Strategic Organizational Change: Exploring the Roles of Environmental Structure, Internal Conscious Awareness and Knowledge*

James M. Bloodgood and J. L. Morrow Jr
Kansas State University; Birmingham–Southern College, Alabama

ABSTRACT We argue that strategic organizational change is best viewed as a multidimensional phenomenon consisting of various degrees of environmental structure and internal conscious awareness. And, by combining this conceptualization of change with a model of organizational knowledge transfer developed by Nonaka and Takeuchi (1995), we gain a better understanding of the types of change strategies that firms will pursue, the processes they should use to implement these strategies and the likely performance outcomes from these strategies. Specifically, we suggest that the levels of tacit and explicit knowledge needed to implement the new strategies are key determinants of firm performance following strategic organizational change.

INTRODUCTION

This paper links strategic choice and knowledge within the strategy formulation process, and extends this connection by using knowledge characteristics of firm resources to link strategy formulation, strategy implementation, and firm performance. To accomplish these links, Whittington (1988) is used to introduce the aspects of environmental structure and internal conscious awareness into the establishment of strategic choice. Subsequently, the tacit and explicit characteristics of knowledge resources are combined with Nonaka and Takeuchi’s (1995) modes of knowledge conversion to illustrate how strategy implementation and knowledge influence firm performance. This should help increase understanding of strategic organizational change, both from a formulation and an implementation perspective. From a formulation standpoint, we should be able to focus on how organizations can change rather than whether they can change. In addition,
as firms undergo change, we can better predict their future success based on the types of knowledge-based implementation strategies they employ. Depending on the set of knowledge resources, some implementation strategies will perform better than others.

Scholars have long debated various aspects of organizational change, with most of this debate focusing on the ease or difficulty of organizational change and the likely performance consequences of that change. Merton (1957) argued that change within bureaucratic organizations is difficult because such organizations are inherently conservative and therefore resistant to change, in large part because of the organization's strict reliance on rules and regulations. Subsequently, Burns and Stalker (1961) described two types of organizations, mechanistic and organic, that are designed to react differently to the degree of change occurring in the environment. Mechanistic organizations perform well under conditions of environmental stability, while organic organizations can successfully adapt their structures to accommodate changes in the face of dynamic and uncertain environments (Lawrence and Lorsch, 1967). This scholarly debate regarding organizational change became polarized in the 1970s with the emergence of the strategic choice (Child, 1972) and population ecology (Hannan and Freeman, 1977) paradigms in organization theory.

Since Child (1972) and Hannan and Freeman (1977) began the debate, a variety of assumptions have been made about the ease or difficulty of organizational change and the likely performance consequences of change (e.g., Hannan and Freeman, 1984; Tushman and Romanelli, 1985; Zammuto and Cameron, 1985). Indeed, most discussions of organizational change begin by attempting to reconcile the diametrically opposing views put forth by population ecologists and strategic choice theorists (e.g., Amburgey et al., 1993; Haveman, 1992, 1993a, 1993b).

Consistent with the work of Whittington (1988), this paper seeks to move this debate beyond a focus on choice versus determinism, which Whittington (1988) argued was ‘too simple’. Instead, we suggest that to more fully understand strategic organizational change, we should consider the role that knowledge-based resources may play when firms attempt strategic change. The role of knowledge within organizations has received a great deal of attention in organizational studies (e.g., Cohen et al., 1996). Much of this research has focused on the development and management of knowledge-based resources, in particular the relationship between knowledge and competitive advantage (e.g., Mahoney, 1995). We take a somewhat different view of the role of knowledge in the strategic management of organizations by focusing on the role that knowledge-based resources play in predicting the direction and performance outcomes of strategic organizational change. We define strategic organizational change as a major modification to the set of resources or routines that an organization uses to compete (e.g., Barney, 1986b; Boeker, 1997; Nelson and Winter, 1982).
An organization’s environmental structure provides the ‘place’ where organizational action occurs (Whittington, 1988). Although this structure may provide an element of determinism, it also may provide the means for action to take place. For example, a paved, limited access highway may limit the flexibility of its users when it comes to entry and exit, however it also provides the user with the ability to travel at high speeds. Thus, theories of organizational change that focus solely on that part of structure that is deterministic fail to consider that this structure may also serve to enable managerial action. In another example, a luxury goods firm that operates in a low-income area may find that its ability to sell its products in the immediate area is limited. However, the firm should also be able to find potential employees in the area who are willing to work for a modest wage. These limiting and enabling characteristics of environments can vary greatly such that one can be much greater than the other.

We explore these issues by addressing the following research questions. First, if organizations face environments that are characterized by varying degrees of both strategic choice and environmental structure, what organizational change strategies should managers pursue? Second, what role do knowledge-based resources play in predicting the performance outcomes of these strategies? We begin by discussing strategic organizational change within the context of the choice versus structure debate and the use of appropriate resource-based strategies. Next, we explore how knowledge can be used to gain a better understanding of the strategic change process and its associated outcomes by integrating Whittington’s (1988) organizational change framework with Nonaka and Takeuchi’s (1995) model of organizational knowledge transfer.

