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ORGANIZATIONAL RECEPTIVITY TO CHANGE AND SUCCESS IN PROCESS REENGINEERING

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Abstract

Although business process reengineering is a major corporate initiative today, the success rate of reengineering projects has been less than ideal. In an attempt to better understand the dynamics underlying this phenomenon, process reengineering is viewed as an organizational innovation. Based upon existing taxonomies of innovations, it is characterized as a radical, administrative, process innovation. Drawing upon prior research in the management of such innovations, we postulate that a lack of success in process reengineering may be attributed to inadequate attention being paid to the environment into which it is introduced; we hypothesize that it is necessary to manipulate organizational receptivity to change prior to initiating process reengineering. A model that conceptualizes the determinants of such organizational receptivity to change is constructed. Using a case-study approach, the model is utilized to explain the apparent lack of success of a major business process reengineering effort. The model can potentially serve two purposes: as an *a priori* conceptualization of the types of organizational climates where process reengineering is likely to be successful, and as a guide to management action — to diagnose what the obstacles to process reengineering are and what changes in the organization might be appropriate.

1. INTRODUCTION

In spite of significant attention paid in both research as well as practitioner literature to the issue of business process reengineering (BPR), theoretical development in this area has been limited (Earl, Sampler and Short 1995). Moreover, the number of success stories reported in the press are not commensurate with the number of projects under way. Given the importance of BPR in the competitive environment of the 1990s, there is clearly a need for research that illuminates our understanding of how the process of BPR may be managed and implemented successfully.

Some recent work has focused on understanding and explaining why reengineering projects fail (e.g., Bashein, Markus and Riley 1994, Clemons, Thatcher and Row 1995; Grover et al. 1995). Clemons, Thatcher and Row hypothesize that reengineering failures are caused by inappropriate management of functionality risk and political risk. Using data gathered from 105 organizations, Grover et al. categorize and report several reengineering implementation problems, including the problem categories of project planning and technological competence. Despite differences in their conceptualization of the drivers of failure, however, both studies conclude that while technology related issues represent necessary conditions for success, of greater importance are *non-technical* issues related to change management practices. Indeed, the fact that reengineering represents a complex *social change* phenomenon is a recurring theme in the recent literature (e.g., Stoddard and Jarvenpaa 1995; Earl, Sampler and Short 1995).

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In this paper, we use a theory-based approach to argue that BPR success is contingent upon the existence of a key sustaining environment that may be conceptualized as organizational "receptivity to change." We hypothesize that one reason why so many BPR projects fail is precisely because attempts to introduce BPR into an environment with a *less* than ideal readiness to change will result in negative outcomes. The basis for this argument stems from the recognition that BPR represents a radical, administrative, process innovation. Drawing upon prior research in the management of such innovations, we note that the significant change in *work behaviors* necessitated by such innovations elevates the importance of the environment into which the change is introduced.

Through a synthesis of prior work, a model that captures the determinants of "receptivity to change" is constructed. The model can potentially serve two purposes: as a conceptualization of the types of organizational climates where BPR is likely to be successful, and as a guide to management action — to diagnose what the obstacles to BPR are and what changes in the organization may be appropriate. Finally, we summarize the findings from an in-depth case study which illustrates the predictive validity of the model (Yin 1993); the firm examined devoted considerable resources to BPR but was unable to reach the final outcome of successful implementation. The experiences of this firm provide further evidence for the notion that receptivity to change needs to be manipulated *prior* to attempts to engage in significant process redesign.

2. BUSINESS PROCESS REENGINEERING AS ORGANIZATIONAL INNOVATION

2.1 BPR and Innovation Stages

Prior research has conceptualized the process of innovation as consisting of a series of stages (Pierce and Delbecq 1977; Zaltman, Duncan, and Holbeck 1973; Rogers 1995). There is agreement that the core stages in innovation consist of *initiation*, *adoption*, and *implementation*. In the initiation stage, the organization recognizes the need for the innovation and makes a preliminary resource commitment to explore its feasibility. In the adoption stage, the value of the innovation for the organization has been positively evaluated and a decision is made to commit resources to acquire or generate the innovation internally. Key activities here include the mandate for a change and resource commitment to operationalize the change. The final stage, implementation, is concerned with placing the innovation in actual use; related activities here are the creation of an appropriate organizational environment for implementing the change and the modification of work behaviors in order to institutionalize the innovation. Here "adoption" suggests the allocation of organizational resources and a mandate for change emanating from key decision makers (Pierce and Delbecq 1977), while "implementation" is a measure of organizational commitment to the change (Downs and Mohr 1976).

