

ADVANCES IN ENTREPRENEURSHIP, FIRM EMERGENCE AND  
GROWTH VOLUME 7

# **CORPORATE ENTREPRENEURSHIP**

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# CORPORATE ENTREPRENEURSHIP

# ADVANCES IN ENTREPRENEURSHIP, FIRM EMERGENCE AND GROWTH

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# INNOVATION AND CORPORATE ENTREPRENEURSHIP

Dean A. Shepherd and Jerome A. Katz

Arguably, one of the most unexpected findings of the Panel Study of Entrepreneurial Dynamics has been the discovery of higher levels of corporate entrepreneurship (CE) than expected. One entrepreneur in seven is starting a business for or with their current employers. Given the current numbers for independent start-ups, that rate translates into 150,000 corporate entrepreneurship efforts annually in the USA. Another way to think of it is that in terms of firms with employees, corporate entrepreneurial ventures represent one-quarter of new start-ups each year. Those efforts also potentially represent a disproportionate percentage of surviving efforts, because corporate entrepreneurial projects tend to have superior initial access to financial, human and organizational resources than the vast majority of independently started firms.

In these days where profits and job creation share the role of sovereign criteria for business, corporate entrepreneurship (CE) is particularly important. CE embodies one of the major vehicles for corporate innovation, revitalization, and retrenchment. It preserves and even grows jobs and markets, and provides an aid to limiting or channeling some of the volatility in the population of businesses. At this point in the history of entrepreneurship and business generally, CE is coming off of a slump in mindshare, and represents one of the areas we believe is ripe for a reformulation and revitalization.

In business and business education, CE has been treated as a stepchild. Like many other practical inventions of businesspeople, it seems to have existed in business for years before the academics stumbled upon it and gave it a label and wider visibility (Knight, 1967). Two of management's greatest observers, Peter

Drucker and Arnie Cooper seemed to write about the topic at around the same time, in 1970. Drucker penned “Entrepreneurship in the business enterprise” in the introductory issue of the *Journal of Business Policy*, while Arnie Cooper’s “Entrepreneurial environment” article was already in the publication pipeline at *Industrial Research*. Research interest in the topic grew in the 1970s, with perhaps the seminal event being the International Symposium of Entrepreneurship and Enterprise Development (ISEED) held in Cincinnati in 1975. More than a half-dozen of the papers in the proceedings focused on aspects of CE (e.g. [Susbauer, 1975](#)), paving the way for the rest of the decade’s work ([Cooper, Hornaday & Vesper, 1997](#)).

In the 1980s, as America was buffeted by foreign competition, CE came to the fore as one possible answer to the Japanese industrial onslaught. Even as academicians such as [Burgelman \(1983\)](#) and [Block \(1982\)](#) promoted research on CE in business schools, [Rosabeth Moss Kanter with \*The Change Masters\* \(1983\)](#) and [Gifford Pinchot with \*Intrapreneuring\* \(1985\)](#) popularized corporate entrepreneurship in business best-sellers. These CE efforts in big business may have had several unexpected effects. At the economy level, CE did make a positive contribution to revitalizing American business and taking a more proactive approach to improvement. Another of these was the creation of a cadre of corporate managers with CE experience and an understanding of how big business gets things done. These individuals became an essential component of the growth of independent entrepreneurial high-growth firms in the 1990s, as they raided corporate ranks for management talent coupled with a sympathetic world view.

But the 1990s were clearly the decade of independent, not corporate, entrepreneurship, and despite continuing efforts in the area by long-time CE advocates such as [Zenas Block](#) and [Don Kuratko](#), the concept of CE was accepted, but seemed to lose visibility as a corporate revitalization strategy and business school research topic.

However, there are several factors that suggest a revival of corporate entrepreneurship is in the offing. One is the surprising PSED finding of the robustness of CE efforts in corporate America. A second is the historical ebb and flow between corporate and independent forms of entrepreneurship, with the latter in decline in the aftermath of the Internet Boom at the millenium. Third has been the growing global competitiveness of big business in the post-cold war period, which energizes a variety of efforts such as CE.

Fourth and most significant of the indications has been an increase in the intellectual and empirical depth of recent work in corporate entrepreneurship among academics. Capturing and showcasing this re-emerging trend is the

purpose of this seventh volume in the series *Advances in entrepreneurship, firm emergence and growth* series. Consider the papers in this volume.

In the following chapter, Don Kuratko, Duane Ireland, and Jeffrey Hornsby offer their perspective on “Corporate entrepreneurship behavior among managers: A review of theory, research, and practice.” These three authors have each made a substantial contribution to the corporate entrepreneurship literature. Their chapter provides an extensive review of theoretical and empirical studies that have addressed issues of corporate entrepreneurship and its successful use. They focus on the relationship between managers’ entrepreneurial behavior and the successful implementation of corporate entrepreneurship actions. Specifically, they examine the relationships among external transformational triggers, execution of a corporate entrepreneurship strategy, antecedents to managers’ entrepreneurial behavior, a decision to implement entrepreneurial actions, and resulting outcomes. It was a challenging task to propose a model with such broad scope and Don, Duane and Jeff were able to “pull it off” and in so doing offer a number of important implications for scholars and practitioners. For example, they describe evaluations that can help determine the sustainability of corporate entrepreneurship actions as well as how managers can sustain entrepreneurial behavior.

Andy Van de Ven is one of the leading scholars of innovation and his chapter on the “Central problems in managing corporate innovation and entrepreneurship” with Rhonda Engleman provides a theoretical framework for addressing three important research (and practical) questions: (1) How do entrepreneurial ventures develop over time?; (2) What kinds of problems will most likely be encountered as the innovation and entrepreneurship process unfolds?; (3) What responses are appropriate for managing these problems? Specifically, Andy and Rhonda highlight four basic concepts for studying corporate innovation and entrepreneurship over time – people, process, industry, and leadership – and four corresponding central problems in its management – managing attention, developing ideas into good currency, developing the industry infrastructure, and managing the pluralistic context. By combining these previously disparate concepts and problems into one conceptual framework provides an important contribution to the literature. We are particularly excited about the future longitudinal research that will hopefully be inspired by this chapter.

In Chapter 4, Dawn DeTienne continues the theme of the previous chapter by also acknowledging that the phenomenon of corporate entrepreneurship can be investigated from a number of different perspectives. After proposing a number of important theoretical lenses, Dawn uses them to highlight opportunities for future research. We believe that scholars who pursue these research opportunities will likely substantially increase our understanding of corporate entrepreneurship.

Specifically, the theoretical lenses described and used are those of: (1) organizational ecology; (2) evolutionary theory; (3) continuous change; and (4) cognitive theory. As usual, Dawn has been able to take on a project of considerable complexity, digest it, and present it in a comprehensible and useful way.

In Chapter 5, Dan Jennings and Kevin Hindle address recent challenges in the literature to explore the relationship among strategy-structure-performance and corporate entrepreneurship. They do this by using a general systems theory to focus on the concept of equifinality, which “allows a feasible set of equally effective, internally consistent patterns of strategy and structure” (Jennings & Hindle, this volume). Their equifinality generated hypotheses are tested using a sample of 148 U.S. electrical distribution firms over the period of 1998–2002. They find that high firm performance is determined by an organization’s strategy-structure match and not necessarily whether the organization is entrepreneurial or conservative or on the type of strategy-structure employed. We believe that future research should follow this approach of investigating organizations orchestrating themes (including three-way, four-way and/or higher order interactions) rather than focusing on developing theories and empirical tests that consider only main effect or contingent (two-way interactions) relationships.

Shaker Zahra is one of the most influential scholars in the areas of corporate entrepreneurship, international entrepreneurship, and a knowledge-based perspective of strategy. In this chapter he works with two highly promising young scholars, Heidi Neck and Donna Kelley, to combine these important fields into one chapter. In Chapter 6, Shaker, Heidi and Donna use organizational learning and knowledge perspectives to explore and build our understanding of international corporate entrepreneurship. Specifically, they discuss the conditions under which new knowledge is acquired through international corporate entrepreneurship and how this can be a source of competitive advantage. After reviewing four streams of research that inform the nature of learning inherent in various international corporate entrepreneurship activities, the authors highlight the importance of geopolitical forces, and how these forces impact knowledge exploration and exploitation. This chapter makes a number of important contributions. One in particular is the acknowledged importance of knowledge integration and the balance of internal and external venturing.

Continuing with the theme of international corporate entrepreneurship, Bostjan Antoncic, Melissa Cardon, and Robert Hisrich focus on the impact of global human resource management. In Chapter 7, Bostjan, Melissa, and Bob highlight the importance of human resource management in today’s environment, an environment that is highly dynamic and one where many firms are going international. They propose a useful theoretical framework to explain international corporate entrepreneurship (e.g. new ventures, new business, product innovation,

and competitive aggressiveness) in terms of factors internal to the organization (e.g. support, commitment, values, experience, intro-firm communications) and alliance/network factors that link the organization to other firms. An outcome of the model is a number of useful prescriptions that will provide some help to managers and highlight important areas of future research.

We change gears for the remainder of the book and focus on connections with previous volumes of this series. First, in Chapter 8 we continue our discussion of the distinctive domain of entrepreneurship previously offered by Venkat (Venkataraman, 1997) and Per (Davidsson, 2003). Who better than Bill Gartner to add to this important debate? Bill is one of the pre-eminent scholars of entrepreneurship and, as hoped, he offers a provocative essay that challenges some of our deeply-held beliefs and proposes a way in which scholarship can best increase our knowledge of entrepreneurship.

Second, in the previous volume Jeff McMullen and Dean Shepherd (2003) used signal detection theory to explore entrepreneurial action and offer an interpretation of economic theories of the entrepreneur. This work was inspired, in part, by Connie Marie Gaglio's chapter in Volume three of this series (Gaglio, 1997) and her work with Jerry Katz (Gaglio & Katz, 2001). To continue the discussion along this important theme, we asked Connie Marie Gaglio to comment on the McMullen and Shepherd 2003 chapter. This commentary provides many insightful ideas, to which Jeff and Dean respond by acknowledging possible changes to the initial model and, working on Connie Marie Gaglio's suggestions, highlight a number of interesting avenues for future research.

We believe that the chapters in this volume will make an important contribution to the body of knowledge on innovation and corporate entrepreneurship, encourage scholars to continue to think about, and discuss, the direction of entrepreneurship as a field, and demonstrate how scholars can build off each others' work to advance important research agendas.

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# CORPORATE ENTREPRENEURSHIP BEHAVIOR AMONG MANAGERS: A REVIEW OF THEORY, RESEARCH, AND PRACTICE

Donald F. Kuratko, R. Duane Ireland  
and Jeffrey S. Hornsby

## INTRODUCTION

Environmental uncertainty, turbulence, and heterogeneity create a host of strategic and operational challenges for today's organizations (Brown & Eisenhardt, 1998). To cope with the challenge of simultaneously developing and nurturing both today's and tomorrow's core competencies, firms increasingly rely on effective use of corporate entrepreneurship (Covin & Miles, 1999). These facts make it imperative that managers at all levels actively participate in designing and implementing a strategy for corporate entrepreneurship actions. The recent literature reveals that there is a *general* although certainly not a complete consensus around the position that successful corporate entrepreneurship (CE) is linked to improvement in firm performance (Ireland et al., 2001). Covin, Ireland and Kuratko (2003) suggest that corporate entrepreneurship is increasingly recognized as a legitimate path to high levels of organizational performance and that the understanding of corporate entrepreneurship as a valid and effective practice with real, tangible benefits is occurring across firm type and managerial levels. Other researchers cite corporate entrepreneurship's importance as a

growth strategy (Kuratko, 1993; Kuratko et al., 1993; Merrifield, 1993; Pinchott, 1985; Zahra, 1991; Zahra & Covin, 1995; Zahra, Kuratko & Jennings, 1999). As an example, Dess, Lumpkin and McGee (1999) note that, "Virtually all organizations – new start-ups, major corporations, and alliances among global partners – are striving to exploit product-market opportunities through innovative and proactive behavior" – the type of behavior that is called for by corporate entrepreneurship. Barringer and Bluedorn (1999) suggested that in light of the dynamism and complexity of today's environments, "...entrepreneurial attitudes and behaviors are necessary for firms of all sizes to prosper and flourish." Developing an internal environment that cultivates employees' interest in and commitment to creativity and the innovation that can result from it contributes to successful competition in today's competitive arenas. A valuable and appropriate internal organizational environment is a product of effective work (often within the context of corporate entrepreneurship) by managers at all levels (Floyd & Lane, 2000).

Corporate entrepreneurship (CE) and the behavior through which it is practiced has been initiated in established organizations for a host of purposes, including those of profitability (Vozikis et al., 1999; Zahra, 1993), strategic renewal (Guth & Ginsberg, 1990), innovativeness (Baden-Fuller, 1995), gaining knowledge to develop future revenue streams (McGrath, Venkataraman & MacMillan, 1994), international success (Birkinshaw, 1997), and the effective configuration of resources as the pathway to developing competitive advantages (Borch, Huse & Senneseth, 1999; Covin & Miles, 1999; Covin, Slevin & Heeley, 2000; Ireland, Kuratko & Covin, 2003). Regardless of the reason the firm decides to engage in CE, managerial behavior affects the degree of success achieved from these efforts. From the perspective of long-term firm growth through CE, creative and innovative managerial behavior must be displayed and consistently reinforced.