In exploring our research questions, we make two assumptions. First, eventually most firms are faced with the realization that they need to make strategic organizational changes. Perhaps the firm’s environment has changed rendering its existing resources and/or routines obsolete. A firm must change or face a decline in performance from this environmental threat. On the other hand, environmental change may present a firm with unforeseen opportunities, and changes are needed if the firm is to take advantage of these opportunities and enhance its performance. Performance will be enhanced the most when the magnitude, timing, and direction of strategic changes a firm makes are consistent with the environmental changes (Zajac et al., 2000).

The second assumption is that when faced with the need to change, firms will choose from among four alternative strategies (courses of action). These alternative strategies are consistent with the resource-based view of the firm (RBV) (Barney, 1986a, 1991) in that the primary focus is on a firm’s portfolio of resources and how they are obtained and whether they are being modified. As far as how resources are obtained, a firm can draw resources from its existing portfolio or it can acquire new ones (Dierickx and Cool, 1989). Resource modification is concerned with whether a firm modifies existing or acquired resources or uses them
in their current form. This portrayal of firm resources is depicted in Figure 1. The four strategies are explained in the following section.

First, despite recognizing the need to change, some firms do not change and they continue to conduct business as usual. These firms make ‘cosmetic’ or ‘window dressing’ changes that give the appearance of change when in reality these changes are trivial or insignificant. A firm using this strategy relies on existing resources and does not materially modify them. Second, some firms reconfigure their existing resources or deploy them in new ways (develop new routines using existing resources). A firm using this strategy also relies on existing resources, but it modifies them. Third, some firms acquire new resources but they deploy these new resources in ways that are expected by investors and competitors. A firm using this strategy relies on the acquisition of new resources, but does not modify them. Finally, some firms acquire new resources, reconfigure these new resources with their existing resources and deploy these resources in ways that are viewed as novel or unique by investors and competitors.

**CHOICE AND STRUCTURE**

Although Hrebeniak and Joyce’s (1985) argument that a firm’s external environment consists of varying levels of both strategic choice and determinism has received much attention, Whittington (1988) pointed out several shortcomings in their depiction of choice and determinism. One major deficiency is their one-sided view of determinism. Whittington, in his Realist Model, argued that the structure of the environment was being used by Hrebeniak and Joyce to demonstrate the limitations posed by the environment but not its enabling characteristics. Therefore, Hrebeniak and Joyce would naturally overstate the deterministic role of the environment rather than combining that function with the facilitation features that the
environment also provides to organizations. Whittington’s (1988) view was based on the complex and conflictual nature of environments that enable organizations to select potentially unique strategies (Bhaskar, 1978, 1986). We believe that using the term environmental structure rather than determinism is consistent with Whittington’s position and that this term provides a more ‘realistic’ view of the environment’s influence.

Whittington’s model also clarifies the condition of choice for an organization. Choice is strongly influenced by the degree of conscious awareness of internal workings within an organization. Low choice represents a more automatic behaviour while high choice assumes the intentional employment of human agency. Through an analogy of the condition of choice on humans, where physiological, psychological and social factors influence people in a complex way, Whittington (1988) suggests that as organizations become more conscious of these antecedents, they can better understand them and manage them. Thus, an automatic response represents a lack of conscious awareness by an organization of the internal conditions that act to impose their will on the organization. On the other hand, an intentional response reflects a conscious understanding of the organization’s internal conditions and the ability to overcome them or utilize them in a proactive manner (Sparrow, 1998). Therefore, we use the term internal conscious awareness to substitute for choice because it more accurately describes the organization’s conduct as depicted by Whittington. Thus, as illustrated in Figure 2, we suggest that organizations face environments that consist of various degrees of internal conscious awareness along with varying degrees of environmental structure.

As shown in Figure 2, the distinguishing element between low and high degrees of structure is the extent of structural limitations and options that managers of an organization must consider. In environments of low structure, the organization has few limitations placed on it but it also has few preexisting elements from which to

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Figure 2. The organization’s internal conditions and external environment: strategic choice and environmental structure
draw from in formulating and implementing a strategy. In high structure environments, organizations have many limitations that can impede their progress, but there are also many elements from the environment that can act as prerequisites in formulating and implementing a strategy. In regards to internal conscious awareness, low levels equate to little choice for the organization, and high levels result in high degrees of choice.

By considering the internal conscious awareness and structure debate in a view consistent with Whittington’s (1988) model, the process and outcomes associated with strategic organizational change become clearer. The following sections integrate a knowledge-based view of organizations with the internal conscious awareness and structure debate. As a result of this integration, the relationship of tacit and explicit knowledge and strategy process and outcome is explicated. Propositions are developed to identify associated performance implications.