When applied to the context of BPR, these stages are all observable. In the *initiation stage*, the firm acknowledges the value of BPR as a tool for organizational transformation and undertakes one or more specific BPR projects. Corresponding adjustments in organizational processes (such as the formation of teams and training of employees in BPR practices) are also made. This recognition of the need for process reengineering may be an outcome of a compelling competitive necessity or simply an attempt to improve operations to anticipate future competitive pressures (Hammer and Champy 1993). In the *adoption stage*, the organization is most concerned with the redesign of the target process(es). During the *implementation stage*, organizational arrangements are changed to accommodate the reengineered processes, accompanied by necessary changes in policies and procedures and personnel skills.

Innovations, however, come in a variety of forms; indeed, the literature on innovation repeatedly underscores the point that the development of a single, unitary theory of innovation is an exercise in futility and that distinct theories are required to explain and predict innovation outcomes across distinct innovation types (e.g., Downs and Mohr 1976; Daft 1978). Consequently there has been a movement toward developing theoretical taxonomies that allow a specific innovation to be classified along its intrinsic dimensions. Classifications of innovations dominant in the literature include the three dichotomies between radical and incremental innovation (Dewar and Dutton 1986; Ettlie, Bridges and O'Keefe 1984); between technical and administrative innovations (Daft 1978; Zmud 1982); and between product and process innovations (Zmud 1982).

2.2 The Characterization of BPR

The radical-incremental dichotomy attempts to capture, in some sense, the *magnitude* of the innovation. An important distinguishing feature of a radical innovation is that it represent a risky departure from existing procedures and practices (Duchesneau, Cohn, and Dutton 1979; Ettlie, Bridges and O'Keefe 1984). Conversely, incremental innovations are those that represent minor or simple adjustments in current practice (Munson and Pelz 1979; Dewar and Dutton 1986). In a recent conceptualization, Henderson and Clark (1990) add two additional categories to the radical-incremental dichotomy — modular and architectural innovations. Henderson and Clark suggest that innovation ought to be examined along two dimensions: changes that affect the core concepts of a technology and changes that alter linkages between the core concepts and components. Radical innovations in this framework then reflect major changes along both dimensions, while incremental innovations reflect modest alterations to both dimensions. A modular innovation is one where core concepts are overturned but linkages remain largely unchanged, while an architectural innovation represents a change in linkages with no corresponding change in core concepts.

At first glance it might appear obvious that, by virtue of its definition, BPR represents a radical innovation. Caution must be exercised, however, in reaching this conclusion. Clearly the first two stages — the *initiation* and *adoption* of BPR — both represent radical innovations in that they require management and individuals to rethink the fundamental assumptions underlying the way business is conducted and alter the way they manage associated processes. When examining the *implementation* of BPR, the conclusion is not so obvious. Insofar as BPR attempts to alter business processes by questioning, modifying, deleting, and reorganizing the activities comprising the process, it is indeed a major change along the "linkages" dimensions. However, while BPR may engender a radical change in the core concepts underlying one business process, it may result in little modification in the core concepts underlying another. Thus, depending on the context, the reengineered process could represent an architectural or a modular innovation.

Daft, in an examination of the behaviors of administrators vis-à-vis lower level employees as innovation initiators, distinguishes between the notion of an administrative and a technical innovation. A technical innovation is an idea for a "new product, process or service," while administrative innovations represent changes to "policies of recruitment, allocation of resources, and the structuring of tasks, authority, and reward" (pp. 197-198). He suggests a dual-core theory of innovation, with the basic tenet that innovation in one core is more likely to be successful if it is initiated by individuals belonging to that core. Where along the technical-administrative dichotomy does BPR lie? First, notice that the *initiation and adoption* of BPR is primarily an administrative innovation as it does not expand the products and services offered by the business; rather, it changes management practices and procedures. The *implementation* of a reengineered process can be both a technical and an administrative because the reengineered process could likely produce a new outcome in a radically different way, and administrative because the implementation of the new process would necessitate changes in management practices such as reporting relationships, incentives, and reward structures.

The distinction between a product and a process innovation is an intuitively appealing and obvious one. Product innovations are those that introduce new products or services that "shift or expand an organization's domain" (Zmud 1982, p. 1424), while process innovations connote the introduction of new procedures into existing domains. Zmud (1982) speculates that product innovations result in the reallocation of organizational resources, while process innovations result in shifts in individual task behaviors. In other words, product innovations change the firm's business while process innovations alter the way in which the firm does business.

All stages of BPR constitute process innovations as they require modifications to individual task behaviors. For example, the *initiation* stage would typically require the formation of special cross-functional task forces, the institution of new communication channels, and mechanisms for idea generation and creative thinking (Hammer and Champy 1993). Similarly *adoption* will clearly necessitate changes in the way individuals perform their work by reorganizing or eliminating activities comprising an individual's task.

