

Understanding High Maturity

One or Two Day Seminar^{*}

Seminar Description

Are you struggling with achieving Level 4 or 5 against CMMI or ISO/IEC 15504? Is there broad resistance to the idea of statistical process control in your organization? Do software professionals question the value of measurement and analysis, insisting that innovation or customer relationships are more crucial to success? Are you concerned about the new high maturity qualifications required by the SEI of assessors?

This seminar describes lessons learned in achieving high maturity, as measured first by the Capability Maturity Model for Software and now by CMMI. These models aim to transform the decision making process in high maturity organizations to an evidence-based approach using statistical thinking.

"High maturity" as used in the Software CMM or CMMI implies a superior process capability, with the expectation of continual, measured improvement. High maturity is intrinsic to the definitions of Maturity Levels 4 and 5 in these models, and a growing number of organizations have been assessed at these Levels, but the reliability of high maturity issues has been a concern for many years. The Software Engineering Institute has taken a number of actions to address this concern, but the lack of wide-spread experience with high maturity practices remains a challenge for both assessors and process engineers. The purpose of this presentation is to discuss the fundamental principles of process management at the higher maturity levels, some of the effective engineering and management practices empirically found in workshops and surveys of high maturity organizations, and some of the common mistakes that are made.

The seminar includes recommendations on "how" to implement high maturity that goes beyond the scope of "what" should be done. Best practice frameworks such as CMMI are intrinsically limited by the need to cater to a broad user community without constraining the variety of implementations possible. This seminar is not constrained by such considerations and will unabashedly advocate and condemn various high maturity and statistical practices.

Topics include:

- Defining high maturity in CMM(I) terms
- The challenges of model interpretation
- Process thinking
- Systems thinking

^{*} This seminar can be delivered over either one or two days. Longer seminars involve more case studies, exercises, and role plays, as well as a more in-depth study of the material. Shorter forms of this material can be presented also.

- Statistical thinking: understanding variation
- Profound knowledge of the domain: capturing product knowledge
- Evidence-based management
- Quality culture: empowerment and participation

Who Should Attend

- Managers who need to encourage and use evidence-based management
- Process experts who are developing guidance for high maturity practices
- Measurement experts who are focusing on the statistical thinking aspects of high maturity
- Software professionals who are collecting data, analyzing it, and driving decisions

Course Prerequisites

There are no pre-requisites for this workshop. Prior exposure to statistics, including statistical process control, regression analysis, ANOVA, and test of hypotheses, is useful.

Course Objectives

After completing this seminar, participants should be able to:

- Understand the basics of evidence-based management
- Explain the principles of goal-driven measurement
- Understand the concepts of statistical thinking
- Apply some simple statistical techniques, including XmR charts
- Identify common statistical mistakes and misconceptions
- Understand the importance of empowerment and participation to high maturity

Module Description

Module 1 – Defining High Maturity

- The Software CMM on high maturity
- CMMI on high maturity
- Workshops and surveys on high maturity
- The concept of high maturity

Module 2 – Fundamental Concepts of High Maturity

- Process thinking
- Systems thinking
- Statistical thinking
- Capturing product knowledge
- The business value of evidence-based management

Module 3 – Statistical Thinking

- Establishing a measurement program
- Operational definitions
- Basic SPC tools
- XmR charts

Module 4 – Project Maturity

- Real-time control

- Core project measures

Module 5 – Organizational Maturity

- Organization process performance and capability baselines
- Balanced scorecard measures
- Continual, measurable improvement
- Integrated process and product development
- Process and product assurance
- Alignment with corporate TQM programs

Module 6 – Challenges to High Maturity

- The problem of dysfunctional behavior
- The problem of difficult customers
- Participation and empowerment

Activities and Exercises

Activities and exercises include case studies, situational analyses, role playing, and interactive lecturing.