**KNOWLEDGE AND THE PROCESS OF STRATEGIC ORGANIZATIONAL CHANGE**

We argue that strategic organizational change is influenced by environmental structure, internal conscious awareness and organizational knowledge. Specifically, environmental structure and internal conscious awareness combine to influence strategy formulation (strategic organizational change). Strategy formulation, in turn, influences organizational performance but this relationship is moderated by the type of knowledge-based strategies that organizations use during implementation. These relationships are shown in Figure 3. Although managers simultaneously consider both the process and outcome components associated with strategy formulation, artificially separating the strategy process from strategy outcomes allows us to analyse some of the different effects that knowledge, internal conscious awareness and structure have on strategic organizational change. The strategy process is discussed first, followed by a discussion of strategy outcomes.

Knowledge can be divided into two types, tacit and explicit. Many organizational activities involve varying degrees of both tacit and explicit knowledge. Tacit knowledge is knowledge that cannot be codified and expressed to others (Polanyi, 1967). The knowledge needed to ride a bicycle is an example of tacit knowledge. The other type of knowledge is explicit knowledge, which is knowledge that can be codified and expressed to others. The knowledge of mathematics is an example of explicit knowledge. Both types of knowledge are created and transferred within the organization during strategic organizational change but different strategies emphasize different types of knowledge (Malerba and Orsenigo, 2000). For example, a strategy of infusing total quality management (TQM) throughout an organization may depend more on explicit knowledge than on tacit knowledge. The TQM initiative may involve education classes for employees that include explicit course materials, such as books, process lists, and statistical methods.
Alternatively, implementing a TQM strategy by focusing on tacit knowledge might involve developing or spreading employee knowledge through the use of apprenticeships. Instead of courses to train employees, the trainee works side by side with an experienced employee picking up portions of the experienced employee’s knowledge base. Both tacit and explicit knowledge are simultaneously part of many organizational activities, so although these knowledge types are dichotomized here for theoretical examination, in many situations they will coexist.

The fields of evolutionary economics and evolutionary and cognitive psychology are useful for describing the context in which consciousness and tacit and explicit knowledge occur. Nelson and Winter (1982), in the field of evolutionary economics, and Hasher and Zacks (1979, 1984) and Reber (1989, 1993) in the field of evolutionary and cognitive psychology have described how processes that require extensive conscious deliberations of many factors depend on explicit knowledge to a greater degree than do processes that require less conscious deliberations and fewer factors to consider. For instance, although some organizational processes are infrequently performed and require much conscious thought and the consideration of many factors, Nelson and Winter (1982) suggested that many other organizational processes can be described as routines. They argued that these routines become institutionalized and that employees will often exhibit little conscious awareness when performing these routines. Thus, those operational processes that involve numerous factors and require much conscious deliberation
result in the creation and use of explicit knowledge. On the other hand, operational processes such as routines often include few factors and are performed automatically with little or no conscious thought and lead to the development and use of tacit knowledge (e.g., Cohen et al., 1996; Grant, 1996).

Hasher and Zacks (1979, 1984) and Reber (1993) have demonstrated that routines on an individual level depend on actions that require little conscious awareness and consideration of few factors. The absence of many factors to consider results in an automatic response that creates and uses more tacit knowledge than processes that include many factors and require higher conscious awareness. The automatic response is essentially a conditioned response that originates from an implicit knowledge base that employees may not realize they possess. These arguments have been empirically supported in psychological experiments conducted by Reber (1989). Drawing from this literature we suggest that in situations with few factors to consider and limited conscious awareness, employees will draw upon their bases of tacit knowledge rather than their explicit knowledge bases.

During the strategic planning process, if there are few factors to consider and if the process is performed with low conscious awareness, employees should use and create more tacit knowledge than explicit knowledge (e.g., Hasher and Zacks, 1979, 1984; Nelson and Winter, 1982; Reber, 1989, 1993). With few factors to consider, the organization relies upon its tacit knowledge for strategic change. However, if the number of factors to consider is too low or the process is performed with too little conscious awareness, it will be difficult to consider it as ‘strategic planning’. Alternatively, when there are many factors to consider or when there is high conscious awareness, the organizational change process will likely create and rely on more explicit knowledge.

We suggest that the stocks of knowledge within an organization (both tacit and explicit) affect and are affected by the strategy formulation process. By taking the descriptors of the cells in Figure 2 and using them to portray the characteristics of the strategy process shown in Figure 4, we demonstrate how knowledge is influenced by the strategy process. Consistent with research from evolutionary economics and evolutionary and cognitive psychology, Figure 4 suggests that high levels of conscious awareness and high levels of structural facets to consider during the strategy-making process are associated with the creation and use of explicit knowledge. Alternatively, low levels of conscious awareness and structural facets to consider are associated with the creation and use of tacit knowledge. Therefore, as a means of explicating the effect of environmental structure and internal conscious awareness on the strategic process the following propositions are offered:

**Proposition 1:** High environmental structure is positively related to the use of explicit strategic knowledge processes, while low environmental structure is positively associated with tacit strategic knowledge processes.

