

## Chapter VIII

# Experiences with Modelling Early Requirements

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### Abstract

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*A key challenge in the development of systems is the engagement of domain experts in their articulation, agreement, and validation of requirements. This challenge is particularly pronounced at the early requirements phase when multiple stakeholders from different divisions and often different organisations need to reach agreement about the intended systems. Decisions taken at this stage have a profound effect on the technical and economic feasibility of the project. The  $S^3$  approach advocates the use of a modelling process expressed in terms of strategy-service-support dimensions, augmented by appropriate simulation techniques that enable experimentation with different scenarios. The  $S^3$  approach has been presented elsewhere. The aim of this paper is to provide insights from a large project in which the author played an active and interventionist part, on the utility of the  $S^3$  approach in facilitating stakeholder*

*engagement in early requirements specification. The action research for this project involved the design of venue operations for the Athens 2004 Olympic Games. Many tens of stakeholders from a wide spectrum of professional expertise participated in the definition of business support systems for 21 competition venues over a period of 3 years. An interesting feature of this project was the use of three different approaches, starting with traditional peer-to-peer knowledge transfer, followed by a typical business process modelling method and finally adopting the S<sup>3</sup> approach and the way of working for the entire design of venue operations. The paper offers insights on all three approaches, insights that reflect on the problem of early requirements in general and on the validation of the effectiveness of the S<sup>3</sup> approach in particular.*

## Introduction

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There is a high degree of consensus amongst information systems researchers and practitioners that the development of systems is not solely a technical activity but rather organisational factors very often have a profound effect on both the delivered system and the design process. This is particularly acute in today's turbulent business environment where powerful forces such as deregulation, globalisation, mergers, advances in information and telecommunications technologies, and increasing education of people provide opportunities for organising work in ways that have never before been possible (Malone, Laubacher et al. 2003). Many design situations involve multiple stakeholders from different participating organisations, subcontractors, divisions etc who may have a diversity of expertise, come from different organisational cultures and often have competing goals. The success or failure of many projects depends, to a large extent, on understanding the diverse and interacting sets of stakeholder requirements (The-Standish-Group 2003).

Requirements Engineering (RE) as a field of study and practice has traditionally focused on the specification of technical requirements i.e. defining the functional and non-functional properties of target systems (TSE 1977; IEEE-Std.'830' 1984; COMPUTER 1985; Davis, Hsia et al. 1993; Loucopoulos and Karakostas 1995; Nuseibeh and Easterbrook 2000). However, it is increasingly realised that tackling this very important area of requirements is not simply a case of describing what is demanded of the system to be developed but, instead a greater deal of emphasis should be placed on better understanding the complex interrelationships between requirements. This complexity arises due to multiple reasons such as,

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