In sum, although we have argued that specific instances of BPR may exhibit the characteristics of a modular, technical or product innovation, as suggested by Dixon et al. (1994), the majority of BPR projects are expected to focus on *radical*

administrative process innovations — a class of innovations that has received scant attention in the literature. Thus, in the remainder of our analysis, we focus on this particular characterization of BPR.

Prior work in the management of radical, administrative, process innovations underscores the importance of *organizational receptivity to change* in assimilating such innovations successfully (e.g., Daft 1978; Ettlie, Bridges and O'Keefe 1984). Indeed, it has been suggested that, in so far as success in BPR is contingent upon the willingness and ability of organizational actors to think creatively and suggest process changes to which they will ultimately be committed, the absence of an "appropriate" organizational climate where such change is greeted with enthusiasm will only result in an eventual failure of the BPR effort. Unfortunately, although the significance of receptivity to change was articulated over two decades ago by Kolb and Frohman (1970) and has been a recurring theme in the research literature focused on organizational innovation since that time, the literature does not provide specific insight into *how* managers might create such receptivity to change. Motivated by this theoretical gap and the pragmatic need in business to be able to successfully implement radical transformation, below we present a model explicating the antecedents of receptivity to change in the context of BPR.

3. THE DETERMINANTS OF RECEPTIVITY TO CHANGE

A conceptual model for the determinants of receptivity to change for BPR is shown in Figure 1. According to the model, the desired environment is the outcome of four key conditions: knowledge links, knowledge diversity, top management commitment, and perceived job insecurity. The model further suggests that the relationship between knowledge diversity and receptivity to change is moderated by knowledge depth; while the effects of the structural characteristics of a firm, viz., decentralization and formalization, are mediated by the construct of knowledge diversity. Although the individual conceptual constructs comprising the model derive their theoretical underpinnings from prior research, their synthesis into a unifying conceptual model represents a contribution of this work. The model is offered as a step toward the development of a theory of organizational change wrought by business process reengineering.

The construct of "**receptivity to change**" has been conceptualized as "a set of measurable properties of the work environment that are perceived by those working in the environment and influence their motivation and behavior" (Siegel and Kaemmerer 1978, p. 554). Using this definition of an organizational climate, Siegel and Kaemmerer (1978) investigated differences between innovative and non-innovative firms and developed an instrument that distinguished between these firms. *Receptivity* toward change is an indicator of the willingness and ability of organizational actors to view change in a positive light. It is conceptually distinct from top management support; the distinction is important because although the *mandate* for change may emanate from top management, the *implementation* of the change is often the responsibility of others in the organization. In the context of BPR, receptivity to change is expected to be of particular significance as *process* innovations require substantial changes in the nature of the work itself (Zmud 1984).

The determinants of receptivity to change potentially include factors exogenous to the firm, such as competitive pressure, as well as firm-specific conditions, such as internal organizational mechanisms. However, although competition may provide the trigger for the initiation of BPR, by *itself* such pressure may not be instrumental in creating the desired receptivity to change, as the effects of competition are likely to be perceived more strongly by the elite core. Closely related with the existence of competition in the environment is the permeability of the firm's boundaries to external information. The greater the inflow of information about the actions of *peer* organizations, the greater the likelihood that organizational actors *other* than the elite core will recognize the need for action; knowledge flow from the environment into the firm is generally reflected in the development of knowledge links (Pennings and Harianto 1992) with other firms that may possess complementary technical knowledge and the firm's proximity to the market for ideas, including access to vendors, research organizations, and universities. Participation in forums such as industry groups, trade organizations, and research conferences helps extend the knowledge set of the organization *beyond* the confines of its core set of capabilities. For example, business process reengineering is premised, to a large extent, on the innovative exploitation of information technology (Davenport and Short 1990), and the knowledge of technological developments can help foster ideas where they may be applied to the firm's advantage. Thus, the development of **knowledge links** with external entities is expected to be positively associated with receptivity to change.