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Proposition 2: High internal conscious awareness is positively related to the use of explicit strategic knowledge processes, while low internal conscious awareness is positively associated with tacit strategic knowledge processes.

INTERNAL CONSCIOUS AWARENESS, STRUCTURE AND STRATEGIC ORGANIZATIONAL CHANGE

The degrees of internal conscious awareness and structure that are present influence the formulation of organizational change strategies in two ways. First, environmental structure provides both limitations and options for firms. New options for a firm enable it to access new resources within its environment. Without this option, firms would have to rely solely on their existing resources. Therefore, as shown in Figure 5, when environmental structure is low, firms can either engage in business as usual or they can work at reconfiguring their existing resources. For example, consider the choices faced by the owner of a gasoline service station that is located in a rural area. On the one hand, the amount of land than can be used for the station and its services is not limited, because land is relatively inexpensive and readily available. However, because the rural location of the station is undeveloped, there may not be sufficient utilities to support a variety of operations, which limits the owner’s choices. For example, large water pipes may not be available in the area, which limits the ability of the station owner to offer high-pressure car washes. Thus, in this environment, the service station owner may only sell gasoline and perhaps offer minor automotive repairs. In other words, the owner engages in ‘business as usual’. Alternatively, while the station’s environmental structure acts to limit the strategies that may be chosen (e.g. a lack of high water pressure in rural areas) it may also provide opportunities for creativity. For example, because land is readily available in rural areas, the station manager may

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call upon his ‘entrepreneurial skills’ to reconfigure the station’s existing stock of resources in ways that are newly valuable. This may include the expansion of the station’s existing small ‘candy stand’ into a full service convenience store that meets the needs of residents in the sparsely populated community.

However, when environmental structure is high, it generally provides both more limitations and more options for organizations. In this case, firms can acquire new resources and use them as they were originally designed or they can combine these resources with their existing stock of resources in ways that are newly valuable. For example, if a gasoline service station is operating in a fully-developed, congested, urban area, the amount of land that is available for development by the owner would be limited. However, fully developed utility services and complementary businesses would serve to provide additional options for the owner. In this case the station may be able to easily provide high-pressure car washes or more extensive repair services. Extensive repair services may be a viable option because of the availability of replacement parts and a skilled workforce.

The added complexity of a highly structured environment provides sufficient variety to prevent it from becoming so deterministic that meaningful choice is essentially eliminated. Loasby (1976) terms situations where perfect knowledge exists and the logic of choice is comprehensive and undeniable as ‘empty choice’. If the structured environment was completely deterministic, a manager’s empty choice is to select the only available alternative. This in and of itself is hardly a choice, but rather is a foregone conclusion. This is what Whittington (1988) termed ‘environmental determinism’ and he observed that ‘choice is not meaningful

Figure 5. Internal conscious awareness, structure and organizational change strategies

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<td>Low</td>
<td>Business as usual</td>
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<td>High</td>
<td>Acquire new resources</td>
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because, in order to survive, the decision-maker can pursue but one course of action’ (1988, p. 523).

The argument made here concerning environmental structure is simplified, however. We acknowledge that although the complex nature of a highly structured environment adds limitations and options for an organization, it does not necessarily mean that limitations and options are equal in number or scope. There could be more or less limitations than options and this would influence the discretion managers have on their strategic efforts. Although, this should be kept in mind, the extra level of detail is not critical to the scope of the line of reasoning we use to demonstrate the separate influence of environmental structure and internal consciousness on organizations.

The second way that internal conscious awareness and structure act to influence strategy formulation is through the degree of awareness that relates to organizational choice. Awareness of the physiological, psychological, and social factors that influence the organization provides the firm with the ability to reevaluate itself and the resources it uses (Whittington, 1988). Without this ability to reevaluate, the firm is less capable of redesigning resources it possesses or is considering acquiring. Therefore, when low degrees of internal conscious awareness are present, firms either continue using their resources in the same way as they always have, or they acquire new resources but find themselves unable to reconfigure these resources. For example, the owner of a gas station, in the town or in the country, may be very busy performing minor services to customers’ vehicles without consciously considering ways to fully satisfy the station’s customer base. Thus, the owner continues to operate his business as usual, without adding more extensive services. Or perhaps the owner was considering purchasing fuel pumps that could accept credit cards. The owner may not be able to think past the obvious increase in efficiency and fail to consider the possibility that other products, such as food and drinks, could be added to the credit sale at the pump.

