Chapter II

Achieving Organizational IT Goals through Integrating the Balanced Scorecard and Software Measurement Frameworks

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ABSTRACT

Provided in this chapter is an integrated measurement system that links the organization’s strategic goals with the operational and tactical directives for information technology (IT) projects. The measurement system consists of the Balanced Scorecard (BSC); Software Engineering Institute, Capability Maturity Model (SEI/CMM); and the International Standard Organization (ISO/IEC-9126) for information technology measurement of software quality. The integration of these measurement frameworks provides the necessary multitier granularity of measures to successfully predict and assess organizational performance relative to IT investments.
INTRODUCTION

The annual expenditures on IT systems represent investments in billions of dollars. Unfortunately, these investments often fall short of the intended result, which is typically to reduce operating costs or provide some competitive advantage (Attewell, 1992; Strassman, 1990). However, when IT systems are implemented successfully, the results can enable an organization to meet or to exceed their strategic goals for capturing market share and building shareholder value. A classic example of reducing costs with IT is online systems to manage employee benefits for the human resources department. A classic example of using IT for competitive advantage is the AMR Sabre System for airline travel reservations. In each case, cost reduction or the capture of additional market share was achieved. These examples of success are the exception not the rule. The success of these systems can, in part, be attributed to sophisticated quantitative management approaches, including operations research (OR) technologies. A limitation to using these technologies arises from the mathematical difficulty and the need for an interpretive framework to transform the quantitative results into actionable knowledge. Introduction of the BSC (Kaplan, 1996), SEI/CMM (Humphrey, 1989), and ISO/IEC-9126 (Jenner, 1995), provided the foundation to create an interpretive framework for quantitative measures and map them to organizational strategic goals. The integration of the BSC, CMM, and ISO/IEC-9126 is key to providing the necessary measurement system to link IT projects to an organization’s strategic goals and provide operational measures of whether or not the goals are being met on an ongoing basis. The BSC is not the organizational strategy but rather a measurement paradigm with which to provide operational and tactical feedback. The organizational strategic vision and goals are the foundation upon which the measurement framework is constructed. The CMM is a measurement model of ordinal ranking of an organization’s software process variability and repeatability. The CMM provides a basis for collecting accurate and timely measures of process performance. The international standard ISO/IEC-9126 focuses on information technology and software product evaluation through measurement of software quality characteristics. The development of a core set of
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