Figure 1. The Determinants of Organizational Receptivity to Change

While permeable boundaries represent a *necessary* condition for the generation of new ideas, their assimilation requires organizational actors who understand the *potential* of an innovation for the firm. As Cohen and Levinthal (1990) point out, although "gatekeepers" may serve the role of alerting individuals to the existence of a new idea, and perhaps even translating it for them, there is no guarantee that the idea will be successfully assimilated. This discontinuity is characterized by Cohen and Levinthal as the "absorptive capacity" of the organization and of individuals; the prior related knowledge of the organization *constrains* its ability to exploit new knowledge. Absorptive capacity can be enhanced through the **diversity of knowledge** possessed by individuals in the organization. For example, process innovation requires new ideas that challenge old assumptions and seek process simplification with a well defined outcome in mind. Central to this is the elimination of "functional thinking" and a disregard for existing organizational roles and structure that may inhibit cross-functional integration. Individuals with little understanding of what the goals and activities of other sub-units, as well as the overall company's mission, vision, and strategies are, will fail to see the connections between their work and the work of others.

From a management perspective, the question that arises then is "how is knowledge diversity created?" The answer to this lies, in part, in organizational design. Structural characteristics of an organization that encourage knowledge diversity include close linkages among functional sub-units (Westney and Sakakibara 1986), decentralization of decision making authority, and low formalization. Decentralization creates an "organic environment" where employees are empowered, thereby fostering the generation of new ideas (Burns and Stalker 1961). Formalization, on the other hand, through a culture of adherence to rules and regulations, restricts employee discretion and initiative and forces information to flow along preset lines (Organ and Greene 1982). Although there is some disagreement in the research literature with regard to the relationship between structural characteristics and the stages of innovation (e.g., Pierce and Delbecq 1977; Dewar and Dutton 1986), consistent with the Cohen and Levinthal argument, we suggest that decentralization is positively associated with knowledge diversity, while formalization is negatively associated with knowledge diversity.

As argued above, knowledge diversity is expected to have a positive association with receptivity to change. A related construct, knowledge *depth*, has been shown in the past to be a good predictor of radical innovation (Hage and Aiken 1970; Dewar and

Dutton 1986). Knowledge depth represents the amount of professional training and the degree of competence possessed by the technical specialists in a firm. Specialization, however, has its drawbacks — it can result in strait-jacketing the specialists; indeed, "division of labor promoting gains from specialization should not be pushed so far that communication is undermined" (Cohen and Levinthal 1990, p. 134). In BPR, a crucial premise is that the work of the business be viewed as an integral whole and not as the sum of its individual parts. Thus, while absence of knowledge depth may *hinder* innovation, its presence may not constitute a sufficient condition; it is likely that knowledge depth *moderates* the relationship between knowledge diversity and receptivity to change.

The relationship between the values held by the "elite core" of an organization and the organization's ability to innovate has been investigated by several researchers (Pierce and Delbecq 1977; Dewar and Dutton 1986; Zmud 1984). Although the results obtained have been somewhat contradictory, there is agreement that the norms and culture promulgated by top management play a significant role in sustaining an atmosphere of innovative thinking and creating an impetus for change. Hammer and Champy and Davenport (1993) underscore the notion that BPR is essentially a top-down innovation with the mandate for change emanating from the executive core of the business. Insofar as BPR may engender changes that require a significant reallocation of organizational resources and responsibilities, **top management commitment** is essential to implement and sustain the innovation.

The final variable hypothesized to have an effect on receptivity to change, **job insecurity**, is particularly germane to BPR. As noted by researchers in organizational theory (e.g., Greenhalgh 1983; Greenhalgh and Rosenblatt 1984), several recent phenomena underscore the importance of job insecurity as a key predictor of behavior in organizations. Contributors to the rise in job insecurity include the prolonged economic downturn and the rapidly changing industrial structure from a primarily manufacturing-based economy to a service economy where workers require new skills. The nature of the implicit employment contract has changed and job security or the long-term relational contract between employer and employee is a scarce commodity today that has given way to a transactional contract (Byron 1995). Process reengineering has been utilized as one mechanism for organizational restructuring, and although a reduction of the work force may not always be the manifest intent, layoffs are a frequent outcome of BPR. The motivation for organizational actors to think innovatively about how organizational work may be better accomplished is likely to be low in the face of uncertainty about the continued existence of their roles in the organization. (Kochan, MacDuffie and Osterman 1988). Thus, **perceived job insecurity** is expected to be negatively associated with receptivity to change.

In summary, the model conceptualizes an organization's receptivity to change; a crucial precondition to successful assimilation of BPR, as being driven by four key variables. While the variables identified here may be relevant to other innovations also, we believe they are of particular salience to BPR because BPR represents a *discontinuous* innovation (Zaltman, Duncan and Holbeck 1973) that results in the establishment of new behavior patterns. Although the model is in need of empirical verification, it is strongly rooted in theory and prior work and provides a parsimonious conceptualization of the outcome of interest. Below we utilize this model to analyze the experiences of one firm in its attempts to implement process reengineering.