Alternatively, when high levels of internal conscious awareness are present, firms can reconfigure both existing resources and new resources. In these situations, firms are aware of the internal factors that influence their ability to reconfigure both their existing and newly acquired resources. In the case of the gas station owner mentioned above, the owner may realize that the station manager avoids risk and would therefore be unlikely to take a chance on doing something new. So the owner may become more personally involved in early discussions with suppliers of large, vehicle repair equipment and fuel pumps that accept credit cards. This way the owner could work around the manager’s tendency to avoid risk. The owner could make it clear to the manager that the risk was the owner’s and that the larger repair facility could be integrated into the existing facility, or that the credit gas pumps could be altered to accept credit purchases of food and drinks. So, in this case, increased conscious awareness enhances the degree of choice.
available. Based on the influence of environmental structure and internal conscious awareness on resource acquisition and modification, the following propositions are offered:

Proposition 3: High environmental structure is positively related to the acquisition of new resources.

Proposition 4: High internal conscious awareness is positively related to the reconfiguration of resources.

STRATEGY IMPLEMENTATION

The Role of Knowledge Resources and Firm Performance

Strategic organizational change requires the creation and dispersion of knowledge throughout the organization (e.g., Badaracco, 1991; Nonaka et al., 2000). Indeed, transferring knowledge within the organization is a critical element that must be considered when implementing any type of strategy (Nonaka and Takeuchi, 1995). The previous section identified preferred strategic change strategies given the external environment and internal conditions that a firm faces. In this section, we focus on the type of knowledge that each of these strategies is likely to require during implementation and identify a strategy for effectively and efficiently dispersing this knowledge within the organization. Specifically, we argue that by combining Whittington’s framework with a model of organizational knowledge transfer developed by Nonaka and Takeuchi (1995), we can make inferences not only about the likelihood of firms choosing a particular strategy under specific environmental conditions, but also about the likely performance outcomes of those strategies.

In this section, we suggest that the ‘match’ or ‘fit’ between the type of organizational change strategy that a firm has chosen and the type of knowledge resources that a firm needs to successfully implement this strategy will have a positive effect on firm performance. By firm performance, we mean the overall functioning of the organization. The proper ‘fit’ between a firm’s strategy and its structure, its governance mechanisms (e.g. ownership structure) and its control systems can enhance firm performance (e.g., Hitt et al., 1996; Hoskisson et al., 1994; Markides and Williamson, 1996). Here, we extend this logic by suggesting that certain types of knowledge resources (Nonaka and Takeuchi, 1995) are best suited to implement the organizational change strategies that we have developed. Consistent with this body of strategy implementation work, we also argue that the proper fit between these knowledge resources and a firm’s strategy can enhance firm performance (Bontis et al., 2002).

Nonaka and Takeuchi (1995) viewed knowledge creation through the lens of tacit and explicit knowledge, whereby the conversion of knowledge from tacit to
explicit or from explicit to tacit provides for the continued distribution of the knowledge throughout the organization. Tacit knowledge is developed from personal and direct experience in a situation (Polanyi, 1967). Thus, a firm possesses more tacit knowledge related to its existing resources and routines than it possesses for new resources and routines (Nelson and Winter, 1982). On the other hand, new resources bring new knowledge to the firm in the form of explicit knowledge. This suggests that when a firm acquires new resources, the amount of knowledge applied in the new routines will initially include mostly explicit knowledge, at least until tacit knowledge is developed after repeated use of these new routines (Nelson and Winter, 1982).

The success of new organizational strategies built around existing resources (and the firm’s stock of tacit knowledge that has been developed around these resources) should be enhanced if the knowledge remains tacit so that it is inimitable to competitors (e.g., Hall, 1992). Explicit knowledge, which is readily available to competitors, maintains no inimitable characteristics and by itself cannot be a source of sustained competitive advantage. However, firm performance following organizational change strategies that rely largely on explicit knowledge may be increased if the firm is able to disperse the explicit knowledge rapidly and efficiently throughout the organization, thereby taking advantage of the knowledge as fully and quickly as possible (e.g., Badaracco, 1991).

Both tacit and explicit knowledge can exist in various combinations within an organization. Furthermore, each of the four change strategies (see Figure 5) require different degrees of tacit and explicit knowledge during implementation. For example, the business as usual strategy requires no new knowledge of either type, thus low levels of tacit and explicit knowledge are needed to implement (or continue) this strategy. Strategies that acquire new resources without reconfiguring these resources with the firm’s existing resources will initially require high levels of explicit knowledge (for example, how to operate new machinery or how to organize the steps in a new manufacturing process) but low levels of tacit knowledge. Although the firm may eventually develop new tacit knowledge from managing these new resources (Nelson and Winter, 1982), the firm’s existing stocks of tacit knowledge are not likely to be as useful in implementing this strategy. However, firms that acquire new resources and reconfigure these resources with their existing resources will require high levels of both tacit and explicit knowledge to implement this strategy. Finally, for firms that reconfigure their existing resources, little or no explicit knowledge is needed but this strategy will require heavy use of tacit knowledge. These organizational change strategies and their relationship with knowledge-based implementation strategies are illustrated in Figure 6. The nature of each of these relationships is discussed in the following sections.

