



Using business process re-engineering for the development of production efficiency in companies making engineered to order products

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Abstract

Companies making products on an engineer to order (ETO) basis have traditionally found business opportunities through design and product development expertise and an ability to respond to demands for customisation with improved product performance. However, increasingly, customers are seeking lower prices and reduced lead times, which also require improved manufacturing efficiency. These companies are thus being driven to improve the integration of the design, manufacturing and procurement functions. Over the last decade, business process re-engineering (BPR) has been developed to enable organisations to become process driven and customer-focussed. However, BPR has not been generally successful for a variety of reasons. One of these is the wide range of methodologies available for BPR projects and confusion with respect to the selection of an appropriate methodology. This paper describes an investigation with a number of collaborating companies, to investigate the methodologies employed and their interaction with other company factors. The research included comparative analysis and benchmarking against a general BPR methodology through in-depth investigations with four major companies, work on a shorter time-scale with a number of other companies and a questionnaire survey. The research has shown that some elements of BPR are not applicable to companies in this sector. It is also concluded that, rather than adopt a prescriptive model, organisations need to develop metrics for performance that more adequately reflect their competitive position and the type of project undertaken.

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1. Introduction

Business process re-engineering (BPR) may be seen as an initiative of the 1990s, which was of

interest to many companies. The initial drive for re-engineering came from the desire to maximise the benefits of the introduction of information technology (IT) and its potential for creating improved cross-functional integration in companies (Davenport and Short, 1990). Business process re-design was also identified as an opportunity for better IT integration both within a

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company and across collaborating business units in a study in the late 1980s conducted at MIT (Scott-Morton, 1991). The initiative was rapidly adopted and extended by a number of consultancy companies and “gurus” (Hammer, 1990). The extension to the vision of re-engineering processes to encompass the total radical re-design of companies also raised great interest but organisations which undertook such radical BPR projects found the path to success difficult to follow. Hammer and Champy (1993) found that “50–70% of attempts fail to deliver the intended dramatic results”. To a great extent the initiative has now lost favour in engineering enterprises. However, the re-engineering of specific processes and the resulting efficiency gains were, and remain, of great interest and value to many companies.

For any proposed initiative or development such as BPR to be viable and practical requires that there exist a fundamental approach and a proven, reliable methodology, which is generally applicable and repeatable. However, inspection of the literature and company observation showed that there was no standard or typical BPR methodology and different methodologies and various forms of BPR were being proposed (see for example Davenport and Short, 1990, and other papers including Short and Venkatraman, 1992; Vowler, 1993; Humphrey, 1995; Tinnila, 1995; Drew and Coulson-Thomas, 1996; Hallahan, 1996; Selander and Cross, 1999). The approach

was also being applied across a wide range of enterprises (see, for example Crego and Schiffrin, 1995; Twaddle, 2000). This ongoing re-invention and re-application of the BPR approach generated an endless list of re-engineering tools and techniques. Quite apart from the question of rigor in any new initiative, this created a difficult task for organisations considering re-engineering in that the selection of an appropriate BPR methodology to suit their company or their particular project objectives was far from obvious.

The range of applicability of BPR was also considerable. Whilst its application to improving the efficiency of an individual company process could, perhaps, be predicted, the earliest work also envisaged a hierarchy of business reconfiguration, from local exploitation through internal integration and business process redesign to business network redesign and, ultimately, business scope network redesign and, ultimately, business scope (Venkatraman, 1991) (see Fig. 1).

The objectives of the research presented in this paper were, therefore, to establish whether a generally applicable methodology for BPR can be defined and to investigate the experiences of a number of companies, all of which made products which were engineered to order, in attempting to apply BPR. Further objectives included the assessment of the extent to which a generally applicable methodology would support particular company ambitions and, generally, to explore the reliability and scope of BPR as a concept for these companies.

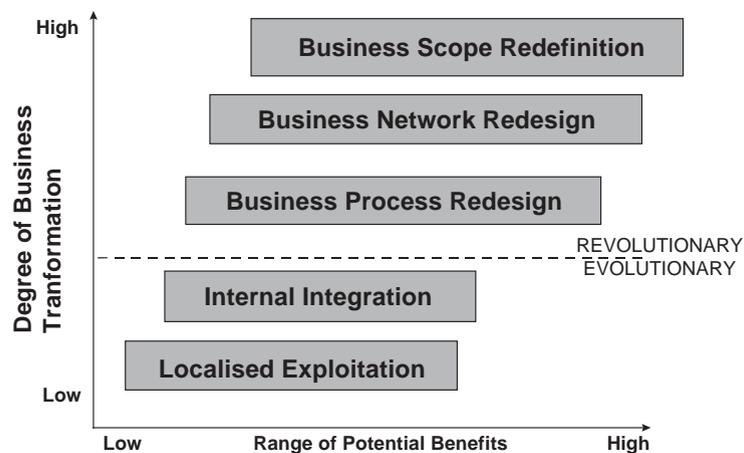


Fig. 1. Five levels of IT-induced reconfiguration (Venkatraman, 1991).

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