However, despite the espoused and observed positive effects of CE, issues remain if we are to fully understand this construct's promise (Hornsby, Kuratko & Zahra, 2002; Zahra, Nielsen & Bogner, 1999). A lack of theoretical and empirical knowledge about the antecedents of CE and the entrepreneurial behavior on which it is based are key issues warranting attention. Moreover, outcome factors that influence an organization's willingness to continue implementing a CE strategy as well as managers' willingness to continue engaging in entrepreneurial behavior have not been integrated to enhance our understanding of CE practices. And, a fundamental ambiguity exists in the literature concerning what it means, in a theoretical sense, to have CE as a firm's strategy (Meyer & Heppard, 2000). As such, while there is a broadly-held belief in the need for and inherent value of entrepreneurial action on the part of established organizations (Hitt et al., 2001;



Morris & Kuratko, 2002), much remains to be revealed about how CE strategy is enacted in organizational settings.

Fortunately, knowledge accumulation on the topic of CE has been occurring at a rapid rate, and many of the elements essential to constructing a theoretically grounded model of CE and its relation to managers can be readily identified from the extant literature. Our purpose is to outline such a model that depicts the CE process as it effects managers. We review the empirical and conceptual research that substantiates the many components of the model and we describe the results of a corporate entrepreneurship strategy at a *Fortune* 500 company that emphasizes many components of the model.

## **CORPORATE ENTREPRENEURSHIP AND THE ROLE OF MANAGERS**

The concept of corporate entrepreneurship (CE) has evolved over the last twenty-five years (Hanan, 1976; Hill & Hlavacek, 1972; Peterson & Berger, 1972; Quinn, 1979). Sathe (1989) defined CE as a process of organizational renewal. More comprehensively, Sharma and Chrisman (1999, p. 18) suggested that CE “is the process where by an individual or a group of individuals, in association with an existing organization, create a new organization or instigate renewal or innovation within that organization.” Other researchers conceptualize CE as embodying entrepreneurial behavior requiring organizational sanctions and resource commitments for the purpose of developing different types of value-creating innovations (Alterowitz, 1988; Borch et al., 1999; Burgelman, 1984; Jennings & Young, 1990; Kanter, 1985; Schollhammer, 1982). This conceptualization of CE is consistent with Damanpour’s (1991, p. 556) perspective that corporate innovation is a very broad concept that includes “. . . the generation, development and implementation of new ideas or behaviors. An innovation can be a new product or service, an administrative system, or a new plan or program pertaining to organizational members.” In this context, CE centers on re-energizing and enhancing the firm’s ability to develop the skills through which innovations can be created. CE is linked to firms’ efforts to establish sustainable competitive advantages as the foundation for profitable growth (Ireland, Kuratko & Covin, 2003; Kuratko, 1993; Merrifield, 1993; Pinchott, 1985; Zahra, 1991).

Zahra (1991) observed that “corporate entrepreneurship may be formal or informal activities aimed at creating new businesses in established companies through product and process innovations and market developments. These activities may take place at the corporate, division (business), functional, or project levels, with the unifying objective of improving a company’s competitive position and

financial performance.” Guth and Ginsberg (1990) stressed that CE encompasses two major types of phenomena: new venture creation within existing organizations and the transformation of on-going organizations through strategic renewal. In this paper, we argue that managers’ entrepreneurial behavior is critical to effective CE, regardless of the primary reason (either the creation of new ventures or strategic renewal) it is being pursued. Based on Smith and Di Gregorio’s (2002) logic, our conceptualization of CE is that newness is CE’s defining characteristic regardless of the context (e.g. new ventures, strategic renewal) within which newness is sought.

Managers at all organizational levels have critical strategic roles to fulfill for the organization to be successful (Floyd & Lane, 2000; Ireland, Hitt & Vaidyanath, 2002). In essence, the strategic role of top-level managers is concerned with the making of effective strategic decisions – decisions that are concerned with setting the firm’s direction and helping it reach the objectives suggested by that direction. The strategic role of middle-level managers focuses on the effective communication of information between the firm’s two internal managerial stakeholders (top-level managers and operating-level managers). In this role, managers interactively synthesize information, disseminate that information to both top-level and operating-level managers and then as appropriate, champion innovation-oriented projects that are the products of integrated work between the other two managerial levels. In slightly different words, once a commitment is made by all managerial parties to pursue a certain set of actions, such as those associated with CE, managers’ communication responsibilities find them facilitating information flows in ways that support project development and implementation efforts. The strategic role of operating-level managers is to react to information gained from outside the firm while responding to managers’ communication of information that is based on decisions that have been made by top-level managers (Floyd & Lane, 2000).

The strategic roles of each level of managers call for different actions if the firm is to be successful through its CE efforts (Miller & Camp, 1985). Top-level managers must effectively direct the firm’s resource allocation processes and ratify efforts being taken to facilitate individuals’ efforts to act creatively in the pursuit of product, process and administrative innovations. Middle level managers are challenged to understand information flows emanating from top- and operating-level managers in ways that permit successful interpretation and integration of these managers’ intentions and concerns. Operating-level managers must respond to the challenges suggested by the information extended to them by managers within the context of their understanding of changes occurring in the demands of some of the firm’s external stakeholders, particularly customers.

Ghoshal and Bartlett (1994) point to middle-level managers as enablers of individual actions – actions that can be taken for either the purpose of creating new

ventures or engaging in strategic renewal. Their strategic role of communicating information between the other two managerial levels is the foundation through which managers enable others' actions. Thus, managers affect the context and organization of work within which their subordinates can become "job crafters." Wrzesniewski (2001) described the ability of employees to "craft" their job by changing the physical or cognitive nature of the task or relational boundaries of the work. Job crafting often involves a series of creative acts where an employee will push, transform or adjust the boundaries of the task at hand. Examples of job crafting have been documented in various job classifications, including hospital cleaning staffs (Dutton, Debebe & Wrzesniewski, 2002), hairdressers (Cohen & Sutton, 1998), engineers (Fletcher, 1998), nursing (Benner, Tanner & Chesia, 1996; Jacques, 1993), information technicians (Star & Strauss, 1999) and restaurant kitchen employees (Fine, 1996). When engaging in CE, the firm desires for job crafters to act creatively in the pursuit of product, process or administrative innovations.

The information communication role of middle-level managers, a role resulting from their position at the nexus of information transmittals between top-level managers and operating-level managers, creates a critical responsibility for these organizational actors to help others in the firm learn how to engage in successful entrepreneurial behavior (Floyd & Lane, 2000; Floyd & Wooldridge, 1990, 1992, 1994; Ginsberg & Hay, 1994; Kanter, 1985; Pearce, Kramer & Robbins, 1997). This responsibility is in addition to the need for all managers to display entrepreneurial behavior to support the firm's use of CE. The dual responsibility to use information as the foundation on which their own entrepreneurial behavior is based as well as to help others learn how to behave entrepreneurially highlights the importance of managers to the firm's commitment to use CE to establish new ventures or to renew itself (Burgelman, 1983; Day, 1994; King, Fowler & Zeithaml, 2001; Nonaka & Takechi, 1995; Pinchott, 1985).

## **A MODEL OF MANAGERS' CORPORATE ENTREPRENEURIAL BEHAVIOR**

According to Smith and Di Gregorio (2002, p. 130), "Entrepreneurial actions are original along at least one of the following four dimensions: they entail new resources, new customers, new markets and/or new combinations of existing resources, customers, and markets." Managers play a critical role in successful corporate entrepreneurship (CE). However, the antecedents causing managers to behave entrepreneurially and then to sustain that behavior across time and events have not been fully specified. The model presented in Fig. 1 is an initial step to

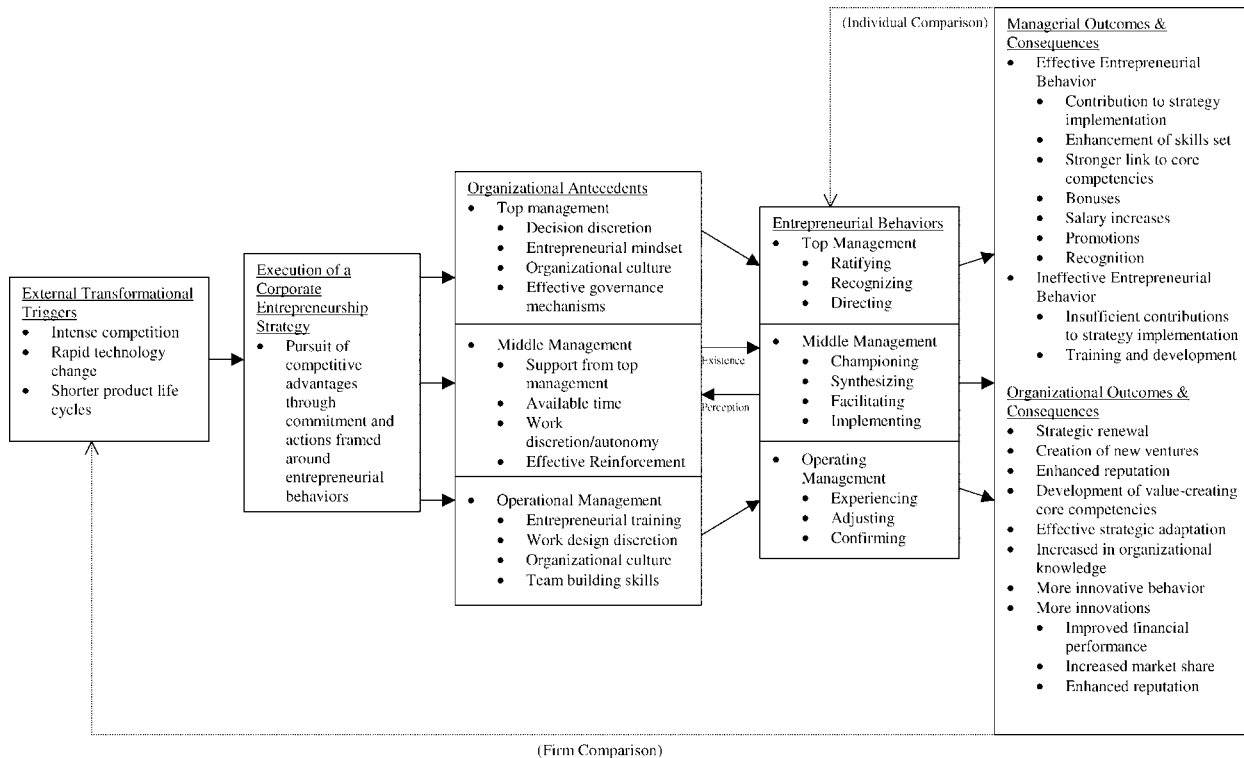


Fig. 1. A Model of the Corporate Entrepreneurship Process as it Relates to Managers.

increase understanding of the triggers of a CE strategy as well as the antecedents causing managers to engage in entrepreneurial behavior and then whether or not to sustain that behavior. Effective entrepreneurial behavior on the part of managers is a necessary step to the achievement of the objective the firm seeks (e.g. innovation, renewal, and so forth) when engaging in corporate entrepreneurship.

The model integrates and extends previous theoretical and empirical research to develop a framework of the current state of the knowledge regarding CE and managers' entrepreneurial behavior. Contributions to the entrepreneurship and strategic management literatures suggest the viability of integrating theoretical and empirical findings as a means of better understanding conditions and relationships that are associated with CE (Hitt et al., 2001; Ireland et al., 2001). Hornsby et al. (1993) for example, advanced an interactive model of CE suggesting that a combination of circumstances lead to entrepreneurial behavior by managers. In their multidimensional model, Baum, Locke and Smith (2001) integrated research findings regarding personality traits, general motives, personal competencies, situational specific motivation, competitive strategies and the business environment to study venture growth. Of importance to the purpose of our work is the Baum et al. (2001) finding that the interaction among individual, organizational and environmental domains was the strongest predictor of venture growth. To understand the antecedents of managerial behavior and factors influencing the degree to which it will be sustained, we draw from work concerned with the motivations of individual entrepreneurs (e.g. Naffziger, Hornsby & Kuratko, 1994) as well as comprehensive analyses of motivation (e.g. Porter & Lawler, 1968) that are partly based on equity theory (Adams, 1965) and expectancy theory (Vroom, 1964).

In the following sections we examine the specific elements of our proposed model (Fig. 1). We begin with the "triggering" events that cause CE to be pursued by organizations.

## PRECIPITATING EVENTS (TRIGGERS)

External environments are unpredictable and outside the direct control of individual organizations. Indeed, the external environments facing firms today are generalized characterized as being hostile, dynamic and heterogeneous (Zahra, 1991). Environmental hostility threatens achievement of the firm's mission; dynamism reduces the stability of the firm's market position; while heterogeneity makes prediction of competitors and their actions difficult. Because of these conditions, the firm's external environment may frequently change in significant, yet unexpected ways. Some (e.g. Meyer, 1982) think of significant, yet unexpected changes as environmental jolts. Regardless of their label, changes in the firm's

external environment, especially significant, unexpected changes create opportunities for the firm to improve its performance through creativity and innovation and to generate more value for its stakeholders as a result of so doing. More specifically, the ambiguity associated with significant environmental changes makes it possible for firms to creatively use their resources to develop value-generating innovations as a primary means of effectively exploiting what are often unexpected changes.