Nonaka and Takeuchi (1995) described how explicit knowledge can remain explicit or can be turned into tacit knowledge during its transfer. They also explain how tacit knowledge can remain tacit or be turned into explicit knowledge during
Nonaka and Takeuchi (1995) identified four types of activities that firms can engage in to transfer explicit and tacit knowledge within the firm. Nonaka and Takeuchi (1995) used the term *combination* to describe activities that maintain the explicit nature of knowledge and enable it to be spread throughout the firm. Combination activities include systemitizing, converting, and reconfiguring information and knowledge. The transfer of explicit knowledge can occur by the use of physical documents and phone or electronic communications. These activities help to organize and spread explicit knowledge throughout the firm, thereby enabling the firm to realize the full potential provided by this knowledge before their competitors can access this knowledge. Change strategies that require the use of extensive explicit knowledge, such as acquiring new resources without reconfiguring them, are likely to enhance performance if the explicit knowledge associated with these new routines is spread throughout the firm quickly and efficiently through various combination activities.

Nonaka and Takeuchi (1995) discussed the use of point-of-sale systems by Kraft General Foods as an example of combination activities. The point-of-sale systems collect purchasing information about the consumer at the retailers’ registers. This information is then organized and disseminated to various parts of the Kraft...
General Foods organization for use in planning merchandising and pricing strategies. The information collected at the retail level is explicit and its value would be drastically reduced if time-consuming approaches, such as socialization activities, were used to spread it throughout the organization. To avoid costly delays, no attempts are made to make this type of knowledge tacit. Instead, this explicit knowledge, or information, is quickly disseminated. Therefore, as a means of transferring knowledge related to the acquisition of new resources the following proposition is offered.

**Proposition 5**: Firms that acquire new resources without reconfiguring these resources will enhance performance by using combination activities to transfer knowledge.

Nonaka and Takeuchi use the term *socialization* to describe activities that maintain the tacit nature of knowledge within the firm. Socialization activities are primarily composed of apprenticeship and on the job training. These activities enable an individual to gain personal experience with a resource, which is necessary for the development of tacit knowledge within that individual. These socialization activities allow only those directly and personally involved to develop the tacit knowledge. This spreads tacit knowledge, albeit slowly, to other individuals or other parts of the organization, while limiting the exposure of the knowledge to other organizations. Organizational change strategies that include the use of extensive tacit knowledge, such as reconfiguring existing resources, are likely to enhance performance if the tacit knowledge used in these strategies is spread throughout the firm but kept out of the reach of competitors.

Firms in the utility industry are currently using socialization activities when reconfiguring their existing resources. For example, some utilities are realigning their line workers as new technology enables the firms to set up more efficient maintenance programs (Maio, 1998). As part of adjusting to their new tasks, the line workers participate in informal, early-morning discussion sessions prior to starting their rounds. Participants in these sessions interact by using both verbal and nonverbal forms of communication that enable knowledge to be shared among members of the group. The knowledge that is tacit within the group remains so to a large degree because it is not fully explicated during the sessions. This helps keep the knowledge from becoming explicit and reduces its ability to be copied by current or potential competitors (Hall, 1992).

Instead of keeping tacit knowledge tacit, firms may want to make some of it explicit so that it can be transferred more easily throughout the firm. Nonaka and Takeuchi (1995) use the term *externalization* to refer to instances where tacit knowledge is made more explicit during its transfer. Examples of externalization activities include the use of metaphors and analogies by the knowledge holder to represent the knowledge in terms that are familiar to the knowledge recipient.
instance, Nonaka and Takeuchi (1995, p. 65) noted that officials at the Honda Motor Company used the term ‘Tall Boy’ and the phrase ‘man-maximum, machine-minimum’ as a way of transferring tacit knowledge about a future car project throughout the organization.

The increased explicitness of the knowledge that stems from the use of externalization activities enables the firm to spread knowledge more easily to others within the firm. Of course, the firm must be careful not to explicate knowledge that would hurt the firm if it was obtained by competitors. Alternative means of sharing knowledge among the utility-line workers could be used that may risk competitors gaining better access to the knowledge. For example, the utilities could use an externalization activity by directing the most knowledgeable line workers to write down everything they know about maintenance and then the firm could organize the knowledge and distribute it to the other line workers. This method would make it easier for competitors to gain access to the knowledge and eliminate any advantage. Therefore, as a means of transferring knowledge related to the reconfiguration of existing resources the following proposition is offered.

**Proposition 6**: Firms that reconfigure their existing resources will enhance performance by using socialization and externalization activities to transfer knowledge.