4. PROCESS REENGINEERING AT ALPHA, INC.

4.1 The Company and the Initiation of BPR

Alpha, the organization profiled here, is a farm cooperative that has operated for several years in five distinct markets: agricultural products, retail, energy, leasing, and insurance. Each market is handled by separate units in a relatively decentralized manner, with corporate control over all financial aspects of the business. Historically, the management philosophy of the firm can be characterized as conservative, with formalized channels for communication both within the decentralized units and between business units and corporate management. Being a cooperative, the CEO reports to a board comprised of farm representatives who are generally risk averse. In the past, Alpha primarily competed on the service its farm retail outlets provided to its customers.

The environment in which Alpha does business has witnessed significant change in the past few years. Although the firm was active in exploring developments in the agricultural side of the business through its affiliations with leading agricultural

schools, it has been somewhat tardy in reacting to market conditions at the retail store level. Recent inroads made by discount chain stores such as Walmart and Hechingers started eroding Alpha's retail business. In addition, weather related factors had a negative impact on margins in the energy business. The extremely competitive and shrinking agricultural market today and the resulting financial losses over the last few years compelled the cooperative to seek a turnaround in its fortunes through a reengineering of its business processes. The primary champion of the BPR effort was the CEO and the manifest business motive was to address the declining *financial performance*.

The initial focus of the BPR effort was on cutting costs and becoming more competitive at the retail store level (i.e., improving customer satisfaction and providing goods to the customer faster). One particular area considered for cost reduction was inventory levels, which currently cover over 100,000 products and are valued at close to \$20M. Also, since the firm still wanted to compete in the marketplace with a service-differentiated product, it needed a more cost efficient support infrastructure to provide such service. This was to be addressed through the elimination of several manual processes and by redesign of its mainframe-based legacy systems.

With these broad objectives in mind, the reengineering effort at Alpha was initiated in early 1992 to cover one particular area (financial control) and later expanded to address three areas: supply chain, financial control and accounting, and order entry. Two sets of external consultants played a key role in the BPR effort: the first consultant provided a high level view of what each business had to do to improve its operations and asked each business area to form an internal team to generate ideas for improvement, while the second consultant was hired to move the project toward implementation. Due to the commonality of functions across different business units and the need to reengineer/replace many of the existing computer systems to support the new business demands, the scope of the project was broadened to create standardized systems across various functions. The increase in project scope not only altered the time table for realizing the benefits anticipated, it also led to the project becoming technically and managerially complex. In spite of demonstrating certain benefits fairly quickly (such as the introduction of EDI and the reduction of staff by 10%), management felt that the BPR effort did not yield sufficient gains relative to investment (\$25 million over three years). Hence, the project was discontinued in 1995.

Our objective was to understand the reasons underlying the apparent failure of the reengineering effort. To this end, we used a case-study approach with key informants (Yin 1993) and conducted several in-depth interviews with key individuals, including two major user representatives in the BPR effort, three IS representatives including the current CIO, and the current CEO of the organization, who was the treasurer when the BPR effort was initiated and participated as a member of the BPR steering committee.

The summary conclusion was that, while the dominant overt reason for discontinuing the BPR effort was a lack of sufficient results, a more compelling cause of the failure was the fact that the organizational climate was simply not ready when BPR was first introduced. However, although the firm abandoned the BPR effort as it was originally conceived, some enduring effects remain. Users are increasingly empowered to manage their own operations with minimal central control and enjoy a greater degree of cross departmental interaction. There is a better appreciation among users of the role of information technology in business and an improved understanding of the marketplace. More importantly, there was a consensus among those interviewed that the organization appears to be more ready than ever to accept change today, a situation that is dramatically different from what existed at the start of the reengineering effort. Continuous process improvement and process innovation appear to be the motto today, even though the phrase BPR is generally regarded with extreme skepticism — as observed by the CEO, "Here reengineering is a bad word. Everybody rolls their eyes when you use it."

In our view, the organization appears to be ready to accept new challenges with greater receptivity and, from this perspective, the BPR effort may have actually succeeded, albeit on a different dimension. Indeed, with the introduction of such a prevailing culture within the organization, process reengineering may not even be needed in the future. In the remaidner of this section, we examine the organization's increased receptivity to change today in light of the model presented earlier. Tables 1 and 2 provide additional detail about the pre-BPR climate in existence at Alpha and the specific actions taken to modify this climate.

