



Application of CMMI to Research

Dr. Kanchit Malaivongs,

Fellow, Royal Institute of Thailand

Software industry has been selected as a strategic industry for Thailand for more than a decade. Thai Government has established both Software Park Thailand and the Software Industry Promotion Agency to strengthen the software industry by providing advanced trainings, promoting ICT certification examinations, marketing software products abroad, as well as pushing software companies to use a software process model such as CMMI.

CMMI (Capability Maturity Model Integration) is a software process model developed by the Software Engineering Institute which provides a proven path for software companies to improve their own software processes and practices. CMMI model specifies altogether 22 process areas which must be properly implemented to reach the highest maturity level. There are five maturity levels in CMMI. The first level (Initial Level) is the level in which the company works in ad hoc manner. The second level (Managed Level) is the level in which the company can properly managed its own processes using the concept of project management but the outcome is still not properly controlled. The third level (Defined Level) is the level in which the company has developed organizational standard processes and they are tailored for use in the projects. The fourth level (Quantitatively Managed Level) is the level where the company uses the concept of statistical process control in the project. The fifth level (Optimizing Level) emphasizing continuous process improvement.

As an authorized CMMI Instructor, the author realizes that this CMMI model can be applied to research project. Research process areas are compared with CMMI process areas. Key practices of each process area are modified to meet the nature of research projects. It has been found that this modification of CMMI for software development can be used for improving the quality of research project.

This presentation outlines the concept of CMMI, required and expected components of CMMI model, and process areas in each maturity level. Practices for each process areas at level two are explained so that researchers can use this new model to improve their research work. Suggested research process areas to be used are: Research Requirements Management, Research Project Planning, Research Project Monitoring and Control, Measurements and Analysis, Process and Product Quality Assurance and Research Configuration Management. Other process areas considered to be important and may be used are: Research Requirement Development, Technical Solutions, Research Product Integration, Validation, Verification and Risk Management.

The presentation also discusses the idea of institutionalization of this research process improvement in order to help the implementer of the model understand the generic practices inherent within each process area.