Evidence suggests that value-creating innovations result only when the firm alters the conditions of its internal environment in ways that result in co-alignment with the realities of its external environment. Tushman and Romanelli (1985) argued, for example, that a firm's reorientation to external environmental changes involves metamorphic changes in structures, systems, processes and commitments. Meyer (1982) developed a model of antecedents, dynamics and consequences of organizational adaptations to significant changes (or jolts) in the firm's external environment. Meyer's (1982) model incorporates the stimulus-response paradigm and the variation-selection-retention mechanism (Weick, 1976) in proposing that when jolts surface in firms' external environment, organizations select and interpret stimuli according to theories of action (Argyris, 1976) that are encoded in prevailing strategies and ideologies (Miles & Snow, 1978).

Thus, significant changes in a firm's external environment will act as a trigger that stimulates top-level managers to call for entrepreneurial actions to take place throughout the company as a means of responding to external environmental changes. While conditions in the firm's internal environment can also stimulate the use of CE, our focus is on triggers from the external environment. A key reason for this focus is that compared to triggers from the firm's internal environment, those from the external environment are more disruptive of bureaucratic inertia that may have formed across time as a result of the firm's success within the context of previous environmental conditions. Kelly and Amburgey (1991) studied organizational inertia and momentum and suggested the need to extrapolate past trends in the face of organizational change. Viewing events in this context suggests the possibility that what some consider to be discontinuous change may actually be momentum. Miller and Friesen's (1980a, b) findings indicate that momentum is a pervasive force in organizations; that past practices, trends and strategies tend to keep evolving in the same direction, perhaps eventually reaching dysfunctional extremes such as when firms become stagnant and fail to innovate (Miller & Friesen, 1982). However, at points in time, momentum can also contribute to organizational effectiveness as is the case for firms with a propensity to innovate remaining committed to the position that nurturing creativity across time and events facilitates consistent and continuous use of entrepreneurial behavior.

Tushman, Newman and Romanelli (1986) argued that most organizational reorientations are triggered by performance crises that push firms to replace managers

who cannot or will not adapt. However, they found that the most successful reorientations occurred in organizations whose managers foresaw the need for radical change and initiated it before crises occurred. Decision makers, therefore, are the architects of their environments and adapt to these interpretations (Boeker, 1997). Managers must minimize misfits between the firm's strategy-structure matches as they prepare their organizations to deal with change (Jennings & Seaman, 1994). Wrzesniewski (2001) states, "As organizations change their forms and functions more quickly, employees need to fundamentally realign how they understand the firm." Thus, employees' ability to craft their own jobs (and, thus, their understanding of their role in the organization) may be a strategic advantage in larger-scale organizational change" (Lau & Woodman, 1995). Once again, the concept of job crafting seems to fit the entrepreneurial response of managers facing changes caused by precipitating events. The precipitating event provides the impetus to behave entrepreneurially when other conditions are conducive to such behavior.

However, the precipitating event's effect and the entrepreneurial behavior it causes depend on the dynamic interaction among several characteristics such as the specific managers/employees (e.g. personal life, responsibility, personality), characteristics of the company (e.g. size, culture, structure, strategies) and developments in the external environment (e.g. competitive, industry, and market changes) (Baum et al., 2001). Moreover, different types of entrepreneurial actions are likely the result of different types of triggers. The nature of the triggering event and the type of entrepreneurial initiative that is pursued are also likely to be associated with outcomes such as whether an innovation is completed and implemented and the level of success that is achieved.

Following analysis of evidence in the literature, such as that presented above, Schindehutte, Morris and Kuratko (2000) generated a sample list of precipitating events that stimulate or trigger a commitment to and subsequent use of CE. (Table 1). These events were grouped into five categories:

- internal/external source;
- opportunity-driven/threat-driven;
- technology-push/market pull;
- top-down/bottom-up;
- systematic or deliberate search/chance or opportunism.

Although there are many ways in which these precipitating factors could be classified, each of the ones identified has potential strategic relevance. For instance, it may be that resource requirements differ markedly for entrepreneurial projects triggered by internal developments as opposed to those initiated principally by external developments and for technology-driven projects vs. market-driven projects. Triggers from outside the company such as technological change may

**Table 1.** “Triggering” Events for Corporate Entrepreneurship.

Specific customer request	Senior management initiative
Competitor threat or action	Initiative on the part of one or more employees
Changes in people’s lifestyles/expectations	Strategic program in the firm
New sales targets	Strategic growth target
Public relations/image	New marketing initiative
Substitute product or service	Diversification
Declining market share	Availability of new equipment
Declining profits	Availability of new resources
Declining sales	Availability of new distribution channel or method
Improved quality control	New management
Poor quality of an existing product or service	Perception of increasing risk
Rising costs	Vertical integration
Problem with existing logistical performance	Geographical expansion
Specific customer complaint	Internal opportunities
Supplier request	Inventory problems
Availability of new IT or on-line systems	Staff training
Regulatory requirement	Horizontal integration
Decreasing size of the market	New investment by a supplier
New investment by a buyer	Change in accounting practices
Supplier complaint	Insufficient standards

*Source:* M. Schindehutte, M. H. Morris, and D. F. Kuratko, “Triggering Events, Corporate Entrepreneurship and the Marketing Function,” *Journal of Marketing Theory and Practice* 8 #2 (Spring 2000): 18–30.

tend to produce entrepreneurial projects that are more innovative or that represent bigger departures from the status quo than do triggers from inside the company. Triggers related to the actions of competitors might lead to more imitation, and those related to threat from a substitute product might produce more innovative solutions. Managerial support may be more easily obtainable for entrepreneurial projects triggered by threats (e.g. an impending government regulation) as opposed to opportunities (e.g. an untapped market niche). The same may be true for those where the source of the trigger is more top down as opposed to bottom up. Further, in terms of outcomes, if the trigger is some successful action by a competitor, then the entrepreneurial project may represent a reactive response that comes too late to have any marketplace impact. Similarly, it may be that entrepreneurial events that are in response to a particular supplier or customer request are associated with higher levels of success (Morris & Kuratko, 2002).

A number of implications can be drawn from this discussion for the concept of corporate entrepreneurship. The ability to encourage entrepreneurship on an ongoing basis requires that managers first identify the types of triggers that are prevalent in the company and determine if any key triggers are not occurring



for particular reasons. There is a need to systematically review triggering events for both successful and unsuccessful products, service, and processes that have been pursued by the firm over the past five years. Further, managers should apply the groupings or categories above and then look for associations between types of triggers and types of entrepreneurial projects and between types of triggers and the outcomes of entrepreneurial endeavors (Morris & Kuratko, 2002). Thus, a corporate entrepreneurship strategy pursued by the firm is a response to a precipitating event.

## **CORPORATE ENTREPRENEURSHIP STRATEGY**

Firms choose from among several strategic options for use at the corporate level when deciding how to respond to the realities (i.e. threats and opportunities) brought forth by external environmental triggers (Boeker, 1997). In each instance, the purpose of a selected option is to help the firm transform or adapt to increase its likelihood of competitive success. In general, transformational models focus on metamorphic changes in organizations that evolve through a series of fundamentally different periods or stages. Some writing about organizational transformation postulate a predictable set of development stages (e.g. Greiner, 1972). Others, however, argue the existence of non-deterministic patterns in organizational transformations (Filley & Aldag, 1980; Mintzberg & Waters, 1982).

The choice of the firm's strategy or strategies is a critical organizational decision – a decision that has a major influence on organizational performance (Borch et al., 1999). Strategies available as strategic adaptation options include diversification (Davis & Duhaime, 1992; Hitt, Hoskisson & Kim, 1997; Markides, 1995; Palepu, 1985), acquisition (Hitt, Hoskisson & Ireland, 1990, 1994), restructuring (Hitt et al., 1994), turnaround (Robbins & Pearce, 1991), and cooperative arrangements (e.g. strategic alliances, joint ventures) (Dyer & Singh, 1998; Gulati, Nohria & Zaheer, 2000). Each of these strategies (e.g. diversification, acquisition and so forth) can be an appropriate adaptation mechanism to use to meet the challenges posed by external environmental conditions.

Consistent with the arguments presented herein, a strategy for corporate entrepreneurship is another option that a firm can choose to pursue once triggers from the external environment denote the need for organizational change and strategic adaptation (Kuratko, Ireland & Hornsby, 2001). A strategy for corporate entrepreneurship is a set of commitments and actions that is framed around entrepreneurial behavior and innovation in order to develop current and future competitive advantages that are intended to lead to competitive success. The choice of using a strategy for corporate entrepreneurship as a primary means of

strategic adaptation reflects the firm's decision to seek competitive advantage principally through innovation and entrepreneurial behavior on a sustained basis (Russell, 1999).

Increasingly environmental triggers are interpreted by today's decision makers as ones that call for the formation and use of corporate entrepreneurship as the core of the firm's efforts to adapt strategically. Lumpkin and Dess (1996) suggested that organizations facing a rapidly changing, faster-paced competitive environment might be best served by implementing corporate entrepreneurship actions as an adaptation mechanism. Labels have been attached to organizations relying on entrepreneurship actions as the core of their commitments, decisions, and strategies. Examples of these labels include entrepreneurial firms (Mintzberg, 1973), prospectors (Miles & Snow, 1978), and adaptive, innovative, and impulsive firms (Miller & Friesen, 1980a).

The operational essence of using a strategy for corporate entrepreneurship as the foundation of a firm's adaptation responses is the call for an organization's employees to rely on entrepreneurial behavior as the source of adjustments required to assure current and future marketplace success. In this context, corporate entrepreneurship strategy encompasses the full set of commitments, decisions, and entrepreneurial behavior required for the firm to improve the likelihood of achieving current and future competitive success. As noted previously, when using corporate entrepreneurship as the source of strategic adaptation to the realities of a firm's external environment, the intention is to rely on innovation as the foundation for creating new businesses or reconfiguring existing ones. In general, corporate entrepreneurship calls for firms to innovate boldly and regularly and to be willing to accept considerable, though reasonable levels of risk in doing so (Miller & Friesen, 1982). To Sykes and Block (1989), reasonable risks are "affordable" to the organization in terms of its current and future viability as an operating entity. Resulting from successful use of corporate entrepreneurship firms may deliberately reposition themselves within their environment, including the main arena(s) in which they compete (Covin & Slevin, 1991).

For success to be recorded by using corporate entrepreneurship, those within the firm must be aware of it and encouraged and nurtured in their use of it. Without awareness, encouragement, and nurturing, the entrepreneurial behavior that is linked to use of corporate entrepreneurship will not surface or be used consistently throughout the firm (Kuratko et al., 2001). Furthermore, an awareness of what corporate entrepreneurship calls for in terms of behavior on the part of individuals permits an analysis of choices. Typically, organizational members compare and evaluate the opportunity cost of engaging in entrepreneurial behavior with those of either not doing so or displaying still other behaviors. Lower opportunity costs, relative to the costs of other behavior, engender a commitment to engaging in

entrepreneurial behavior (Amit, Mueller & Cockburn, 1995; Reynolds, 1987; Shane & Venkataraman, 2000).

In comprehensive arguments, Burgelman (1983, 1984) and Burgelman and Sayles (1986) argued that organizational innovation as well as other strategic activities surface through two models – induced strategic behavior and autonomous strategic behavior. Of the two models, induced strategic behavior occurs more frequently in organizations. Comparatively, induced strategic behavior captures formal entrepreneurial behavior while autonomous strategic behavior is concerned with entrepreneurial behavior that surfaces informally in the firm. The more resource rich is the firm the greater is the likelihood that autonomous strategic behavior will emerge.

Burgelman's (1983) induced strategic behavior approach is a top-down process whereby the firm's strategy and structure provide the context within which entrepreneurial behavior is elicited and supported. The responsibility for establishing a strategy and forming a structure that can induce entrepreneurial behavior rests with top-level managers. Induced strategic or entrepreneurial behavior is shaped by the firm's structural context. Thus, in this instance, structure follows strategy.

Our analysis focuses on induced strategic behavior. However, this focus does not suggest that we fail to recognize the importance of autonomous strategic behavior to the successful use of corporate entrepreneurship actions. Indeed, both induced and autonomous strategic behavior are important to a firm's corporate entrepreneurship efforts, whether they are oriented to creating new businesses or reconfiguring existing ones. The model we envision (as shown in Fig. 1) is one in which managers are imbued with the firm's values and strategies so their entrepreneurial behavior and innovative efforts will be channeled toward effective use of current core competencies and simultaneous development of new ones in the pursuit of competitive success for the organization (Van de Ven, 1986). In the induced strategic behavior model, top-level managers oversee, nurture, and support the firm's attempts to use entrepreneurial behavior as the foundation for product, process, and administrative innovations (Heller, 1999). These actions can be formalized through selection and use of corporate entrepreneurship actions that is part of the firm's efforts to identify and pursue marketplace opportunities in its enactable environment (Weick, 1976). We also believe that a corporate entrepreneurship strategy that is intended to elicit and support induced strategic behavior should include degrees of flexibility through which autonomous strategic behavior is allowed and indeed encouraged to surface. Properly viewed as a formal tolerance of autonomous strategic behavior, an intentional commitment of this type is a conscious strategic decision on the part of the firm's upper-level decision makers to foster the surfacing and use of innovative entrepreneurial behavior, regardless of whether its origin rests with formal or informal processes (Bird, 1988).