4.2 Creating Receptivity to Change at Alpha

4.2.1 Knowledge Links

In the past, Alpha received most of its external information through participation of its managers in industry groups and farmland cooperatives. The IS professionals sought information about new developments from IS industry publications; some of them served as gatekeepers to new advances in the field of IT (e.g., collaboration with a major university for the exploration of natural language in data base access). A few management staff had access to contemporary management thought processes through links with business schools. However, a lack of formal communication infrastructures and inadequate use of cross functional teams have contributed to insufficient *diffusion* of such knowledge to various members of the organization. Several changes have been instituted to bring about the needed infusion of external knowledge (Table 1).

	Prior to Initiation of Reengineering	After Reengineering was Discontinued
Knowledge Diversity	 Localized communication within specific business areas; little cross-departmental interaction Organizational culture emphasized quick demonstration of results; rigid cost-benefit analysis; thus impeding creativity Inflexible systems impeded any creativity that was manifest Highly formalized, bureaucratic organization 	 Reorganization of IS organization; allocation of IS subject matter experts to business units to encourage IS/Business partnership and awareness of other's domains Use of external contacts to enhance awareness of developments at other firms Enhanced functional interaction, particularly at lower levels to support knowledge breadth Initiatives that encourage team work and empowerment Greater decentralization of the organization
Knowledge Links	 Limited exposure to external environment; insular and inward looking organization Employees unaware of developments in marketplace as well as in other firms; contributed to a lack of "felt need" for change 	 Greater employee participation in external events such as industry and trade conferences Institution of mechanisms to disseminate information gleaned from external sources to employees
Top Management Commitment	 Executives too focused on "quick results" Executives not favorably disposed to change 	 A radical change in the composition of the elite core Executives selected for their "willingness to change"
Perceived Job Insecurity	 Internal promotion of executives Recruiting of employee relatives False sense of "job security" 	 Focused efforts on employee development to mitigate concerns with regard to termination of employment ⇒ provision of skills in project management, team work, and personal computers ⇒ enhanced employee awareness of other organizations' activities through external contacts ⇒ employee sensitization to process driven organizations that are customer focused

Table 1. An Overview of the Changes at Alpha, Inc.

Table 2. Sample Post-Reengineering Change Initiatives

Knowledge Diversity: Initiatives that Encourage Team Work and Empowerment

• By making the unit managers individually responsible for and accountable for the success of their unit operations, entrepreneurship within these units is encouraged. By adopting a new core values statement (accepted by the company board of directors in July 1996), which emphasizes five core values — integrity, embracing change, entrepreneurship, accountability, and winning environment — top management hopes to make all its management ranks seek out the best talent (within or from outside) to proactively change to continuously improve and be competitive. With the simultaneous realignment of IS along the business units, team work between IS and business units has become almost a necessity in order to implement the needed changes.

Knowledge Links: Mechanisms to Disseminate External Information to Employees

• Under the new organization, six business units (two agricultural units: farm and consumer products; two financial services: telemarketing and insurance; retail; and energy) all report directly to the CEO and the corporate council. As a means to ensure that the new organization understands the importance of seeking out external information to improve its operation, the six business unit leaders and the new CEO have visited various major customer groups for six months to understand their business concerns and several competitor operations for benchmarking purposes. This proactive approach has not only helped the new management team understand their internal weaknesses, but also allowed them to see the relative importance the new CEO places on knowledge acquisition from external sources.

Top Management Commitment: Radical Change in the Elite Core

• Prior to the reorganization, eight people acted as an advisory council for the BPR effort. This group included three product group vice presidents (agriculture, energy and retail) and three senior vice presidents (financial control, planning and operations, information services), along with the treasurer and VP of human resources. Only two of these eight remain currently with the organization, since the corporate reorganization. In addition to the 100% change in the unit (product group) leadership, there is over 50% change in the middle management as well.

4.2.2 Knowledge Diversity

Many of the employees in the firm have traditionally come from agricultural backgrounds and have significant technical depth, while the IS group has experience in maintaining large systems written in procedural languages within mainframe environments. However, in spite of a certain degree of knowledge depth in limited areas, diversity in knowledge sets was lacking. Furthermore, the organization, by virtue of its strict hierarchical structure within each business unit and its adherence to formal procedures to support internal communication, did not provide opportunities for individuals to interact with other functional disciplines and view their activities within a broader context. Few attempts were made to infuse new knowledge through recruitment from outside and internal training and skill development was limited. These practices inhibited employees from diversifying their knowledge bases and, consequently, made them less likely to view change in a positive light. The comments made by the interviewees (summarized in Table 1) show how the firm is attempting to alter this climate.

