



An Exploratory Study of the Influence of the IS Function and Organizational Context on Business Process Reengineering Project Initiatives

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To help evaluate the risk of process reengineering failure and enhance the prospect of its success, three potential sources of influence on BPR initiatives and success are examined in this study. These include the innovative capacity of the organization, IS maturity and strategy-IS interface. It was found that while factors related to IT maturity and influence such as experience in mainframe and client/server computing may facilitate the decision to reengineer, they are not critical in the later stages of the initiative. On the other hand, factors having significant relationships beyond the initial decision include variables pertaining to innovative capacity of the organization and strategy-IS interface. These findings suggest that technical IT competence as a critical enabler is necessary but not sufficient for reengineering success. Based on study findings regarding the innovative capacity of the organization, guidelines for reengineering risk assessment are proposed. In addition, implications of the findings, limitations of the study and opportunities for further research are also discussed. © 1998 Elsevier Science Ltd. All rights reserved

Key words—business process reengineering, strategic-IS interface, organizational innovation, reengineering risk assessment, information systems maturity and influence, decision to reengineer

1. INTRODUCTION

OVER THE PAST decade, we have witnessed an increasingly convergent set of communications and computing technologies that are being recognized as facilitators of fundamental business change [61]. Davenport and Short [17] identified information technology (IT) capabilities that can be leveraged to redesign business processes. These include technologies that capture and disseminate expert knowledge, transform unstructured processes into routinized transactions, and enable changes in the sequence of tasks in a process, allowing the simultaneous execution of multiple tasks,

etc. However, it should be noted that the concept of business process reengineering (BPR) has evolved over a long period of time, drawing elements from a number of business improvement methods such as industrial engineering, systems analysis and design, social-technical design, and total quality management [18]. In fact, for many decades since the introduction of electronic computers, the theme for computer applications in organizations has been gradually shifting from that of *automation*, i.e., the computerization of existing procedures, toward an attempt to modifying or even radically changing the traditional business processes [15].

As is often the case with other popular management methods before it, BPR is undergoing its own life cycle of evolution. With the initial bandwagon effect fading and reports of BPR failures surfacing, more attention is now focused on the implementation of reengineering [10]. There is growing realization that IT is a critical enabler, but reengineering involves complex socio-technical change in the organization [44, 57]. Sources of reengineering failure, according to Clemons *et al.* [11], can be attributed to behavioral factors such as employees' misconception of the organization's strategies. As process reengineering is a multi-faceted phenomenon, it would be difficult to interpret the complex organizational change involved with a single perspective, and the inclusion of multiple views is critical [31]. A number of previous BPR studies were based on this multi-dimensional perspective. Hall *et al.* [29], for example, have demonstrated the importance of a diverse array of organizational factors to BPR success. In an integrated BPR planning framework, Grover *et al.* [28] have recognized vital links between process reengineering initiation and success to corporate strategic planning, strategic IT planning and the innovative environment in the organization.

Adopting this multi-dimensional perspective of process and organizational change, the purpose of this study is *to explore what organizational, technological, and strategic elements need to be in place if radical process change is to take place and has a chance to succeed*. Specifically, the objective of the research is to examine the significance of three sources of influence on BPR initiatives and success: (1) the innovative capacity of the organization, (2) the information systems (IS) function maturity and influence and (3) the strategy-IS interface. In addition, we also attempt to uncover important patterns of reengineering practice such as the type of business processes reengineered and the relative importance of various BPR performance objectives.

1.1. Research model

The three potential sources of influence on BPR initiatives and success, as shown in the research model (see Fig. 1), were selected for study based on their theoretical linkage to and conceptual congruence with the nature of pro-

cess reengineering. First, we seek to examine to what extent the *innovative capacity* of the organization would facilitate the adoption and implementation of the reengineering concept. Process reengineering often involves drastic departure from the status quo. In many cases, complete overhaul of current procedures is required. It is difficult to conceive that organizations steeped in tradition and lacking creative energy would attempt and succeed in such ultimate innovative endeavors. Next, we explore how the information systems function may affect reengineering initiatives in terms of *IS maturity and influence*, recognizing that IT often takes on an enabling role in altering traditional patterns of work flow through reengineering projects. Over the years IS has been instrumental in introducing innovative solutions to business problems in the organization [60], and we may expect that a significant level of expertise and availability of resources in IT may be important to BPR initiation and success. Thirdly, recognizing the potential influence of strategy on BPR, we attempt to understand how *strategy-IS interface* may facilitate BPR initiatives. A number of IS researchers have stressed the importance of strategy-IS interface in developing IT applications for competitive advantages [40, 49]. To the extent that this interface reflects the strategic importance of IS, more IS resources would be allocated to support IT-enabled strategic endeavor such as interorganizational systems that provide electronic linkages to suppliers and customers [35]. As process reengineering is often an IT-enabled strategic endeavor [15, 16], Strategy-IS interface can be expected to play an important role in BPR initiatives.

As stated earlier, the purpose of this study is to explore what organizational, technological, and strategic elements need to be in place if radical process change is to take place and has a chance to succeed. Radical process change is no ordinary project. Why have some organizations initiated this momentous change, while others decided not to? Given the gravity of the change, the obstacles to launching the effort can be multifarious. For example, if people in the organization have absolutely no willingness to cooperate with employees in other functions to accomplish a task, it would seem unlikely that they will

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