

Chapter 13

The Adoption and Transformation of Capability Maturity Models in Government

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ABSTRACT

Capability maturity models (CMM), an outgrowth of the decades-old quality movement, and originally developed by Carnegie Mellon University's Software Engineering Institute for the US Defense Department in the 1980s as a way to improve software engineering, has become the inspiration for similar models addressing every aspect of public management by governments around the world. CMM posits several evolutionary stages that organizations must pass through to achieve increasingly higher levels of capability in achieving quality. Stages are determined by research evidence, expert opinion, best practices, and evaluations. While CMM has produced some impressive gains, it has drawn criticism for lacking a theoretical underpinning, exorbitant costs, being somewhat subjective, and lack of success in many organizations. The field has no universal agreed upon standards, so it may be necessary to create an organization to study and vet various CMM applications. The field as it matures presents an excellent opportunity to study public management in the context of organizations employing CMM.

INTRODUCTION

The Information Technology (IT) field has long been criticized as having problems with the quality of goods and services it produces. Gartner in its annual "Assessment of IT Practices" observes that about three-fourths of software projects "failed," judging on cost, reliability, usability and timeliness.

Organizations, concerned about quality, stimulated the creation of models, frameworks or approaches that would "improve the quality" of the goods and services produced. Carnegie Mellon University's (CMU) Capability Maturity Model (CMM), along with numerous subsequent competing and complementary approaches, was launched to fill this need. CMM was developed for the US Department of Defense (DOD), making it a major quality improvement tool in government.

DOI: 10.4018/978-1-5225-7661-7.ch013

CMM would be eventually adopted by many governments around the globe in whole or in part. Analysts began applying CMM not only to IT operations and software development, but also in everything from risk through financial to innovation management. CMM soon led to a variety of *ad hoc*, derivative, hybrid, imitations or customizations by various governments, professional associations, vendors, researchers, and consulting firms, all based on capability maturity models.

The diffusion and modification of CMM seems similar to Xerox and photocopying. Xerox perfected photocopying technology and then dominated the market to such an extent that a Xerox became synonymous with a photocopy. There are now hundreds of capacity maturity models around, but many, maybe most, are very different from CMU's.

CMM has exploded in recent years as a quality improvement methodology. But there is much disagreement among practitioners, researchers, and theorists in the fields of IT, public management, and business over what works, what does not and why.

This entry looks at the variety of CMM government applications, asking: What is the basic methodology underlying CMM; how did other quality improvement initiatives generally and in government contribute to CMM's development; what models currently compete in the CMM space; how are CMMs used in government; what problems, issues and controversies surround CMM as an approach and how can these be corrected; and what might constitute a future research agenda in the field?

BACKGROUND

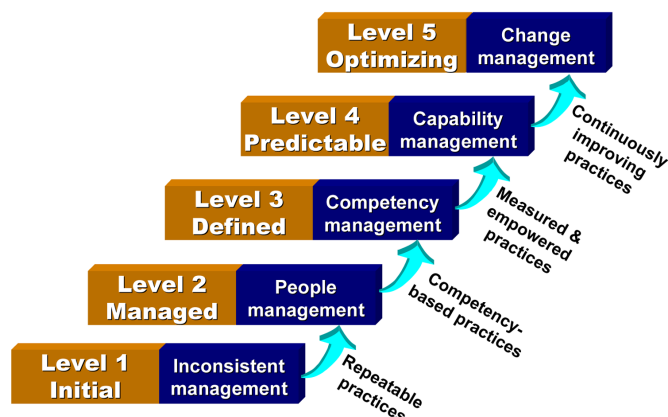
The CMM Methodology

Most, if not all, CMM frameworks have the same basic methodology. This is how the CMU's Software Engineering Institute's CMM model works in the context of human resource management (P-CMM) (Curtis, Hefley, Miller, 2009).

The model's purpose is to "help organizations characterize the maturity of their workforce practices, establish a program of continuous workforce development, set priorities for improvement actions, integrate workforce development with process improvement, and establish a culture of excellence"(p.8).

Figure 1. The five maturity levels of the P-CMM¹

Source: Curtis, Hefley, Miller (2009).



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