From the execution of a corporate entrepreneurial strategy we now focus on the organizational antecedents that must be present and recognized for any entrepreneurial behavior to be pursued.

## ORGANIZATIONAL ANTECEDENTS

The relationship between antecedents and outcomes during corporate refocusing as a path to strategic renewal has been established (Johnson, 1996). In addition, research has examined the organizational antecedents that affect (either by promoting or impeding) the breadth and depth of entrepreneurial actions that are taken within the firm at a point in time to pursue CE (Zahra, 1991; Zahra & Covin, 1995; Zahra, Nielsen & Bogner, 1999). This research has studied different internal organizational factors including the firm's incentive and control systems (Sathe, 1985), culture (Brazeal, 1993; Hisrich & Peters, 1986; Kanter, 1985), organizational structure (Covin & Slevin, 1991; Dess et al., 1999; Naman & Slevin, 1993), and managerial support (Kuratko et al., 1993; Stevenson & Jarillo, 1990). Because they affect the nature of the firm's internal environment, these factors, both individually and in combination, are recognized as antecedents of the entrepreneurial behavior on which CE is built. An internal environment supportive of innovation tends to have strong antecedents of entrepreneurial behavior while an environment that dismisses innovation and its importance yields weak antecedents of entrepreneurial behavior.

Other research has contributed to our understanding of the organizational antecedents of entrepreneurial behavior. Miller (1983), for example, correlated several macro-level variables (e.g. company type, environment, structure and decision making) with the intensity of entrepreneurial activity. Quinn (1985) identified several actions large corporations can take to develop the right "atmosphere" for entrepreneurial behavior to flourish. Some of these actions are oriented to changing the firm's structure in ways that will facilitate innovation. Souder (1981) found a positive relationship between six management practices and performance for 100 new ventures in 17 organizations. Fry (1987) and Kanter (1985) also identified a set of factors that were associated with successful CE while Schuler (1986) outlined essential structural practices that firms need to use to facilitate entrepreneurial actions.

As mentioned earlier, Burgelman (1983) argued that CE can take two primary forms – autonomous strategic behavior and induced strategic behavior. As an organizational antecedent, induced strategic behavior is a top-down process in which the firm's current strategy and structure shape the entrepreneurial actions taken to develop product, process and administrative innovations. Autonomous strategic

behavior is a bottom-up process in which product champions pursue new ideas, often through a political process, by means of which they develop and coordination activities associated with an innovation until it achieves success. A top-level managerial decision to encourage risk taking and not to punish failure is a strong antecedent of autonomous strategic behavior on the part of managers' behavior as well as others in the firm. An important contribution of Burgelman's (1983, 1984) work is the recognition of the effect of the firm's culture, strategy and structure as antecedents of autonomous strategic behavior – behavior that is grounded in entrepreneurial actions. Other research (e.g. Floyd & Wooldridge, 1990, 1992, 1994) has recognized the importance of managers in enhancing and cultivating autonomous strategic behavior. Thus, top-level managers should verify that organizational antecedents are in place that will elicit and support value-creating entrepreneurial behavior (in the form of autonomous strategic behavior) on the part of managers.

The research literature continues to enhance our understanding of organizational antecedents of entrepreneurial behavior. Previous research results suggest that many factors encourage the emergence of entrepreneurial behavior. Nonetheless, an integrated review and analysis of these results shows that the bulk of these factors can be grouped into five categories. Thus, we conclude that research findings highlight five primary dimensions of the firm's internal environment that serve as antecedents of entrepreneurial behavior (see Table 2 for a list of the five dimensions and the research supporting each one). These dimensions are: (1) *the appropriate use of rewards* to elicit and then support entrepreneurial actions; (2) *managerial support*, which indicates the willingness of managers, especially top-level executives, to facilitate and promote entrepreneurial behavior; (3) *available resources*, including the time required to continuously engage in entrepreneurial behavior; (4) *a supportive organizational culture*, which is a culture that is organic rather than mechanistic in nature; and (5) *work discretion (autonomy and risk taking)*, the ability or willingness on the part of managers, based upon their job descriptions, to take risks in the pursuit of innovation and to tolerate and learn from failures.

Based on these general findings, as reported in the literature, research has been conducted to identify specific organizational antecedents of managers' entrepreneurial behavior. In their work, Kuratko, Montagno and Hornsby (1990) found three factors- management support, organizational structure and rewards – to be the most important antecedents of managers' entrepreneurial behavior. Hornsby, Kuratko and Montagno (1999) extended this earlier study as they reported that the five antecedents listed in the paragraph above were important determinants of entrepreneurial behavior on the part of managers. Hornsby, Kuratko and Zahra (2002) developed the Corporate Entrepreneurship Assessment Instrument (CEAI)

**Table 2.** Internal Organizational Factors.

Factor	Research Citations
Rewards/reinforcement	Scanlan (1981), Souder (1981), Kanter (1985), Sathe (1985), Block and Ornati (1987), Fry (1987), Sykes (1992), Barringer and Milkovich (1998), Covin and Miles (1999), and Kuratko, Ireland and Hornsby (2001).
Top management support	Souder (1981), Quinn (1985), Hisrich and Peters (1986), MacMillan, Block and Narasimha (1986), Sykes (1986), Sathe (1989), Sykes and Block (1989), Stevenson and Jarillo (1990), Damanpour (1991), Kuratko et al. (1993), Pearce, Kramer and Robbins (1997), Lyon, Lumpkin and Dess (2000), Antonic and Hisrich (2002), Kuratko et al. (2001), and Morris and Kuratko (2002).
Resources/time availability	Von Hippel (1977), Souder (1981), Kanter (1985), Sathe (1985), Burgelman and Sayles (1986), Hisrich and Peters (1986), Sykes (1986), Katz and Gartner (1988), Sykes and Block (1989), Damanpour (1991), Stopford and Baden-Fuller (1994), Das and Teng (1997), and Slevin and Covin (1997).
Organizational boundaries	Souder (1981), Burgelman (1983), Sathe (1985), Burgelman and Sayles (1986), Hisrich and Peters (1986), Schuler (1986), Sykes (1986), Bird (1988), Sykes and Block (1989), Guth and Ginsberg (1990), Covin and Slevin (1991), Damanpour (1991), Zahra (1991, 1993, 1995), Brazeal (1993), Hornsby et al. (1993), Hornsby et al. (1999), Antonic and Hisrich (2001), and Hornsby et al. (2002).
Work discretion (autonomy)	Burgelman (1983, 1984), Kanter (1985), Quinn (1985), Sathe (1985), MacMillan, Block and Narasimha (1986), Sykes (1986), Bird (1988), Ellis and Taylor (1988), Sathe (1989), Sykes and Block (1989), Stopford and Baden-Fuller (1994), Hornsby et al. (1999), Zahra, Kuratko and Jennings (1999), Morris and Kuratko (2002), and Hornsby et al. (2002).

to partially replicate and extend results previously reported by Kuratko et al. (1990) and Hornsby et al. (1999). The instrument included 84 Likert style questions. The results from the study's factor analyses suggested that there are five stable antecedents of managers' entrepreneurial behavior. These antecedents, along with an interpretation of them, are as follows: (1) *management support* (the willingness of top-level managers to facilitate and promote entrepreneurial behavior, including the championing of innovative ideas and providing the resources people require to take entrepreneurial actions); (2) *work discretion/autonomy* (top-level managers' commitment to tolerate failure, provide decision making latitude and freedom from excessive oversight and to delegate authority and responsibility to managers); (3) *rewards/reinforcement* (developing and using systems that reward based on performance, highlight significant achievements and encourage pursuit

of challenging work); (4) *time availability* (evaluating work loads to ensure that individuals and groups have the time needed to pursue innovations and that their jobs are structured in ways that support efforts to achieve short- and long-term organizational goals); and (5) *organizational boundaries* (precise explanations of outcomes expected from organizational work and development of mechanisms for evaluating, selecting and using innovations). In interpreting their results, [Hornsby et al. \(2002\)](#) highlighted the importance of middle-level managers receiving information from top-level managers regarding their position relative to the five antecedents and then effectively communicating that information to operating-level managers. Managers' tacit knowledge about successful entrepreneurial behavior is critical to these efforts and is the source of their ability to surface as a competitive advantage. However, as shown in [Fig. 1](#), managers will engage in entrepreneurial behavior only when the organizational antecedents to that behavior exist and when they are aware of their existence. Recognizing and interpreting the antecedents as indications of an internal environment supporting entrepreneurial behavior results in individuals assessing their entrepreneurial capacities in reference to what they perceive to be a set of organizational resources, opportunities, and obstacles to engaging in entrepreneurial behavior ([Chen, Greene & Crick, 1998](#)). Determining that the value of entrepreneurial behavior exceeds that of other behaviors causes managers to champion, synthesize, facilitate, and implement as we described earlier.

## ENTREPRENEURIAL BEHAVIOR

The relationship between entrepreneurial behavior and performance in large organizations has been assessed differently across time. During the 1980s, some (e.g. [Duncan et al., 1988](#); [Morse, 1986](#)) argued that it was difficult for people to act entrepreneurially in bureaucratic organizational structures. During this same time period others suggested that for companies of any size, entrepreneurial behavior was possible, should be encouraged, and could be expected to enhance firm performance ([Burgelman, 1984](#); [Kanter, 1985](#); [Kuratko & Montagno, 1989](#)).

A significant change in the general perception of the value of entrepreneurial behavior as a predictor of firm performance took place throughout the 1990s. This was a time during which companies were redefining their businesses, thinking about how to most effectively use human resources and learning how to compete in the global economy. In short, this was a time during which "Some of the world's best-known companies had to endure painful transformation to become more entrepreneurial. These companies had to endure years of reorganization, downsizing, and restructuring. These changes altered the identity or culture of these firms,

infusing a new entrepreneurial spirit throughout their operations . . . change, innovations, and entrepreneurship became highly regarded words that describe what successful companies must do to survive” (Zahra, Kuratko & Jennings, 1999, p. 5).

Entrepreneurial behavior does not occur in a vacuum; rather, it takes place within the context of the organization’s full array of actions (Dess, Lumpkin & Covin, 1997). Establishing an internal environment in large, established organizations that elicits and nurtures entrepreneurial behavior is challenging and requires appropriate decisions and actions (Sathe, 1985). As shown in Fig. 1 and as we discuss next, entrepreneurial behavior is a product of organizational and individual antecedents.

*Entrepreneurial behavior* is any newly fashioned set of actions through which companies seek to exploit entrepreneurial opportunities rivals have not noticed or exploited. *Entrepreneurial opportunities* are external environmental conditions suggesting the viability of introducing and selling new products, services, raw materials and organizing methods at prices exceeded their production costs (Casson, 1982; Shane & Venkataraman, 2000). In complex environments, entrepreneurial opportunities often surface unexpectedly. Because these opportunities are short-lived and subject to capture or appropriation by rivals, a firm must move quickly to pursue a desired opportunity once it has been identified (Eisenhardt & Sull, 2001). Entrepreneurial behavior constitutes a “. . . fundamental behavior of firms by which they move into new markets, seize new customers, and/or combine (existing) resources in new ways” (Smith & Di Gregorio, 2001). Three key dimensions – innovativeness (the seeking of creative solutions to problems or needs), risk-taking (the willingness to commit significant levels of resources to pursue entrepreneurial opportunities with a reasonable chance of failure), and proactiveness (doing what is necessary to bring pursuit of an entrepreneurial opportunity to completion) – underlie entrepreneurial behavior (Covin & Slevin, 1991; Lumpkin & Dess, 1996; Morris & Kuratko, 2002).

Novelty, in terms of new resources, new customers, new markets, or a new combination of resources, customers, and markets is the defining characteristic of entrepreneurial behavior as the foundation for pursuing entrepreneurial opportunities (Ireland et al., 2001; Smith & Di Gregorio, 2002). Entrepreneurial behavior is the conduit through which entrepreneurship is practiced in companies of all types. Increasingly, organizations are committing to the position that entrepreneurial behavior is essential if they are to first survive and then achieve competitive success in a world that is being driven by accelerating change (Barringer & Bluedorn, 1999; Ireland et al., 2001; Lyon, Lumpkin & Dess, 2000).

Entrepreneurial behavior is one of two foundational components (willingness is the other) comprising the entrepreneurship construct. In essence, through two components, entrepreneurship is concerned with discovering and exploiting



value creating entrepreneurial opportunities (Shane & Venkataraman, 2000). The *behavioral* component "...includes the set of activities required to move a concept or idea through the key stages in the entrepreneurial process to implementation" (Morris & Kuratko, 2002). Herein, we suggest that managers' entrepreneurial behavior is vital to this set of implementation-related activities. Furthermore, we argue that managers' entrepreneurial behavior can be a source of competitive advantage for a firm over its rivals (Floyd & Wooldridge, 1994). Entrepreneurship's *willingness* component "...refers to the willingness of an individual or organization to embrace new opportunities and take responsibility for effecting creative change" (Morris & Kuratko, 2002). Lumpkin and Dess (1996) call this attitude or willingness *entrepreneurial orientation*. Here too, managers' entrepreneurial behavior is important, especially in terms of autonomous strategic behavior.