4.2.3 Top Management Commitment

Since the driving force behind the BPR effort was the decline in financial performance, that should have been the focus of the project to sustain top management's interest. However, with the widening of the project's scope and minimal gains in performance, management's interest in BPR waned. They began to view it as a cash sink that was not producing any discernible bottom-line results. In addition, the BPR effort became intertwined with another management initiative that called

for restructuring the business along the markets it serves. This broader business initiative required significant changes in organizational structure and started to indirectly impact the acceptance of process redesign ideas proposed by the BPR design team. Decentralizing the agricultural products division further and empowering all divisions to manage their own operations under the broader business initiative meant that many of the process redesign ideas suggested under the BPR initiative (e.g., consolidate common business functions with common business systems) were considered philosophically incompatible.

While some of the management resistance to accepting process redesign ideas can be attributed to changes in the organizational structure and philosophy, it is perceived by the new CEO and others that this resistance is merely a symptom of an overall attitude and culture among key executive staff, who have not actively sought change or encouraged innovation. Some of this attitude was reflected in their inability to articulate priorities among their business objectives and in their unwillingness to empower their user representatives in BPR project teams to seek the needed changes to current business processes. A radical change in the composition of the "elite" staff (see Table 1) was considered necessary by the new CEO to sustain many of the initiatives introduced to encourage the receptivity of employees to change.

4.2.4 Perceived Job Insecurity

The firm in the past had been known as a "family company" with strong employee loyalty and tenure. Early in the BPR effort, the value of reengineering for reducing costs and improving service was emphasized and the impact of this effort on employment levels was not explicitly communicated. While no organization can completely alleviate the concerns associated with a job, management has realized the dysfunctional effects of job uncertainty on creativity and risk-seeking behaviors. The changes instituted are intended to make employees feel that they are a part of the team as the firm navigates through troubled waters. At the same time, employees are being provided skills in areas that should make them marketable, even if they have to leave the firm.

In the opinion of the CEO, the organization is now well poised to accept changes and remain competitive in the future. At this point in the organization's history, he views process improvement as a natural and on-going activity that will be *sustained* by the new organizational culture. While the effects of this increased receptivity to change on the success of future BPR efforts remain unknown at this time, there is a pervasive sense of optimism among managers and employees that radical transformation is indeed possible today, even if it is called something other than business process reengineering. Indeed, Alpha's experiences suggest the intriguing possibility that perhaps organizational receptivity to change ought to be an additional outcome that is utilized to assess the success of BPR initiatives.

5. CONCLUSIONS

Motivated by a lack of theoretical development in work that examines process reengineering, we argued in this paper that viewing BPR as a radical, administrative, process innovation provides us with insights into how BPR may be implemented successfully. Organizational receptivity to change was postulated to be a crucial precondition to success in BPR; a model that conceptualized key levers managers can manipulate to influence receptivity to change was constructed. The model is testable in that the theoretical constructs populating it have been rigorously operationalized in prior work. The case study described in this paper that documents the failure of an organization in implementing a significant BPR effort, and its decision to radically alter its organizational climate so it can remain receptive to change in a competitive market place, provides anecdotal support for the model's premise. Future research will focus on empirical tests of the model for its ability to predict BPR success.

6. **REFERENCES**

Bashein, B. J.; Markus, M. L.; and Riley, P. "Preconditions for BPR Success and How to Prevent Failures." *Information Systems Management*, Spring 1994, pp. 7-13.

Burns, T., and Stalker, G. M. The Management of Innovation. London: Tavistock, 1961.

Byron, W. J. "Coming to Terms with the New Corporate Contract." Business Horizons, Volume 38, Number 1, 1995, pp. 8-15.

Clemons. E.; Thatcher, M. E.; and Row, M. C. "Identifying Sources of Reengineering Failures: A Study of the Behavioral Factors Contributing to Reengineering Risks." *Journal of Management Information Systems*, Volume 12, Number 1, Summer 1995, pp. 9-36.

Cohen, W. M., and. Levinthal, D. A. "Absorptive Capacity: A New Perspective on Learning and Innovation." *Administrative Science Quarterly*, Volume 35, 1990, pp. 128-152.

Daft, R. L. "A Dual Core Model of Organizational Innovation." *Academy of Management Journal*, Volume 21, Number 2, 1978, pp. 193-210.

Davenport, T. Process Innovation: Reengineering Work through Information Technology. Cambridge, Massachusetts: Harvard Business Press, 1993.

Davenport, T. H., and Short, J. E. "The New Industrial Engineering: Information Technology and Business Process Redesign." *Sloan Management Review*, Summer 1990, pp. 11-27.

Dewar, R. D., and Dutton, J. E. "The Adoption of Radical and Incremental Innovations: An Empirical Analysis." *Management Science*, Volume 32, Number 11, November 1986, pp. 1422-1433.

