Chapter VII

Process-Centered Contributions to Information Systems Quality

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Abstract

The growing attendance at seminars and conferences dedicated to quality programs attests to the increasing recognition of the continued importance of quality. Unfortunately, in many organizations, this intensified quality focus has not been effectively applied to information systems — a surprising outcome given the many demonstrations of a direct relationship between information systems delivery process and information systems quality and success. In this chapter, we analyze process-centered contributions and solutions to the increasing challenges of producing high-quality systems. We provide a balanced overview of evidence that has emerged from practical, real-world experiences and empirical research studies, an overview that incorporates the positions of both proponents and opponents of process-centricity. We then provide an assessment of the contexts in which software process improvements and quality-enhancing initiatives can thrive.
Introduction

Some organizations have managed to deliver successful information systems (IS); however, a large number have not obtained the expected benefits from their investments in software products (Banker et al., 1998). Yet, organizational reliance on information technology (IT) to support business processes and enable strategic priorities has increased conspicuously over the last two decades. This increased dependence has accentuated the challenge to IS developers, users, and managers to interact more effectively with each other (Vessey & Conger, 1994) in order to produce more sophisticated, more complex, and more reliable IS.

A central premise of most continuous process improvement philosophies is that the quality of the product and/or service is largely determined by the quality of the process used to produce it (Deming, 1986). This assumption has been substantiated in IS organizations (Harter et al., 1998; Khalifa & Verner, 2000; Ravichandran & Rai, 1996, 2000). It is noteworthy that IS are rarely confined to single processes; they usually support organizational networks of interdependent business processes and multiple interfaces to other systems. To address these and other complexities, the role of IS practitioners continues to evolve and increase in importance and with it the expectation that IS practice must continuously improve.

Accepting this premise places a considerable burden on IS quality management groups to support various business process owners and other interested parties. These stakeholders often have different business cycles and distinct quality, innovation, discipline, rigor, and productivity requirements. Consequently, in order to increase competence and improve process quality, IS organizations are forced to focus more intensely on implementing process management and improvement programs (similar to efforts in manufacturing and other service organizations). This focus typically involves two major steps: (1) objectively assessing the effectiveness (capability) and discipline (maturity) of the IS delivery process and (2) launching process improvement initiatives guided by the results of the assessment (CIO Magazine, 2001).

To complete the assessment, organizations typically use formal process analysis instruments such as the capability maturity model (CMM). The result of this examination then provides a baseline for planning IS process improvements and enhancing capability (Duggan, 2004). The vehicle used for initiating process improvement activities, in many cases, is the institutionalization of a highly structured systems development methodology (SDM) (Riemenschneider et al., 2002; Roberts et al., 1997). SDMs standardize an organization’s IS process in order to effect the consistency and predictability needed to obtain successful
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