Chapter 10
Rethinking Business Process Reengineering:
The Empirical Modelling Approach

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ABSTRACT

The purpose of this chapter is to introduce a new approach–Empirical Modelling–to computing and business modelling. Today most business processes rely on informal knowledge and social behaviour but these are areas which have not, so far, been well suited for modelling with computer-based techniques. For this, Empirical Modelling is introduced to modelling with computers, which has natural application to business process modelling. This chapter will suggest a way of applying this approach to integrated system development with BPR. A framework using this approach, SPORE (situated process of requirements engineering), is extended to encompass applications to participative BPR (i.e. supporting many users in a distributed environment). An outline of an application of our methods to a warehouse management system is included.

INTRODUCTION

The core of this chapter is aimed at introducing an innovative approach to business process reengineering (BPR) and the development of associated information systems. This first section starts with the aims and motivation for the research, and gives the primary overview of the challenges and potential problems faced in these subjects. At the end of this section, the outline of this chapter is presented.

Today most corporations are faced with a highly competitive market environment changing at an accelerating rate. In the early 1990s several

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analysts were suggesting that the conventional incremental style of organisational change was inadequate for this challenge. To gain competitive advantage or even maintain market position, it was argued, would require so-called 'radical' change. It had become common to use the metaphor of 'engineering' to describe change that is planned or designed (cf. 'software engineering'). So it was natural for describing this new order of change that 'Business Process Reengineering', or 'Business Process Re-design' (BPR), became the preferred terms. From this perspective it was crucial that business processes should be re-designed in a cross-functional process 'vision' guided by overall objectives and new resources, particularly the resources of information technology (IT). There was an optimism for IT reminiscent of the early days of artificial intelligence: "IT capabilities …. can work miracles by the standards of previous generations. How else but through this technology can we manage our processes globally, instantly, efficiently, and correctly? It is clear that no other tools are comparable." (Davenport, 1993, p. 66). However, it was not to be long before disillusion with the BPR vision appeared. In 1996 Davenport himself published an article entitled *Why Re-engineering Failed: The Fad that Forgot People* in which he admits:

To most business people in the United States, re-engineering has become a word that stands for restructuring, lay-offs, and too often, failed change programmes…companies that embraced [re-engineering] as the silver bullet are now looking for ways to re-build the organisation's torn fabric. (Davenport, 1996, p. 70)

Thus far only around 30% of BPR projects are regarded as a success. The earlier promise of BPR had not been fulfilled. One reaction to this outcome was to retain faith in IT as a dominant support and just admit that since it could not adapt – or at least not at acceptable levels of cost – then business activities must adapt to IT. For example:

The pendulum has swung from 'continuous reengineering and re-inventing' to 'pick an application package and force our business processes to comply with the package'. (Riemer, 1998, p. 69)

Another response was to be more relaxed over the likely role of IT in business:

IT can often be a catalyst in this process [of change] and IT opportunities for new or enhanced products and services should certainly not be overlooked. (Galliers, 1998, p. 226)

There are, no doubt, many reasons for the limited success of the BPR programme. It was surely over-hyped in the first place. There is only a certain amount, and rate, of change that people and organisations can accommodate while maintaining their basic business objectives. Most business processes depend crucially at every point upon people and their informal knowledge and social behaviour. But these are areas for which conventional computer-based techniques are not well suited and there was, and still remains today, a substantial gap between the need to model business process innovations and the capabilities and mechanisms available from IT to support the task.

In so far as IT is itself the problem here – as opposed to the solution it was intended to be – the problem lies more with software than with hardware. Hardware developments – multimedia functions, networks, storage and processor performance, screen display – have been impressive over recent years. But although object-oriented methods have made an important contribution, the 'software crisis' has still not been solved. Taking proper account of human factors is well known to be a major challenge for all interactive software. And the first human factor to be considered is the requirement of the software system. The most sensitive and difficult area of software development lies in requirements engineering. Should this be a phase with an end-point – as the programmer would prefer? Or should it be a con-