Chapter XIII

Information System Development: Using Business Process Simulation as a Requirements Engineering Tool

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Abstract

This chapter discusses the idea that even though information systems development (ISD) approaches have long advocated the use of integrated organisational views, the modelling techniques used have not been adapted accordingly and remain focused on the automated information system (IS) solution. Existing research provides evidence that business process simulation (BPS) can be used at different points in the ISD process to provide better-integrated organisational views that aid the design of appropriate IS
solutions. Despite this fact, research in this area is not extensive; suggesting that the potential of using BPS for the ISD process is not yet well understood. The paper uses the findings from three different case studies to illustrate the ways BPS has been used at different points in the ISD process, especially in the area of requirements engineering. It compares the results against IS modelling techniques, highlighting the advantages and disadvantages that BPS has over the latter. The research necessary to develop appropriate BPS tools and give guidance on their use in the ISD process is discussed.

Introduction

This chapter looks at information systems development (ISD) and examines the potential role of simulation techniques within the information system (IS) developer’s toolkit. Since the inception of business data processing in the 1950s, ISD has remained a complex and unreliable process with the research repeatedly reporting high levels of “failed” projects (Standish Group, 1999).

Early approaches to discipline ISD focused on treating it as a production process and gave rise to the linear, or waterfall, systems development life cycle (SDLC). This was perceived to have three advantages: a) it follows a series of specific and sequential phases from the beginning of the project until its end; b) it advocates the use of techniques and tools to formulate, step by step, the detailed design and implement the IS, and c) it introduces the use of project management tools to control the overall process.

Despite the initial success of the linear SDLC, it did not deliver a dramatic reduction in the project failure rate and a number of limitations were identified. For example, it is argued that instead of meeting organisational objectives, the traditional or linear SDLC aims to design an IS to help to solve low-level operational tasks (Avison & Fitzgerald, 2003). In addition, it is claimed that the traditional SDLC focuses on “automating” processes, rather than proposing innovative integrated solutions (Rhodes, 1998). It is important to recognise that in parallel with the adoption of more rigorous ISD techniques there has also been a progressive demand for IS to deal with more complex and wide ranging business processes.

In trying to address some of these limitations, IS practitioners have proposed a wide range of alternative ISD approaches by emphasising different aspects
A Framework for Information Systems Integration in Mobile Working Environments
Enterprise Architecture and Integration: Methods, Implementation and Technologies (pp. 212-224).
www.igi-global.com/chapter/framework-information-systems-integration-mobile/18369?camid=4v1a