Dixon, J. R.; Arnold, P.; Heineke, J.; Kinm, J. S.; and Mulligan, P. "Business Process Reengineering: Improving in New Strategic Directions." *California Management Review*, Summer 1994, pp. 93-108.

Downs, G. W., and Mohr, L. B. "Conceptual Issues in the Study of Innovation." *Administrative Science Quarterly*, Volume 21, 1976, pp. 700-714.

Duchesneau, T. D.; Cohn S.; and Dutton, J. A Study of Innovation in Manufacturing: Determination, Processes and Methodological Issues. Volume 1. Orono, Maine: University of Maine, Social Science Research Institute, 1979.

Earl, M. J.; Sampler J. L.; and Short, J. E. "Strategies for Business Process Reengineering: Evidence from Field Studies." *Journal of Management Information Systems*, Volume 12, Number 1, Summer 1995, pp. 31-56.

Ettlie, J. E.; Bridges, W. P; and O'Keefe, R. "Organization Strategy and Structural Differences for Radical Versus Incremental Innovation." *Management Science*, Volume 30, Number 6, June 1984, pp. 683-695.

Greenhalgh, L. "Managing the Job Insecurity Crisis." *Human Resource Management*, Volume 22, Number 4, 1983, pp. 431-444.

Greenhalgh, L., and Rosenblatt, Z. "Job Insecurity: Toward Conceptual Clarity." *Academy of Management Review*, Volume 9, Number 3, 1984, pp. 438-448.

Grover, V.; Jeong, S. R.; Kettinger, W. J.; and Teng, J. T. C. "The Implementation of Business Process Reengineering." *Journal of Management Information Systems*, Volume 12, Number 1, Summer 1995, pp. 109-144.

Hage J., and Aiken, M. Social Change in Complex Organizations. New York: Random House, 1970.

Hammer, M. "Reengineering Work: Don't Automate, Obliterate." Harvard Business Review, July-August, 1990, pp. 104-112.

Hammer, M., and Champy, J. *Reengineering the Corporation: A Manifesto for Business Revolution*. New York: Harper Business, 1993.

Henderson, R. M., and Clark, K. B. "Architectural Innovation: The Reconfiguration of Existing Product Technologies and the Failure of Established Firm." *Administrative Science Quarterly*, Volume 35, 1990, pp. 9-30.

Kochan, T. A.; MacDuffie, J. P.; and Osterman, P. "Employment Security at DEC: Sustaining Values amid Environmental Change." *Human Resource Management*, Volume 27, Number 2, 1988, pp. 121-143.

Kolb, D. A. and Frohman, A. L. "An Organization development Approach to Consulting." *Sloan Management Review*, Volume 12, 1970.

Munson, F. C. and. Pelz, D. C. "The Innovating Process: A Conceptual Framework." *Working Paper, University of Michigan*, 1979.

Organ, D. W., and Greene, C. N. "The Effects of Formalization on Professional Involvement: A Compensatory Process Approach." *Administrative Science Quarterly*, Volume 26, 1982, pp. 237-252.

Pennings, J. M., and Harianto, F. "Technological Networking and Innovation Implementation." *Organization Science*, Volume 3, Number 3, 1992, 356-382.

Pierce, J. L., and Delbecq, A. L. "Organization Structure, Individual Attitudes and Innovation." Academy of Management Review, Volume 2, 1977, pp. 27-37.

Rogers, E. M. Diffusion of Innovations, Fourth Edition. New York: The Free Press, 1995.

Siegel, S. M., and Kaemmerer, W. F. "Measuring the Perceived Support for Innovation in Organizations." *Journal of Applied Psychology*, Volume 63, 1978, pp. 553-562.

Stoddard, D., and Jarvenpaa, S. L. "Business Process Redesign: Tactics for Managing Radical Change." *Journal of Management Information Systems*, Volume 12, Number 1, Summer 1995, pp. 81-107.

Westney, D. E. and Sakakibara, K. "The Role of Japan-based R&D in Global Technology Strategy." In M. Hurowitch, Editor, *Technology in the Modern Corporation*, London: Pergamon, 1986, pp. 217-232.

Yin, R. K. Applications of Case Study Research. Newbury Park, California: SAGE Publications, 1993.

Zaltman, G. N.; Duncan, R. B.; and Holbeck, J. Innovations and Organizations. New York: Wiley, 1973.

Zmud, R. W. "An Examination of the 'Push-Pull' Theory Applied to Process Innovation in Knowledge Work." *Management Science*, Volume 30, Number 6, 1984, pp. 727-738.

Zmud, R. W. "Diffusion of Modern Software Practices: Influence of Centralization and Formalization." *Management Science*, Volume 28, Number 12, December, 1982, pp. 1421-1431.