Entrepreneurial behavior, displayed within the context of an existing organization, is linked to corporate entrepreneurship and is differentiated from its relationship with independent entrepreneurship (Sharma & Chrisman, 1999). Evidence indicates that corporate entrepreneurship is especially important for use in firms facing rapid changes in industry and market structures, customers' needs, technology, and societal values (Morris & Kuratko, 2002). In the instance of corporate entrepreneurship, the process of entrepreneurial actions encompasses a set of organization-wide activities rather than any single one (Vozikis et al., 1999).

### *Entrepreneurial Behavior and Levels of Management*

All levels of management are critical to successful corporate entrepreneurship efforts, whether they are concerned with starting new businesses or reconfiguring existing ones. Indeed, Burgelman (1983) argued that "... the strategic process in large, complex firms consists of the strategic activities of managers from different levels in the organization."

The position that all managers are important to the development and use of corporate entrepreneurship actions is supported at least indirectly by researchers' growing interest in assessing the influence of managers on corporate performance (Tihanyi et al., 2000). Of direct relevance to our focus is Floyd and Wooldridge's (1990, 1992, 1994) position that continuous and purposeful involvement of managers throughout the firm is required for corporate entrepreneurship to be successful.

Thus, managerial behavior, at all levels in the organization, should be driven by agreed upon purposes. However, as shown in Fig. 1, the behaviors required by

corporate entrepreneurship differ across managerial level. Specifically, functional-level managers are to engage in the entrepreneurial behaviors that are principally framed for them through interactions with middle-level managers. When behaving entrepreneurially, first-level managers experiment (learn and improve), adjust and adapt (respond to the challenges posed by pursuing entrepreneurial opportunities and engaging in entrepreneurial behavior that is necessary to do so), and conform (loyally serve others while implementing a corporate entrepreneurship strategy) (Floyd & Lane, 2000). Top-level executives must provide an environment that elicits and supports entrepreneurial behaviors on the parts of all employees, especially middle- and first-level managers. Included as a key component of this supportive environment is the formation of one or more strategies through which the firm will be able to either create new businesses or reconfigure existing ones. Whether creating or reconfiguring, the firm's interest is to increase the probability of competitive success (Miller & Camp, 1985). A significant entrepreneurial behavior expected of middle-level managers is related to the proper integration of the dictates of formulated strategies with what is typically knowledge-based entrepreneurial behavior on the part of first-level managers and those for whom they are responsible (Bartlett & Ghoshal, 1993). To successfully engage in this entrepreneurial behavior, middle-level managers champion (nurture and advocate), synthesize (categorize and sell issues to others), facilitate (share information and guide adaptation behavior), and implement (motivate and inspire, revise and adjust) (Floyd & Lane, 2000).

Research has emphasized the importance of middle-level managers' entrepreneurial behavior to the firm's attempt to create new businesses or reconfigure existing ones (Floyd & Wooldridge, 1990, 1992; Ginsberg & Hay, 1994; Kanter, 1985; Pearce, Kramer & Robbins, 1997). This importance manifests itself both in terms of the need for middle-level managers to behave entrepreneurially themselves and the requirement for them to support and nurture others' attempts to engage in the same type of behavior.

The recognition of middle-level managers' entrepreneurial behavior as a vital component to successful corporate entrepreneurship actions has surfaced through an evolutionary path. Bower (1970) was among the first scholars to suggest that middle-level managers are important agents of organizational change. Middle-level managers' work as change agents is facilitated by their organizational centrality. Evidence shows that because of their central positions most organizational knowledge flows through middle-level managers (Floyd & Lane, 2000; Floyd & Wooldridge, 1992; King et al., 2001). To interact with first-level managers and their reports to gain access to their knowledge, middle-level managers must possess the technical competence required to understand initial development, subsequent shaping, and continuous applications of the firm's core competencies.

Simultaneously, they must understand the firm's strategic intent and goals, as well as the political context within which they are chosen and pursued, to interact effectively with top-level executives and to gain access to their knowledge (Floyd & Lane, 2000). Recently, King et al. (2001) demonstrated the importance of middle managers perception of a firms core competencies in order to gain competitive advantage. Using the specific competency characteristics of tacitness, robustness, embeddedness, and consensus, the researchers identified a strong link between middle managers perceptions of these characteristics and a firm's high performance. Resulting from these interactions is the ability of middle-level managers to champion strategic alternatives from those below (i.e. first-level managers and their reports) and to make them accessible to those above (i.e. upper-level managers).

Quinn (1985) enhanced the strategic significance of middle-level managers' work by suggesting their ability to foster organizational innovation. This occurs as middle-level managers interpret and, as appropriate, transfer innovation-based ideas to upper-level managers for their analysis. Once communicated upward, top-level managers may decide to incorporate suggestions for additional innovations into the firm's corporate entrepreneurship strategy, allowing them to them to become part of future induced strategic behavior (Burgelman, 1983). Moreover, through extensive interactions with those producing the firm's goods or services, middle-level managers can encourage their colleagues to take reasonable amounts of risk to develop value-creating innovations. Nonaka and Takeuchi (1995) emphasized the importance of middle-level managers to innovation by suggesting that their central organizational position allows them to gather innovative ideas from inside and outside the firm. Through interactions with first- and top-level managers, those operating in the middle of an organization's leadership structure influence and shape entrepreneurial behavior as they parcel and integrate knowledge related to potential product, process, and administrative innovations. Evidence about managers' value to firms' competitive success when pursuing a corporate entrepreneurship strategy and relying on entrepreneurial behavior to do so can be used to summarize this particular discussion.

Thus, in summary fashion, organizations committed to successful corporate entrepreneurship are involved with a cascading, yet integrated set of entrepreneurial behaviors. At the top, upper-level managers act entrepreneurially (in concert with others throughout the firm as well as key stakeholder groups) to form strategies through which new businesses can be created or existing ones reconfigured. Both forms of corporate entrepreneurship are pursued in light of environmental opportunities and threats and with the purpose of creating a more effective alignment between the company and conditions in its external environment. Upper-level managers' entrepreneurial behavior finds them ratifying (articulating mission, endorsing and supporting others' entrepreneurial behavior), recognizing

(empowering and enable others), and directing (planning and deploying resources) (Floyd & Lane, 2000). The entrepreneurial behavior expected of middle-level managers is framed around the need for this group of organizational leaders to interpret the newly-formed strategies and then behave entrepreneurially in ways that will facilitate other employees' efforts to understand the entrepreneurial behaviors that are expected of them (King, Fowler & Zeithaml, 2001). As recipients of these interpretations, first-level managers then work with their people to fashion the entrepreneurial behaviors through which the firm's core competencies can be used daily to exploit marketplace opportunities that others have not observed or have failed to effectively exploit. Working jointly, top-, middle-, and first-level managers are responsible for verifying that some of today's resources and capabilities are used to form the core competencies through which future competitive success can be pursued.

Recent evidence suggests that human capital affects firm performance (Hitt et al., 2001). We believe that managers, as part of a firm's human capital, can be a source of competitive advantage. When managers engage in entrepreneurial behavior that is valuable, rare, imperfectly imitable and for which equivalent substitutes do not exist, they become a competitive advantage for their firm over its rivals. Contributing to the likelihood that managers' entrepreneurial behavior could be a source of advantage is the fact that a great deal of the knowledge on which their entrepreneurial behavior is based is tacit. Tacit knowledge is embedded in uncoded behavioral routines as well as the firm's social context (Liebeskind, 1996). Thus, tacit knowledge is a product of managers' skills and abilities and their collaborative working relationships that occur within the organization (Nelson & Winter, 1982). Managers cannot articulate their tacit knowledge, nor can they describe exactly how it is used when engaging in entrepreneurial behavior. However, tacit knowledge is critical to middle-level managers as they simultaneously use their unique relationships to interact with upper- and first-level managers (King et al., 2001). Managers' entrepreneurial behaviors of championing, synthesizing, facilitating, and implementing become more successful when they are grounded in carefully established, non-imitable, and sophisticated networks of interactions with organizational managers and other stakeholders as well. Thus, the importance of managers in the flow of organizational information and their reliance on tacit knowledge to engage in entrepreneurial behavior increase the probability that this part of a firm's human capital can be a source of competitive advantage.

Next, we consider entrepreneurial outcomes and the consequences resulting from them. These outcomes and their consequences are a product of the series of events that is initialized by top-level managers' awareness of external transformational triggers, the execution of a corporate entrepreneurial strategy, the existence

of organizational antecedents, and the pursuit of entrepreneurial behaviors by managers.

## **ENTREPRENEURIAL OUTCOMES AND CONSEQUENCES**

Entrepreneurial outcomes result from using entrepreneurial behavior as the foundation for implementing a strategy for corporate entrepreneurship. We argue that unique, yet interrelated outcomes accrue to the organization and to managers (see Fig. 1). Once recorded, each party evaluates the outcomes that have been achieved and the subsequent consequences relative to incurred costs and opportunity costs. Resulting from these evaluations are decisions regarding the status (continuance, rejection, or modification) of corporate entrepreneurship actions (an organizational level issue) and the status (continuation, rejection, or modification) of entrepreneurial behavior (an individual level issue). For an organization, the consequences to be evaluated concern primarily the degree to which using corporate entrepreneurship actions enhanced current and future performance. For managers, consequences concern the degree to which the displayed entrepreneurial behavior enhanced and expanded their skills set as well as the degree to which the organization recognized and rewarded the behavior.

### *Individual-Level Outcomes and Consequences*

*Effective* entrepreneurial behavior is the major outcome managers experience following their attempts to behave in ways required to implement corporate entrepreneurship. In this context, effectiveness has two dimensions – the extent to which managers' behavior contributed positively to implementation of the firm's corporate entrepreneurship actions and the degree to which the behavior enhanced each manager's skills set and value to the organization, as indicated by recognition and rewards.

Objective measures are critical to assessing performance relative to the two dimensions; however, subjective measures are also important. The primary reason for this is that the long-term commercial value of entrepreneurial behavior, especially when that behavior results more from autonomous than induced strategic behavior is difficult to assess by using only objective measures. Moreover, the ultimate value of more intricately developed networks and relationships – ones that are based on tacit knowledge – that evolve from managers' intense entrepreneurial behavior innovations is hard to judge without at least some degree

relying on subjective measures. However, introspection may play a prominent role in each individual manager's analysis of skills set improvements and the value of formal (i.e. organizational) and informal (i.e. personal) recognition and rewards.

For managers, entrepreneurial behavior's consequences are of two types – intrinsic (i.e. psychological) and extrinsic (i.e. tangible). While very little entrepreneurship research has addressed specific incentive/renewal programs, Block and MacMillan (1993) cite four possible types of incentives for internal entrepreneurial behavior. These incentives include: (1) equity and equity equivalents; (2) bonuses; (3) salary increases and promotions; and (4) recognition systems and rewards. Block and Ornati (1987) studied the use of incentives for internal entrepreneurs and found that more than 30% of the firms compensated venture managers differently than other managers; over half of all respondents believed that variable bonuses based on ROI should be used; and internal equity was the major obstacle cited by organizations with no incentive program. Firms with an incentive program cited the difficulty of determining venture goals as the most significant obstacle. All outcomes will have some level of perceived value to the manager. Each manager will have his or her own system to value outcomes.

One inference in the model is the manager's perception that the outcomes of entrepreneurial behavior will meet or exceed expectations. According to Porter and Lawler (1968), the relationship between individual effort and performance is moderated by individual skills, abilities and role perceptions and the relationship between performance and outcomes affects whether or not the individual is likely to repeat the behavior. Also, the individual's satisfaction with the outcome is dependent on a perception of equity between his or her performance-outcome relationship and a reference person's (e.g. coworker or employee in another organization performing similar work) performance-outcome relationship. It is proposed that the manager enters the process with expectations of extrinsic and intrinsic outcomes that will result from the inception of the entrepreneurial behavior. The specific expectations may vary for each individual. These expectations may evolve over time as new opportunities present themselves or as the reality of operation emerges. For corporate entrepreneurship, the corresponding outcome expectations are: (1) independence, autonomy, and control; (2) financial considerations; and (3) significant sales and profit growth, respectively. Naffziger et al. (1994) argued that individuals demonstrate sustained entrepreneurial behavior if the achievements of the entrepreneurial venture meet or exceed the expectations or goals that were initially believed. Kuratko et al. (1997) found the importance of initial goals was vital to the sustained entrepreneurial activity of business owners.

Huseman, Hatfield and Miles (1987) identified three response patterns to perceived equity or inequity. The first response type is a benevolent response

where the individual is only satisfied when they are under-rewarded and feels guilty when equitably rewarded or over-rewarded. The second response type is the equity sensitive response where the individual perceives that everyone should be rewarded fairly based on the inputs (e.g. effort, skills, abilities, etc.) invested. The third response type is the entitlement response where the individual believes everything they receive is due them. They are only satisfied when they perceive that they are over-rewarded or receive the highest possible reward. According to Huseman et al. (1987) it is the equity sensitive response type that can be explained by Equity Theory. Greenberg (1988, 1990) and Miles, Hatfield and Huseman (1994) empirically supported the existence of these three response types and their impact on work outcomes. It is hypothesized that managers that decide to behave entrepreneurially are equity sensitive and will compare the outcomes received for their entrepreneurial actions to counterparts in their organization or in other organizations. Also, managers must perceive that they have some control over their environment. In other words, they must believe that their efforts will impact performance and that performance will result in desired outcomes (Gatewood et al., 2002).

