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Joint ECE/Eurostat/OECD meeting on the management of statistical information systems
(Geneva, 17-19 February 2003)

Topic I: Measures for the improvement of quality at the IT management level

THE USE OF CAPABILITY AND MATURITY MODEL U.S. BUREAU OF THE CENSUS

Invited paper

Submitted by the Bureau of the Census, United States [1]

Summary

1.   This paper presents a brief overview of the Capability and Maturity Model (CMM) and then describes how the CMM is being used to improve the quality of software products being developed by the U.S. Census Bureau.   CMM provides a framework for effective software development and is widely used throughout the software industry.

2.   Anyone who has been in the software development business for any length of time can probably describe several horror stories of project that had large cost over runs, missed deadlines, and poorly functioning software. The CMM provides a framework for managing the software development process so that software is developed in an organized and managed way where the risk of cost overruns and failure is low. The CMM was developed by the Software Engineering Institute (SEI) of Carnegie Mellon University. The CMM framework consists of five maturity levels that define an ordinal scale for measuring the maturity of an organization's software process and for evaluating its software process capability. The five levels go from level 1 which is characterized as ad hoc and occasionally chaotic. Few processes are defined, and success depends on individual effort and heroics. The fifth level is the highest level of maturity where continuous process improvement is a way of doing business. Quantitative feedback from the process, innovative ideas and new technologies are a normal way of doing business. There are very few organizations in the world that develop software at level five.

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3.   The Census Bureau recognized that it had some problems with many of its software development efforts. Key individuals were almost solely responsible for a projects success or failure.   We had increasing pressure from outside audit agencies to have a much more robust process put in place. About 2 years ago the Census Bureau started 3 pilot efforts to learn about and implement CMM.   Our goal was to get to level 2 in those pilot efforts. The key process areas for level 2 are project planning, project tracking and oversight, configuration management, quality assurance, requirements management, and subcontract management. The three pilot projects were completed in the end of December 2002. The rest of the paper describes what we've learned from our CMM efforts and how we plan institutionalizing CMM at the Census Bureau.

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