The third type of organizational change strategy that we have suggested, acquiring new resources and reconfiguring them with existing resources, requires large amounts of both tacit and explicit knowledge during the implementation process. Explicit knowledge is acquired when new resources are acquired, but as routines are developed to organize the newly acquired resources some of the explicit knowledge is necessarily turned into tacit knowledge. At the same time, tacit knowledge and explicit knowledge that have been explicated from the firm’s existing resources are needed to help reconfigure new combinations of resources and routines. This suggests the need for some portions of the tacit knowledge base to be kept tacit while other portions are made explicit. In addition, some portions of the explicit knowledge base, stemming from the new resources, need to be organized and spread quickly throughout the firm, while other portions need to be made tacit through the reconfiguration and routinization process.

As an illustration, Disney has begun to focus on both socialization and combination activities during the consolidation of their film labels (Orwall, 1998). Previously, when Disney hired new employees in the film-making business the knowledge they brought to the firm was more likely to be shared within the label where they worked, rather than with employees who were working in other labels. Although explicit knowledge could seep across labels fairly easily, the tacit knowledge that developed within each film label could not flow easily among the different film labels. The consolidation of the film labels will enable the combined
groups to increase their socialization activities to the point where tacit knowledge is spread within the entire film organization, but prevent much of it from becoming accessible to other firms.

To the extent that Disney would want to make some of the developing tacit knowledge explicit, they could use metaphors and analogies in order to increase the understanding of others more quickly. This process of externalization could speed up organizational change. Alternatively, Disney could engage in **internalization**, which is the changing of explicit knowledge into tacit knowledge. Internalization occurs when forms of explicit knowledge, such as diagrams or documents, are used by individuals. Individuals internalize the knowledge and it becomes tacit over time. In the case of Disney, the diagram of a potential film, for which the rights were recently purchased, may be used by employees in their jobs. Over time, the diagrams may become embedded in the minds of the employees, and a common, tacit understanding develops for those employees who work on the film. Therefore, as a means of transferring knowledge related to the reconfiguration of new and existing resources the following proposition is offered:

**Proposition 7**: Firms that acquire new resources and reconfigure these newly acquired resources with their existing resources will enhance performance when they use socialization, combination, externalization, and internalization activities.

**DISCUSSION AND IMPLICATIONS**

The primary contribution of this research has been to integrate the knowledge literature into an improved version of the environmental structure and organizational choice debate in order to better understand strategic organizational change. We did this by using Whittington’s (1988) view of structure and internal conscious awareness to identify the effects that organizational knowledge has on strategy formulation during periods of strategic change. We proposed that environmental structure, internal conscious awareness and knowledge influence the selection of a specific change strategy in different ways. The primary tool used to characterize our propositions was the tacit and explicit character of the type of knowledge needed to successfully implement a particular strategy. Moreover, we proposed that matching the types of knowledge transfer delineated by Nonaka and Takeuchi (1995) with organizational change strategies influences organizational performance.

This new approach to understanding strategic organizational change has many implications for research. First, researchers can move from quibbling about whether their organizations have choice to investigating how organizations can and should react in certain situations. There may be circumstances in which organizations have little choice in what they can do as they face the need to change, although arguably few organizations fall in this category. More likely, organizations will fall
under a variety of choice levels and they will need to make the best choices they can. To propel these ideas forward, this research focused on the ends of the spectrum, low and high degrees of structure and internal conscious awareness. Continued research efforts can extend the ideas presented here to further elaborate on the issues influencing organizations that fall in the middle.

Portraying the strategy formulation process as one in which managers simultaneously consider varying degrees of structural facets and varying degrees of internal consciousness enables us to understand the degree of routinization inherent in the strategy process. The importance of doing this is that it exposes the tacit or explicit nature of the strategy process. Routinized processes are likely to use and create more tacit knowledge than non-routine processes (Nelson and Winter, 1982). Awareness of this difference enables researchers to better plan their investigations of strategic processes. For instance, managers may be less able to discuss a tacit process (Polanyi, 1967) and the researcher who is aware of this can identify alternative means for accessing the manager’s knowledge about the strategic change process. For example, strategic mapping of causal relations and/or expert systems that model a manager’s mental maps are both means of accessing tacit knowledge (e.g., Ambrosini and Bowman, 2001). Alternatively, if the process is primarily explicit, the researcher can presume that the manager being studied possesses a certain level of conscious understanding about his organization’s strategic change process (e.g., Reber, 1993). In either event, it is important to consider the degree of choice from the manager’s perception. Managers react to the degree of choice they perceive, not the degree of choice the researcher determines should exist. In this case, perceptual measures should be invoked with managers in order to determine the degree of choice they believe is available to their organizations.