Therefore, the similarities to Porter and Lawler (1968) include: the impact of both intrinsic and extrinsic rewards on sustained entrepreneurial behavior (i.e. satisfaction and reinforcement of the behavior) and the value of rewards and their impact upon sustained entrepreneurial behavior.

### *Organizational-Level Outcomes and Consequences*

Changes in the firm's external and internal environment may increase both pressures for, and resistance to, change. Changes in the external environment and changes in the internal environment may lead to pressure for change by providing feedback that a firm is misaligned with its *economic* environment (Lundberg, 1984). This misalignment in turn decreases the *effectiveness* of continuing with the strategy and increases the efficiency of engaging in multifaceted and radical change (Friesen & Miller, 1986).

Performance outcomes may influence changes by providing feedback that indicates whether or not the current strategy is effective or efficient. Alternatively, they may provide feedback regarding the firm's willingness or capacity to change to a new strategy (Ginsberg, 1988). Success of entrepreneurial actions can be based on either financial outcomes such as increased sales, productivity, market share, reduced waste, and labor efficiencies or on behavioral criteria such as number of ideas suggested; number of ideas implemented; amount of time spent working on new ideas, and amount of time spent outside of normal

channels to pursue an idea (Hornsby, Kuratko & Montagno, 1999). The more traditional financial criteria can be heavily influenced by factors unrelated to the corporate entrepreneurial process. External factors such as the economy, technology, suppliers, competitors, and governmental regulation may confound the relationship between the entrepreneurial strategy and outcomes. The behavioral criteria, however, can provide a less confounded assessment of the success of the entrepreneurial strategy since they are more directly tied to organizational control.

Both organizational and individual (managers) outcomes play a key role in sustaining corporate entrepreneurship. In an equity theory framework, these outcomes will reinforce or sustain future entrepreneurial behavior only if the rewards are valued by those who receive them and perceived to be linked directly to the manager's decision to behave entrepreneurially. Also, the outcomes received by the organization and the manager must be perceived to exceed the possible outcomes received from a different choice of strategy or behavior.

It is hypothesized that perceptual interpretations of the overall outcomes made by the organization's executive management play a key role in the entrepreneurial strategy process, as illustrated in the implementation-to-outcome relationship in the Porter and Lawler (1968) model. One important perceived relationship is the strength of the relationship between the entrepreneurial strategy and firm outcomes. Executive management must believe that strategic and managerial actions will lead to specific outcomes achieved by the firm, such as increased entrepreneurial behaviors, increased sales, profit, and/or market share. The proposed model hypothesizes that the more positive this relationship is perceived to be, the stronger will be the resulting motivation to continue this strategy to encourage entrepreneurial behaviors and actions, either in the form of continued pursuit of the current projects or initiation of further projects. It is also hypothesized that these perceptions will have a feedback effect on succeeding strategies, strategy implementation, and management of the firm. This hypothesis is consistent with Ginsberg's (1988) framework for modeling changes in strategy. According to Ginsberg, performance outcomes influence changes by providing feedback indicating whether the chosen strategy is effective and assess the organization's willingness to retain the strategy or change to a new strategy.

Effective entrepreneurial behavior on the part of managers should benefit the organization as well as the managers. Appropriate individual-level rewards for those who display requested entrepreneurial behavior reinforce those individuals' decision to sustain their entrepreneurial behavior while achievement of desired organizational outcomes reinforces the firm's decision to continuing pursuing and reinforcing entrepreneurial behavior as a vital aspect of effective CE operating-level managers. Hornsby and Kuratko (2003) investigated the relationship between the previously identified antecedents and self-reported outcomes from



managers including the number of new ideas suggested, the number of new ideas implemented, the number of times recognized for new ideas, method of recognition, time spend thinking about new ideas and job satisfaction. Based on data obtained from 530 managers, significant support (based on stepwise regression analysis) for a relationship between the environmental antecedents and outcomes was established. Specifically, the following relationships were identified:

- An overall composite score on the CEAI (a composite score across all five factors), was related to total satisfaction, use of bonuses and times recognized for new ideas.
- Management support was related to total satisfaction, times recognized for new ideas, use of bonuses and rating of effectiveness of bonuses.
- Work discretion was related to total satisfaction and unofficial improvements implemented.
- Rewards/reinforcement was related to total satisfaction, use of pay raise and times recognized for new ideas.
- Time availability was related to total satisfaction and use of “other” method of pay raise.
- Organizational boundaries were related to total satisfaction, times recognized for job improvement and use of bonuses.

Perhaps the most important finding of these results is that total satisfaction was highly related to the existence of a corporate entrepreneurial environment. Total satisfaction accounted for the most variance in all of the stepwise analyses.

## **EXPERIENCE FROM A CORPORATE ENTREPRENEURSHIP STRATEGY**

A corporate entrepreneurship strategy is best illustrated with an example of The Associated Group. Under the vision and direction of L. Ben Lytle, Chairman and CEO of The Associated Group, a startling restructuring plan was put into effect during 1986 in order to facilitate the entrepreneurial process. In 1983 the company was operating as Blue Cross/Blue Shield of Indiana and was literally bogged down in its own bureaucracy. As a result the Associated Group (the new name taken by the company rather than Blue Cross/Blue Shield of Indiana) was losing ground in a fast-paced, changing insurance industry. However, in 1986 after initiating a corporate entrepreneurship training program, Lytle divided the company legally, emotionally, physically, geographically, and culturally into operating companies named Acordia Companies, ranging in size from 42 to 200 employees.

The opportunities for entrepreneurial individuals within the organization began to expand with the development of these “mini-corporations,” which were designed to capture market niches and innovatively develop new ones. Each separate Acordia company had an individual CEO, Vice President, and outside board of directors which delegated full authority to run the business. In 1986 The Associated Group was one large corporation with 2,800 employees serving only the state of Indiana with all revenue generated from health insurance. By the end of 1991, a five-year strategic plan to restructure and infuse entrepreneurial thinking into the organization was completed. The results had the company employing 7,000 people in 50 different companies, serving 49 states and generating over 25% of its \$2 billion in revenue in lines of business outside health insurance. It provides an example of effectiveness that corporate entrepreneurship can have in capturing the imagination of the entire company. It uncovers “builder-types” in the company seeking challenge and accountability of their ideas and innovative abilities.

By 1996 there were 32 Acordia Companies where corporate clients could obtain all types of insurance-related services including commercial property and casualty coverage, group life and health insurance, third party claims administration for self-insured benefit plans, and employee benefits consulting. In order to institute self-perpetuating change in the Acordia network, the mini-corporation CEOs were encouraged (and rewarded through stock options) to expand business and then spin off certain parts of the business either geographically or by specialty when there were 200 employees or there would be too many management layers. In addition, the CEOs were evaluated on their ability to identify and nurture additional potential CEOs within their own organization.

Acordia's experience with entrepreneurial actions as the foundation of its corporate entrepreneurship strategy offers several insights that inform managerial practice. Entrepreneurial actions and the corporate entrepreneurship strategy for which they are a foundation result from intentional decisions. Analysis of the Acordia, Inc., experience suggests that forming an entrepreneurial vision, using new-venture teams, and relying on a compensations system that encourages and supports creative and innovative behaviors are products of careful and deliberate planning.

Upper-level managers must support the importance of entrepreneurial actions, through both words and deeds. Watching managers behave entrepreneurially, including actions taken to deal with the consequences of those behaviors, demonstrates that all parties will work together to cope with the disruption to existing work patterns that novel behaviors create (Kuratko, Ireland & Hornsby, 2001).

The corporate entrepreneurship strategy of Acordia, Inc., was a success, with entrepreneurial actions being used throughout the Acordia companies. Innovative

processes helped to streamline company operations. The firm became more diversified in its products and markets, in that new products were introduced into multiple markets, while new markets with specific customer needs were regularly identified. The commitment to serve new, highly focused markets led to additional Acordia companies. Using its original competitive advantages, as well as innovation, a new advantage was formed in many of the individual companies. Acordia's entrepreneurial journey proved to be the foundation for The Associated Group's success in the early 1990s.

Impressive financial results were recorded during implementation of the corporate entrepreneurship strategy. At the end of 1991, The Associated Group (TAG), the parent organization for all Acordia companies, was earning more than one-fourth of its \$2 billion sales revenue from business lines outside Blue Cross/Blue Shield of Indiana's original core product – health insurance. In early 1992, Acordia, Inc., completed a successful IPO. Subsequently, the firm's stock traded on the NYSE. In June of the same year, *Business Insurance* ranked Acordia, Inc., as the 10th largest insurance broker in the United States and 14th largest in the world (Kuratko et al., 2001).

Eliciting entrepreneurial actions is challenging. An obvious indicator of a manager's success is the degree to which employees change their behavior to begin acting entrepreneurially. A second and complementary performance measure is the processes the manager used to elicit those behaviors. For example, did the manager begin to act entrepreneurially? Did he or she involve all relevant parties when forming an entrepreneurial vision, organizing new-venture teams, and developing a compensation system? Particularly in firms unaccustomed to focusing on entrepreneurial actions and innovation, processes are as important as content or outcomes.

## CONCLUSION/DISCUSSION

Corporate entrepreneurship is a risk and it has to start somewhere – sometimes small and corporate-controlled. But if it starts, there is the likelihood of greater success. Managers become more comfortable with the idea, confidence builds, results occur, and soon the first corporate-assigned projects evolve into more autonomous ventures that reach farther out before being required to report into administrative structure.

The major thrust behind corporate entrepreneurship is a revitalization of innovation, creativity, and leadership in our corporations. It appears that corporate entrepreneurship may possess the critical components needed for the future productivity of our organizations. If so, the recognizing the objectives, requisites,

and range of potential training activities are most important in establishing entrepreneurial strategies in contemporary organizations.

Our focus has been on the antecedents, behaviors, and outcomes related to the various levels of managers involved with corporate entrepreneurship. It is proposed that entrepreneurial actions are the result of the perception of the existence of several organizational antecedents such as top management support, autonomy, rewards, etc. The outcomes realized from this entrepreneurial behavior are then compared at both the individual and organizational level to previous expectations. Thus, it is contended that corporate entrepreneurial behavior is a result of both an equity perception by the individual and the organization. Both must be satisfied with the outcomes for the entrepreneurial behavior to continue from the organizational strategy perspective as well as the individual perspective. The impact of performance outcomes on sustaining a strategy is consistent with [Ginsberg's \(1988\)](#) strategic change model. Satisfaction with performance outcomes serves as a feedback mechanism for either sustaining the current strategy or selecting an alternative one. The model further suggest that managers, as agents of the strategic change, must also be satisfied with the intrinsic and extrinsic outcomes they receive for their entrepreneurial behavior. While it may be a "chicken-and-egg" question as to whether individual behavior or organizational strategy should change first, the model suggests that in a major strategic change, both are instrumental in making the change successful.

This proposed model is integrative in nature since it builds on previous work in the entrepreneurship/corporate entrepreneurship literature ([Hornsby et al., 1993](#); [Naffziger et al., 1994](#)), as well as the theoretical propositions from other disciplines such as [Porter and Lawler \(1968\)](#), [Adams \(1965\)](#), [Vroom \(1964\)](#), and [Ginsberg \(1988\)](#). It is believed that this model will add to the body of literature related to corporate entrepreneurship since it focuses on the importance of the managers' role in a corporate entrepreneurship strategy.

Based on the compilation of ideas presented in this work, at least three areas for future research can be suggested. First, issues related to entrepreneurship as a strategic choice need to be studied. One issue is that of governance. How is the organization owned and governed? In corporate restructuring, governance has been shown to be a major concern ([Hoskisson, Johnson & Moesel, 1994](#); [Hoskisson & Turk, 1990](#)). Ownership issues may arise where investors do not seek the same entrepreneurial goals for the firms ([Kochhar & David, 1996](#)). Therefore, the governance issue needs to be examined in conjunction with this proposed model. Another issue is the pacing of strategic change ([Gersick, 1994](#)) and the timing of entrepreneurial progress ([Bird, 1997](#)). Short-term vs. long term actions may reveal interesting results for the corporate entrepreneurial strategy.

Finally, research is needed concerning the impact of environment, and prior history of changes, related to corporate entrepreneurship strategy.

The second area for future research involves a firm's performance outcomes related to successful strategic implementation. Which outcomes (either behavioral or financial) account for more of the variance when the organization evaluates whether or not corporate entrepreneurship as a strategy should continue? Furthermore, do organizations utilize the concept of equity when determining their satisfaction with outcomes? Research into these questions as well as how the feedback loop develops in firms may provide guidance for the future use of this strategy.

The third area of research focuses on the manager's role in the success of a corporate entrepreneurial strategy. How do organizational antecedents influence or moderate the manager's decision to behave entrepreneurially? Research is necessary to determine how critical these antecedents are compared to other influencing factors such as the manager's past work experience and demographic factors (i.e. age, gender, culture, etc.). The antecedents suggested in the model should account for a significant portion of the variance for entrepreneurial decision making by the manager. Research is necessary to determine the degree to which these antecedents must exist, and how they coexist, in order for successful entrepreneurial behaviors to occur. Furthermore, once the manager initiates entrepreneurial behavior, which outcomes are valued as a result of their behavior? Also, does the manager desire more intrinsic outcomes or extrinsic outcomes when determining whether they have received equitable outcomes.

