Chapter 6

Requirements Engineering During Virtual Software Development: Towards Balance

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There has been growing interest in virtual teams, and more specifically in virtual software development. Requirements engineering, which is seen as a crucial phase in software development provides another dimension when software development occurs in a virtual setting. While formal software development methods are the obvious first choice for project managers to ensure a virtual information system project team remains on track, the social aspects of requirements engineering cannot be ignored. These social aspects are especially important across different cultures, and have been shown to affect the success of an information system. This chapter proposes a framework indicating that project managers need to encourage a balance between formal methods and social aspects in requirements engineering to suit the virtual team members.

INTRODUCTION

Within contemporary organisations it is usual to find an array of computer-based information systems which support their business processes and assist the organisations to achieve their business goals. Businesses have changed as predicted by Drucker in 1988. Organisations have a flatter structure with “decentralized and autonomous units” including the extensive use of “task forces” (Drucker,
Given the new organisational structure in business, and the more recent emergence of the global economy and global markets (Karolak, 1998), there is a change in both the type of work being performed and the way work is developed. For example, many companies operate entirely using the Internet capabilities (Laudon and Laudon, 2000).

As businesses have changed, so have their information systems. Information systems (IS) still support organisations as they achieve their business goals, however both the type of systems being developed and the nature of software development have changed. There is evidence of change from locally developed software to virtual (or global) software development (Carmel, 1999). As the technology now exists to enable collaborative team work over distance and time, virtual teams, in which virtual software development occurs, are becoming more recognised as the rule rather than the exception (Kimball, 1997). There is no doubt that virtual software development teams present some challenges to organisations. However, with improved understanding of the influences during virtual software development, organisations have the opportunity to develop strategies and techniques to manage this type of development. This in turn can help reduce the risk of failure of the systems being developed.

As Kuiper (1998) states, one of the greatest challenges for business is defining its needs for a new information system. Kuiper (1998) continues that the complexity and factors to be considered in developing a new information system is often overwhelming to business. Added to this is the realisation that the success or failure of the new information system, often determines whether the business succeeds or fails. Therefore ensuring the needs of business are clearly determined and communicated is important in the process of developing an information system.

One particularly crucial phase in software development that requires clear communication is the requirements definition (engineering) phase (Darke and Shanks, 1997). This phase has been said to impact directly on the success or failure of new IS in organisations (Byrd et al., 1982; Davis, 1990). Requirements engineering occurs early in the software development process, where the requirements for an information system are defined and expressed in the form of a systems requirements specification (Greenspan et al., 1994).

The main purpose of this chapter is to explore some of the influences associated with the requirements engineering phase of the software development process as it occurs in a virtual setting. The chapter first reviews the concept of virtual teams and virtual software development, then the requirements engineering phase of software development is reviewed, followed by a discussion of requirements engineering in virtual software development. This chapter is offered as a starting point for debate concerning two opposing forces perceived in the IS literature within requirements engineering and virtual software development.
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