


Components within each Maturity Level



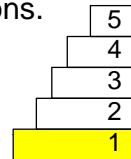
Level 1 Organization

- Testing is a chaotic and is often considered a part of debugging.
- The organization usually does not provide a stable environment to support testing.
- Success in these organizations depends on the competence and heroics of the people in the organization.
- Tests are developed in an ad-hoc way after coding is completed.
- The objective of testing is to show that the software runs without major failures.



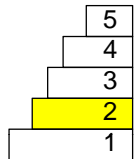
Level 1 Organization

- The delivered product often does not fulfill its needs, is not stable, or is too slow to work with.
- Within testing there is a lack of resources, tools and well-educated staff.
- Organizations are characterized by a tendency to over commit, abandonment of processes in a time of crises, and an inability to repeat their successes.
- Products tend not to be released on time, budgets are overrun and quality is not according to expectations.
- No defined process areas.



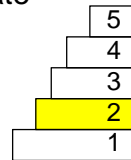
Level 2 Organization

- Testing becomes a managed process and is clearly separated from debugging.
- Testing is still perceived as being a project phase that follows coding.
- A company-wide or programme-wide test strategy is established.
- **Test plans** are also being developed. The test plan defines test approach and what testing is required, when, how and by whom.
- Risk management techniques are used to identify the product risks based on documented requirements.
- **Testing is monitored and controlled** to ensure it is going according to plan.



Level 2 Organization

- The status of the work products and the delivery of testing services are visible to management.
- Testing may still start relatively late in the development life cycle, e.g. during design or during the coding phase.
- Testing is multileveled: there are unit, integration, system and acceptance test levels.
- The main objective of testing is to verify that the product satisfies the specified requirements.
- Many quality problems occur because testing occurs late in the development life cycle. Defects are propagated from the requirements and design into code.
- No formal review programs.



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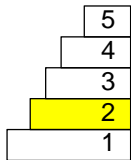
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Generic Goal of Level 2

GG 2 Institutionalize a Managed Process

- GP 2.1 Establish an organizational policy
- GP 2.2 Plan the process
- GP 2.3 Provide resources
- GP 2.4 Assign responsibilities
- GP 2.5 Train people
- GP 2.6 Manage configurations
- GP 2.7 Identify and involve relevant stakeholders
- GP 2.8 Monitor and control the process
- GP 2.9 Objectively evaluate adherence
- GP 2.10 Review status with higher level management

**Achieving
Level 2**



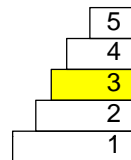
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Level 3 Organization

- **Testing is fully integrated into the development life cycle.**
- Test planning is done at an early project stage, e.g. during the requirements phase.
- The organization's set of standard processes is established and improved over time.
- A **test organization** and a specific **test training program** exist, and testing is perceived as a profession.
- Test cases are gathered, stored and managed in a central database for re-use and regression testing.
- Basic tools support key testing activities.
- A **formal review program is implemented**. Reviews take place across the life cycle.



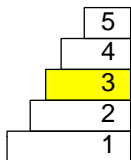
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Level 3 Organization

- Now do **non-functional testing**, e.g. on usability and/or reliability.
- Testing processes are tailored from the organization's set of standard processes to suit a particular project or organization unit and therefore are more consistent except for the differences allowed by the tailoring guidelines.



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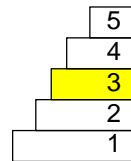
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Generic Goal of Level 3

GG 2 Institutionalize a Defined Process

- GP 3.1 Establish a defined process
- GP 3.2 Collect improvement information

**Achieving
Level 3**

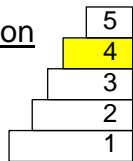


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Level 4 Organization

- Testing is a thoroughly defined, well-founded and **measurable process**.
- The organization and projects establish quantitative objectives for product quality and process performance and use them as criteria in managing them.
- **Product quality and process performance** is understood in statistical terms and is managed throughout the life cycle.
- Measures are incorporated into the organization's measurement repository to support fact-based decision making.

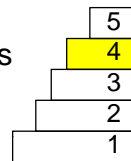


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Level 4 Organization

- **Reviews and inspections** are considered to be part of testing and used to measure document quality.
- The static and dynamic testing approach are integrated into one. Reviews are formally used as means to control quality gates.
- Products are evaluated using quantitative criteria for quality attributes such as reliability, usability and maintainability.
- An organization wide **test measurement program** provides information and visibility regarding the test process. Testing is perceived as evaluation; it consists of all life cycle activities concerned with checking products and related work products.

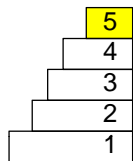


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Level 5 Organization

- Testing is now a completely defined process and one is capable of controlling the costs and the testing effectiveness.
- Organization **continually improves its processes** based on a quantitative understanding of the common cause of variation inherent in processes.
- Improving test process performance is carried out through incremental and innovative process and technological improvements. The methods and techniques are optimized and there is a continuous focus on fine-tuning and test process improvement.

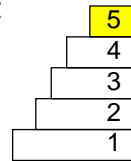


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Level 5 Organization

- **Defect prevention** and **quality control** are practiced. Statistical sampling, measurements of confidence levels, trustworthiness, and reliability drive the test process. The test process is characterized by sampling based quality measurements.
- A detailed procedure exists for selecting and evaluating test tools. Tools support the test process as much as possible during test design, test execution, regression testing, test case management, etc.
- Process reuse is also practiced by a process asset library.
- Testing is a process with the objective to prevent defects.



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Some Statistics

- According to a study done by Experimentus of UK
- Survey 100 companies
 - 72.5% were at TMMi level 1 (they are working in a chaotic, hero-based way but starting to build project based processes)
 - 27.5% were at TMMi level 2 (they have some established project based process and are moving towards implementing process at an organizational level)
 - More than 70% of respondents do not have metrics in place to monitor or manage testing goals.

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Development of TMMi

- Level 2 and 3 have been defined and used
- A working group is developing level 4 and 5 now.

Work Plan

- **Jan 29:** Submit **draft of ML4 Process Area Preamble** (Scope, Purpose) and **Specific Goals** to review committee
- **Mar 09:** Submit **draft of ML5 Process Area Preamble** (Scope, Purpose) and **Specific Goals** to review committee
- **Mar 26:** Submit **draft of ML4 Specific and Generic Practices** to review committee
- **May 04:** **Publish Maturity Level 4**
- **Jun 01:** Submit **draft of ML5 Specific and Generic Practices** to review committee
- **Jul 13:** **Publish Maturity Level 5**

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References



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We invite you to participate in the development of TMMi level 4 and 5.

If interested, please contact

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