



## Chapter XII

# Tranquilizing the Werewolf that Attacks Information Systems Quality

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### ABSTRACT

*After years of research and experimentation with information systems building, delivering high-quality systems remains a largely elusive objective. Since the prophetic assertion of Fred Brooks that the essential difficulties of “software engineering” would frustrate the search for a “silver bullet” to slay the legendary werewolf that beset its quality, IS delivery has become more difficult, and organizations have magnified the struggle to overcome what has been called “the software crisis.” There is unlikely to be a silver bullet. Only the disciplined, effective management and selection of appropriate approaches by knowledgeable and committed participants in the delivery process are likely to increase the odds of producing high-quality software products. This article discusses a variety of available user-centered and process-oriented systems delivery methods, philosophies, and techniques, which may be used in innovative permutations to tranquilize the dragon beyond its capacity to generate terror. The application context for these approaches, their strengths and weaknesses as indicated by the research literature, and reported practitioner experiences are also discussed.*

## INTRODUCTION

Despite the information technology (IT) innovations of the past several years, the persistent theme is that there is an information systems (IS) delivery crisis<sup>1</sup> resulting from the failure to exploit IT capability to produce high-quality systems (Brynjolfsson, 1993; Gibbs, 1994). Many organizations have established successful IS; however, several have not obtained the expected benefits from their large investments in software products, and even successfully deployed IS consume a disproportionate share of systems development resources for maintenance activities (Banker, Davis, & Slaughter, 1998; Hoffer, George & Valacich, 2002). Consequently, organizations (and eventually the national economy) seldom derive commensurate benefits from IT investments. This, presumably, has contributed to the perception of a productivity paradox, which was first insinuated by economist Robert Solow.

Brooks (1987) suggested that software engineering problems emerged from both accidental and essential difficulties. According to him, accidental difficulties derive from the incidental properties of the delivery environment; they are controllable. However, there is no solution for the essential difficulties and no silver bullet existed or was imminent to slay this “werewolf.” Brooks attributed essential difficulties to four factors: (1) conformity—the need for new software to conform to organizational politics and policy and other systems, both social and technical; (2) changeability—the corrections, adaptations to business process changes, and extensions that software experiences in delivery and evolution; (3) invisibility—the inability to create visual models to make intangible design products appreciable; (4) complexity—the inherent difficulty involved in working with and communicating about this largely intangible product.

None of these problem factors has disappeared. In fact, the complexity of IS delivery has increased (Al-Mushayt, Doherty, & King, 2001). As organizations rely more on IT to enable their strategic priorities and support value chain operations, advanced IS are required to apply sophisticated information and communications technologies, to accommodate a variety of data distribution and application architecture strategies, support cross-functional business processes and global operations, and mitigate the information security risks that now attend the greater movement of data. This increased reliance on IT accentuates the challenges that face IS developers and other stakeholders to interact more effectively (Vessey & Conger, 1994).

It is generally acknowledged that there is no painless therapy for software development maladies—no single silver bullet. However, Cox (1995) asserted that the werewolf may be slain by those who will summon the tenacity to shift from the software building paradigms that we have embraced. Such a shift requires more focused preproject analysis to select the appropriate combinations of approaches that are best suited to the IS delivery context. IS developers may have to emulate the resilience of the organizations they serve. Most are forced

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