In summary, organizations are choosing to pursue entrepreneurial strategies. However, it is the entrepreneurial behavior of managers that needs to be focused upon. The concepts proposed in this article should provide insights for researching corporate entrepreneurship strategy from the managers' perspective. This area is ripe for research in terms of its impact on organizational change and ultimately on organizational success. Furthermore, a successful implementation of CE was offered to highlight the importance of transitioning theory and research into practice. The results of the organizational change effort conducted by Anthem emphasize the need to focus on identifying the level of individual and organizational antecedents that facilitated the CE change strategy.

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# CENTRAL PROBLEMS IN MANAGING CORPORATE INNOVATION AND ENTREPRENEURSHIP

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## INTRODUCTION

Few issues are characterized by as much agreement as the role of innovation and entrepreneurship for social and economic development. [Schumpeter's \(1942\)](#) emphasis on the importance of innovation for the business firm and society as a whole is seldom disputed. Although entrepreneurship is widely recognized as a central dynamic in the startup of new small companies (e.g. [Vesper, 1980](#)), it is equally crucial to revitalizing and sustaining established companies and renewing their ability to compete in a dynamic and global economy.

Corporate entrepreneurship (hereafter CE) is typically defined as new business creation within an existing organization as well as renewal and innovation of the organization ([Block & MacMillan, 1993](#); Dess et al., 2003; [Sharma & Chrisman, 1999](#); [Zahra, Kuratko & Jennings, 1999](#)). CE differs in several important ways from new company startups, which have been the traditional focus of entrepreneurship scholars. CE focuses on an organization (not an individual) as the “leading actor” of a new business creation story (new products, services, and programs) through any of the following routes: internal innovation, strategic alliances, joint ventures, and other network arrangements. In addition, CE focuses on innovation

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and transformation of an ongoing enterprise, as opposed to the startup of a new organization.

In new company startups, entrepreneurship is personified in the founders who typically develop a single business by managing a small number of employees with direct, personal, and often daily interactions. In contrast, leadership of CE is more indirect and institutional. Most large established companies have so many employees, businesses, and subsidiaries located in many different countries that it is not possible for a top management team to personify entrepreneurial behaviors. Instead, corporate executives must work through others and institutional structures to accomplish their objectives. Their central challenges include building relationships with key constituents within and outside of the organization, mobilizing and aligning activities in support of an innovation from units with divergent interests, and building an infrastructure that legitimates, enables, and constrains innovation. [Barkema and Chvyrkov \(2002, p. 289\)](#) argue that this setting requires entrepreneurial executives “who are able to link loosely connected groups, as well as handle the many other complexities associated with running such firms.”

These macro institutional structures for CE influence micro individual behavior by directing the attention of employees in who, what, where, when, and how work activities are performed. One important distinction for CE is exploration and exploitation activities. “The basic problem confronting any organization is to engage in sufficient exploitation to ensure its current viability and, at the same time, to devote enough energy to exploration to ensure its future viability. Survival requires a balance, and the precise mix of exploitation that is optimal is hard to specify” ([Levinthal & March, 1993, p. 105](#)). How might large established companies develop and maintain attention to innovation and entrepreneurship while simultaneously harvesting, improving, and protecting their existing and profitable businesses? CE entails an ongoing struggle in balancing attention of employees to exploration and exploitation activities.

CE is centrally concerned with innovation. An innovation is a new idea that may be a recombination of old ideas, a scheme that challenges the present order, a formula, or a unique approach which is perceived as new by the individuals involved ([Rogers, 1982; Zaltman, Duncan & Holbek, 1973](#)). As long as the idea is perceived as new to the people involved, it is an “innovation,” even though it may appear to others to be an “imitation” of something that exists elsewhere. The process of innovation is defined as the development and implementation of new ideas by people who over time engage in relationships with others within an institutional context. This definition of innovation includes four key concepts: new ideas, people, relationships, and institutional context. These concepts embody some of the central challenges or problems just mentioned in managing CE. They include: (1) a people problem of managing attention; (2) a process problem of pushing



new ideas into good currency; (3) a structural problem of managing relationships; and (4) a leadership problem of managing the context for innovation. Van de Ven (1986) provided an initial discussion of these “central problems for managing innovation.” This paper revises and applies the four problems for managing corporate entrepreneurship. Such a revision is needed to address a dramatically different landscape of CE that has emerged over the past 15 years or so.

The liabilities of bureaucracy and inertia that accompany organizational size and aging have contributed to a common perception that large established firms are less innovative than new small company startups – a perception that Chandy and Tellis (2000) called the “incumbent’s curse.” A study by the U.S. Department of Commerce (Charpie, 1967) called attention to this disparity. Based on a study of 635 innovations that reached the marketplace, Gellman (1976) found that small firms (with fewer than 500 employees) produced 2.5 times as many innovations as large firms per employee, and that small firms bring their innovations to market 27% faster than large firms. A longitudinal study of 93 consumer durables and office product innovations by Chandy and Tellis (2000) found that over a 150-year period, small and non-incumbents introduced slightly more radical product innovations than large firms that were incumbent or established in the marketplace. However, these findings appear to apply to companies before World War II.

After the War, Chandy and Tellis (2000) found that large incumbent firms introduced significantly more radical innovations than small firms and nonincumbents. Soresen, Chandy and Prabhu (2003) obtained further evidence substantiating this post-war finding in a study of 255 pharmaceutical innovations. Chandy and Tellis (2000, p. 12) conclude that the “incumbent’s curse may apply, but to an older economic period.” They (as well as Burgelman, 2002; Christensen, 1997; MacMillan & McGrath, 2000) suggest that dynamic organizational structures and cultures, intensive interorganizational relationships to build strong technological competencies, and cannibalizing practices may keep large, incumbent organizations nimble and innovative.

Growth of the services sector and a knowledge-based global economy are transforming the basis of corporate innovation and entrepreneurship. Quinn, Baruck and Zien (1997) report that three-fourths of all U.S. economic activity is based on managing intellectual activities and the interface to their service outputs. The value of most products and services depends primarily on the development of knowledge-based intangibles, like technological know-how, product design, marketing, understanding of customers, personal creativity, and innovation. Generating these intangible technologies depends more on managing intellectual resources and information than on directing the physical actions of people or the deployment of tangible assets. In these economies, the basis for sustained competitive advantage

is managing human attention and energies toward building distinctive competence and knowledge that are used to create these products or services.

This competence often develops in several locations simultaneously and cuts across the boundaries of firms, industries, and nations. As a result, knowledge-intensive industries have no nationality (Murtha, Lenway & Hart, 2001). Given these trends, how might firms gain sustained competitive advantage from intangible knowledge-based products? As products become more knowledge-intensive, Quinn et al. (1992), among others, advise firms to: (1) shift from product- to knowledge-driven strategies; (2) focus on building a distinctive competence; (3) establish a leadership niche in a value chain network; and (4) outsource the rest of its functions to “best in world” suppliers.

One implication of following this advice is that CE is no longer just internal venturing. Increasingly, CE involves developing and managing external relationships with other organizations and groups. This implication is evident by comparing the topics and issues addressed in leading CE texts over time, such as Block and MacMillan (1993) with MacMillan and McGrath (2000). CE models that view the firm as going it alone to develop its own innovations within the company are being replaced with a more collective model that takes a broader institutional, and political view of business enterprise (Schoonhoven & Romanelli, 2001). Because knowledge-intensive technologies cut across organization, industry, and national boundaries, a single firm seldom has the resources, power, or legitimacy to develop and commercialize innovations on its own (Van de Ven & Hargrave, 2003). Instead, collective action is necessary to build an industrial infrastructure that reduces the time, costs, and risks for all participating members. As discussed below, we think that mobilizing external relationships to build an industrial infrastructure for entrepreneurship is a central problem of CE.

The next sections of this paper examine how this changing landscape influences the following problems or challenges in managing corporate entrepreneurship and innovation.

First, there is *the human problem of managing attention* because people and their organizations are largely designed to focus on and exploit existing practices rather than pay attention to exploring new ideas. The more successful an organization has been in exploiting its products and markets, the more difficult it is to trigger peoples’ attention thresholds to explore new ideas, needs, and opportunities.

Second, *the process problem is managing ideas into good currency* so that innovative, entrepreneurial ideas are implemented and institutionalized. While the invention or conception of new ideas may be an individual activity, corporate innovation and entrepreneurship (inventing and implementing new ideas) is a collective achievement of pushing those ideas into good currency or legitimacy. The politics of innovation represents a major challenge for most CE managers

who need to engage in social movements to gain support of key constituents who have divergent interests and allegiances within and outside of the organization.

Third, there is *a structural problem of building an industry infrastructure for entrepreneurship*. A common characteristic of the innovation process is that multiple functions, resources, and disciplines that span organizational boundaries are needed to transform an innovative idea into a concrete reality. As noted before, mobilizing external relationships to build an industrial infrastructure for entrepreneurship is a central problem of CE.

Finally, the diverse interests of internal and external constituents involved in corporate entrepreneurship point to *the leadership problem of managing the context for entrepreneurship*. Corporate innovation and entrepreneurship activities not only adapt to existing organizational and industrial arrangements, but they also transform the structure and practices of these environments. The leadership problem is one of heedfully accommodating the divergent but legitimate views of pluralistic actors who are distributed, partisan, and embedded in the innovation process.

We now discuss each of these four central problems in managing corporate innovation and entrepreneurship.

## THE HUMAN PROBLEM – MANAGING ATTENTION

Much of the folklore and applied literature on the management of innovation has failed to incorporate the research by cognitive psychologists and social psychologists about the limited capacity of human beings to handle complexity and maintain attention. As a consequence, one often gets the impression that inventors or innovators have superhuman creative heuristics or abilities to “walk on water” (Van de Ven & Hudson, 1985). A more realistic view of innovation should begin with an appreciation of the physiological limitations of human beings to pay attention to non-routine issues, and their corresponding inertial forces in organizational life. William James, a 19th century psychologist, defined attention as follows:

Everyone knows what attention is. It is the taking possession by the mind in clear and vivid form, of one out of what seem several simultaneously possible objects or trains of thought. Focalization, concentration of consciousness are of its essence. It implies withdrawal from some things in order to deal effectively with others . . . (1890, p. 403).

Ocasio takes an attention-based view of firm behavior, arguing that . . .

firm behavior is the result of how firms channel and distribute the attention of their decision makers. What decision makers do depends on what issues and answers they focus their attention on. What issues and answers they focus on depends on the specific situation and on how the firm’s rules, resources, and relationships distribute various issues, answers, and decision makers into specific communications and procedures (1997, p. 187).

Although individuals differ greatly, most people have very limited spans of attention. The average person can retain raw data in short-term memory for only a few seconds. Most people are able to process only seven (plus or minus two) objects or digits at any one time (Miller, 1956). Although human information-processing abilities are limited, we have developed the ability to cope with these limitations by storing highly abstract mental models of our world based on prior experiences (Kiesler & Sproull, 1982). Rasmussen (1986) describes the power of mental models in guiding human behavior, saying that, "The efficiency of humans in coping with the complexity of the physical world is due to an ability to apply knowledge from previous experience to new situations by selecting and freely combining models, rules, and strategies that have proven successful separately in other situations" (1986, p. 117). Mental models facilitate decision making by providing rapid solutions to problems based on what we have learned in past situations. Memory, it turns out, requires relying on "old friends," which Simon (1947) describes as a process of linking raw data with pre-existing schemas and worldviews that an individual has stored in long-term memory.

The organizational equivalent of an individual mental model is the dominant logic of organization members defined as "a mind set or a world view or conceptualization of the business and the administrative tools to accomplish goals and make decisions in that business. It is stored as a learned, problem-solving behavior" (Pralhad & Bettis, 1986, p. 491). As organizational members grapple with the problems associated with managing their business, their collective experiences distill into shared beliefs, theories, and propositions about how best to manage this business and the appropriate responses to different situations. This dominant logic helps organizational members establish priorities, coordinate their actions, make timely decisions, and assess the potential consequences of their actions as they manage critical tasks related to their established technologies and businesses.

While this ability to develop and apply mental models from past experience serves us well much of the time by allowing us to overcome our natural cognitive limitations, this ability can also lead us astray. Barr, Stimpert and Huff (1992) summarize how our individual mental models can also constrain us in our ability to make sense of the world around us. Mental models determine what information will receive attention by focusing an individual's attention on some stimuli rather than others. The stimuli gaining attention tend to be interpreted in relation to the individual's current mental model. These interpretations limit the range of problems perceived and solutions identified to those that fit our current mental model.

Starbuck and Milliken (1988) argue that problems of individual attention are institutionalized at the organizational level when resources are devoted to track those stimuli that managers have identified as important while other stimuli may go unnoticed simply because no effort is made to track them. Managers' belief systems

regarding what is important in the environment are more likely to direct their attention away from information that might indicate the need for revised mental models, pushing it to the background of attention where it is unlikely to be acted upon.