In addition to influencing data collection, the degree of tacitness that is inherent in the strategic change process can also influence the transferability of knowledge during the process and the sustainability of any competitive advantage that may result. Researchers can amend their theoretical models to include the tacit or explicit character of various types of strategic processes so that the models can more accurately describe the influence of the change process on future organizational activities. For instance, the assumption that knowledge is completely transferable within the organization may have to be tempered if the knowledge stems in part from a tacit process.

As far as strategy formulation is concerned, researchers should be aware that the degree of structure and internal conscious awareness may influence the capacity of an organization to attempt various strategies. From a resource perspective, the ability to acquire new resources or reconfigure existing resources depends in part on the degree of structure and internal conscious awareness present. Structure affects whether new resources can be acquired and internal conscious awareness affects whether resources can be reconfigured. Understanding this relationship can help researchers explain and predict strategies that are likely to
be considered during strategic change. In addition, researchers can also better explain and predict the performance impact of these strategies. Here, we used a knowledge perspective to show the influence of environmental structure and organizational internal conscious awareness on strategy formulation and subsequent organizational performance.

Research such as ours that addresses the creation and dispersion of knowledge within an organization should address the issue of absorptive capacity, which is the ‘ability of a firm to recognize the value of new, external information, assimilate it, and apply it to commercial ends’ (Cohen and Levinthal, 1990, p. 129). Cohen and Levinthal (1990) discussed the importance of an organization’s prior knowledge base in determining how easily the organization could absorb new knowledge. The more similar the existing knowledge base is to the new knowledge, the more likely the organization will be able to successfully absorb the new knowledge. Part of the problem with bringing in dissimilar knowledge is that it fosters difficulties in communication and control, thereby pushing organizational members beyond their abilities (Loasby, 1976). Bringing in new resources that are similar to the organization’s existing resources will, at least in the short run, result in a more efficient absorption of knowledge (Lane and Lubatkin, 1998). In the long run, however, organizations that rely on a narrow range of resources can hurt their absorptive capacity. Absorptive capacity can be impaired by not having a diverse background of knowledge and resources (Cohen and Levinthal, 1990). A diverse knowledge base can provide a capability to absorb disparate knowledge that may become important in the future. Therefore, organizations that bring in new resources that are different from their existing resources may create new bodies of knowledge that increase the organization’s absorptive capacity over the long run. It must be remembered, however, that building up a knowledge base is a slow process (e.g., Badaracco, 1991), so planning ahead is important.

When conducting empirical research to test the arguments we have presented, researchers can use information gathered from newspaper articles, annual reports, meeting minutes, or interviews with top managers to categorize firms according to the four different types of change strategies. Next, researchers will need to develop measures of the extent to which socialization, combination, externalization, and internalization activities are being used by the firms in their sample. Although we have included a description of these activities, Nonaka and Takeuchi (1995) provide more thorough descriptions and detailed examples of these activities, which can be used as the basis for a variety of measurement approaches. Likert scales can be developed that would establish any focus the firm may have on socialization or combination activities. Because firms may change knowledge transfer strategies over time, historical data should also be captured.

To take advantage of the relationships we have posited, managers must be cognizant of the degree of internal conscious awareness and structure that is influencing their firm. Researchers have identified ways that managers may recognize
the degree of choice and structure that is available to them (e.g., Gardner and Schermerhorn, 1992; Hitt and Keats, 1992). For example, Hambrick and Abrahamson (1995) found that academics and security analysts were able to rate managerial discretion consistently with archival measures. Thus, awareness of the degree of managerial discretion, based on items such as product differentiation, market growth, industry structure, demand instability, quasi-legal constraints, powerful outside forces and capital intensity may be strong indicators of the degree of choice that is present in the organization’s environment.

Although the degree of managerial discretion may indicate the level of choice that is present, how can managers recognize the structural nature of their environment? Strategic leadership research (e.g., Hitt and Keats, 1992) suggests that managers should look inside and outside the firm for recurring patterns. For example, are the majority of a firm’s competitors expanding their businesses in order to take advantage of lower cost production methods or are they differentiating themselves? Are some competitors trying to fill a niche? If the majority of firms are attempting the same strategy, this could be an indication of a highly-structured environment.

CONCLUSION

We have identified the limiting and enabling characteristics of environmental structure and the degree of internal conscious awareness as having an instrumental influence on the strategy formulation process of an organization. In addition, we described how organizational change strategies and the tacit and explicit nature of knowledge resources are critical to consider when designing implementation strategies. We believe that this portrayal of strategic organizational change increases our understanding of the process and paves the way for researchers to improve their conceptual and empirical investigations of strategic change. In addition, we hope that this paper will encourage others to explore ways that knowledge may be used to unleash a firm’s strategic potential and solve managerial dilemmas.

NOTES

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[1] Firms that use the business as usual strategy are not in the mode of transferring additional knowledge, so knowledge transfer activities are not appropriate to consider for these firms.

REFERENCES


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