According to [March \(1991\)](#), organizations divide their attention between two main activities, exploiting existing capabilities and exploring potential capabilities. [Levinthal and March \(1993\)](#) argue that an organization must engage in sufficient exploitation to ensure its current viability while engaging in enough exploration to ensure its future viability. However, organizations often struggle to find a balance between exploration and exploitation. [Ahuja and Lampert \(2001\)](#) describe some of the learning traps that limit organizations' ability to engage in exploration activities. For example, an organization caught in the familiarity trap pays more attention to exploiting familiar technologies than to exploring new technologies that are less familiar. An organization in the maturity trap devotes more attention to exploiting mature technologies rather than to exploring the ambiguities of emerging technologies. In the propinquity trap, an organization seeks solutions to its problems by relying on solutions that have worked in the past rather than attempting potentially superior novel solutions. As a result of these types of learning traps, the older, larger, and more successful organizations become, the more likely they are to have a large repertoire of structures and systems that discourage innovative and entrepreneurial activities while encouraging tinkering with their existing businesses.

The limitations posed by mental models based on established technologies and businesses are compounded in conditions of discontinuous environmental change. [Barr, Stimpert and Huff \(1992\)](#) argue that when facing discontinuous change in the environment, managers' mental models must change in order to develop effective methods of coping with these changes. Delays in mental model change may limit the organization's ability to change and adapt, and ultimately threaten the organization's survival. [Christensen \(1997\)](#) emphasizes this problem, saying that, "Perhaps the most powerful protection that small entrant firms enjoy as they build the emerging markets for disruptive technologies is that they are doing something that simply does not make sense for the established leaders to do . . . [S]uccessful companies populated by good managers have a genuinely hard time doing what does not fit their model for how to make money." According to [Whetten \(1988\)](#), organizational decline is the result of significant changes in the environment that either go unnoticed, are improperly interpreted, or are addressed through inappropriate actions by managers.

[Barr and Huff \(1997\)](#) found that a necessary condition for strategic actions in response to discontinuous environmental change is that firms perceive their welfare will be directly affected by the change. Firms do not act until they identify multiple effects of environmental change, and these effects are supported by other

indicators of the need for strategic change. However, it is exceedingly difficult for members of existing organizations to entertain threatening information, which is inherent in many innovative, entrepreneurial ideas. [Staw, Sandelands and Dutton \(1981\)](#) found that organizations experiencing threat show a restriction in information processing and constriction of control. Organizations experiencing threat to their survival often turn inward, focusing on improving internal efficiency and controlling costs instead of focusing outward to understand the dynamics of the changing environment and develop new responses to these changes. [D'Aveni and Macmillan \(1990\)](#) found that the focus of organizational attention predicts survival and failure in firms facing discontinuous environmental change. Surviving firms tend to focus on the external environment in response to the change while failing firms tend to focus on the internal organizational environment.

Mental models influence organizational members' perceptions, values, and beliefs. These mental models direct organizational members' attention, focusing their efforts in prescribed areas but also blinding them to other issues. The implication is that without the intervention of leadership (discussed below), structures and systems developed in support of existing technologies and businesses focus the attention of organizational members to routine activities, not innovative ideas. For all the rational virtues that structures and systems provide to maintain existing organizational practices, these "action generators" make organizational participants inattentive to shifts in organizational environments and the need for innovation and entrepreneurship ([Starbuck, 1983](#)).

Davenport and Beck warn that, "Not everything we pay attention to succeeds, but things that we don't pay attention to nearly always fail" (2002, p. 54). The management of attention must be concerned not only with triggering the attention thresholds of organizational participants, but also of channeling that attention toward actions with constructive ends. Constructive attention management is a function of how other central problems are addressed, namely, the implementation process and developing an industry infrastructure as discussed in the following sections.

## **THE PROCESS PROBLEM – IMPLEMENTING IDEAS INTO GOOD CURRENCY**

Whereas the management of attention deals with the allocation of efforts to innovative entrepreneurial versus ongoing organizational operations, the process problem focuses on how innovative entrepreneurial ideas are developed and implemented. This process is not just a rational process of investing in and pursuing the technically best opportunities. It is also a political process of mobilizing campaigns to legitimate innovative ideas ([Rao, 2001](#)) and push them

into good currency (Schon, 1971). CE ventures not only compete for resources and support with established operating units, but also for all other entrepreneurial opportunities being explored by an organization. As Schoonhoven and Romanelli (2001) discuss, the process problem is legitimating and implementing – not inventing – ideas. “The challenge is for innovators to obtain buy-in from area experts and from those who influence resource allocation for new product development” (Schoonhoven & Romanelli, 2001, p. 389).

Organizational sociologists have emphasized that legitimacy has both cognitive and sociopolitical dimensions (Aldrich, 1999; Hannan & Freeman, 1989; Stinchcombe, 1965). Cognitive legitimacy refers to the taken-for-granted assumption that an entrepreneurial venture is desirable, proper, and appropriate within a widely shared system of norms and values (Scott, 2001). Sociopolitical legitimacy consists of endorsements and support of external organizational constituents, such as financial investors, government regulators, consumers, and others who play key roles to develop and implement an innovation (Hannan & Carroll, 1992; Rao, 2001). Innovation ventures gain cognitive legitimacy when entrepreneurs or activists succeed in framing their project as valid, reliable, and useful (Rao, 2001). To accomplish this, entrepreneurs and activists must often engage in a sociopolitical process that often resembles a social movement (DiMaggio & Powell, 1991; Fligstein, 1996; Snow & Benford, 1992).

Schon's (1971) description of the emergence and institutionalization of public policies illustrates the sociopolitical process of pushing and riding innovative ideas into good currency. Figure 1 illustrates the process.

Schon states that what characteristically precipitates change in public policy is a disruptive event which threatens the social system. Invention is an act of appreciation, which is a complex perceptual process that melds together judgments of reality and judgments of value. A new appreciation is made as a problem or opportunity is recognized. Once appreciated, ideas gestating in peripheral areas begin to surface in the mainstream as a result of the efforts of people who supply the energy necessary to raise the ideas over the threshold of public consciousness. As these ideas surface, networks of individuals and interest groups gravitate to and galvanize around the new ideas. They, in turn, exert their own influence on the ideas by reframing them, often with a catchy slogan that provides emotional meaning and energy and cognitive legitimacy to the idea.

However, Schon indicates that ideas do not achieve cognitive legitimacy and potency to change policy unless they become an issue for political debate and unless they are used to gain influence and resources. The debate turns not only on the merits of the ideas, but also on who is using the ideas as vehicles to gain power. As the ideas are taken up by people who are or have become powerful, the ideas gain legitimacy and power to change institutions. After this, the ideas that win out are

## CENTRAL PROBLEMS IN MANAGEMENT OF INNOVATION

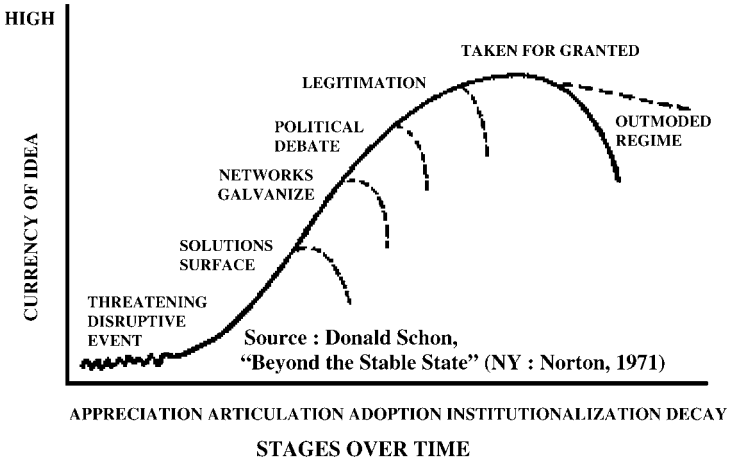


Fig. 1. Managing Life Cycle of Ideas in Good Currency. Source: Van de Ven (1986).

implemented and become institutionalized – they become part of the conceptual structure of the social system and appear obvious in retrospect. However, the idea remains institutionalized only as long as it continues to address critical problems and as long as the regime remains in power. Schon's description of the stages in which ideas become institutionalized is instructive in its focus on the social-political dynamics of the innovation process. The description emphasizes the centrality of ideas as the rallying point around which collective action mobilizes. Organizational structures emerge and are modified by these ideas. Moreover, it is the central focus on ideas that provides the vehicle for otherwise isolated, disconnected, or competitive individuals and stakeholders to come together and contribute their unique frames of reference to the innovation process. Schon (1971, p. 141) states that these stages characteristically describe the process features in the emergence of public policies "regardless of their content or conditions from which they spring." Analogous descriptions of this social-political process have been provided by Quinn (1980, especially p. 104) for the development of corporate strategies and by March and Olsen (1976), for decision making in educational institutions.

As Schon's political process model implies, the people involved in entrepreneurial ventures are not just impartial role actors playing out their scripts as detached outside observers. Instead, they are active participants who



become embroiled in developing an industry infrastructure in diverse, partisan, and increasingly embedded ways (Garud et al., 2002; Van de Ven & Garud, 1993).

Actors are *distributed* in the sense that many different public and private actors perform essential functions in developing an infrastructure that supports and enables technological development. Rarely does a single actor control the technology development process. New technologies and related institutions are socially constructed and co-evolve.

Actors are *embedded* in the sense that because technology development is a collective process; their actions are constrained by and must be taken in concert with the actions of other actors in the process. Thus, technology development is partially a path dependent process in which both initial context and conditions matter. However, the trajectory of actions is not completely path dependent because learning can occur as the process unfolds. Actors invent new technologies and institutions and achieve legitimacy by recombining existing skills and knowledge.

Finally, actors are *partisan* in the sense that they participate from their own frames of references and often have different, even conflicting, interests. For example, the interests of researchers, producers, regulators, and customers engaged in the development of an innovation are obviously not alike. Their partisan interests are worked out through collective action processes in which actors use strategies and tactics of partisan mutual adjustment and political entrepreneurship, such as those described by Schon (1971), Lindblom (1965), Alinsky (1971), Fligstein (1997), and Braithwaite and Drahos (2000).

These political behaviors of entrepreneurs demonstrate that the innovation process is not merely a technical and rational process; it is also a contested and negotiated political process. Indeed, we propose that while technical competence is necessary, it may not be sufficient to mobilize entrepreneurial ventures. Also needed is *political savvy*. Braithwaite and Drahos (2000) describe processes of regulation as “contests of principles” and “contests of actors” in which weak actors can gain power by “enrolling” more powerful actors to their viewpoints. This view is reminiscent of the Lipsky (1980) model of protest as a political resource for influencing policy makers through the media who cover and report on protests and riots in the streets. Garud et al. describe technology development in terms of mobilization and counter-mobilization and as a “battle fought in political and cognitive realms” (2002, p. 210). Politically savvy innovators and entrepreneurs recognize that their interests are both intertwined with and diverge from those of other individuals and groups in the organization. Therefore they simultaneously cooperate and compete with these other organizational members.

## THE STRUCTURE PROBLEM – BUILDING THE INFRASTRUCTURE FOR ENTREPRENEURSHIP

We have noted that CE cuts across the boundaries of organizations, industries, and nations. Entrepreneurship is more of a collective than it is an individual achievement. No single firm commands the resources, competence, power, or legitimacy to go it alone. As a result, we need an augmented macro view of the industrial infrastructure for developing and commercializing an entrepreneurial venture.

The infrastructure for technological innovation does not emerge at random; rather it emerges to serve the interests of those who become involved in creating it. This is evident in Quinn and colleagues' description of competition taking place not among individual firms but rather among "spider's webs" of organizations, which are networks of firms that have specialized knowledge and are geographically widely dispersed yet need to interact often and in depth (1997, pp. 228–229). Similarly, Porter links regional prosperity to the development of economic clusters, which are "geographically proximate groups of interconnected companies and associated institutions in a particular field, linked by commonalities and complementarities" (2001, p. 26).

These networks enhance competitiveness by providing firms with ready access to specialized suppliers, facilitating communication so that new needs and new processes come to light, giving firms the support and flexibility they need to take risks, and fostering the creation of entrepreneurial startups and spin-offs. Gulati, Nohria and Zaheer (2000) note that strategic networks provide access to information, resources, markets, and technologies; allow firms to share risks and outsource value-chain stages; and confer advantages from learning and scale and scope economies.

Many studies have found there is a systemic nature to technological advances, as demonstrated by Hughes (1983) of electrical power; Ruttan and Hayami (1984) of agricultural innovations; Kuhn (1962/1982) and Hull (1988) of scientific advances, Tushman and Anderson (1986) of technological revolutions in cement, minicomputers, and glass; Powell (1998) and Zucker and Darby (1997) of biotechnology, and Van de Ven and Garud (1993) of biomedical devices. Many complementary innovations in technical and institutional arrangements are usually required before a particular technology is suitable for commercial application (Binswanger & Ruttan, 1978). Developments in other complementary technologies and institutions often explain bottlenecks and breakthroughs in the development of a given technology. Thus, as Rosenberg (1983, p. 49) says, "What is really involved is a process of cumulative accretion of useful knowledge to which many people from business, education, research, and government make essential contributions, even though the prizes and recognition are usually

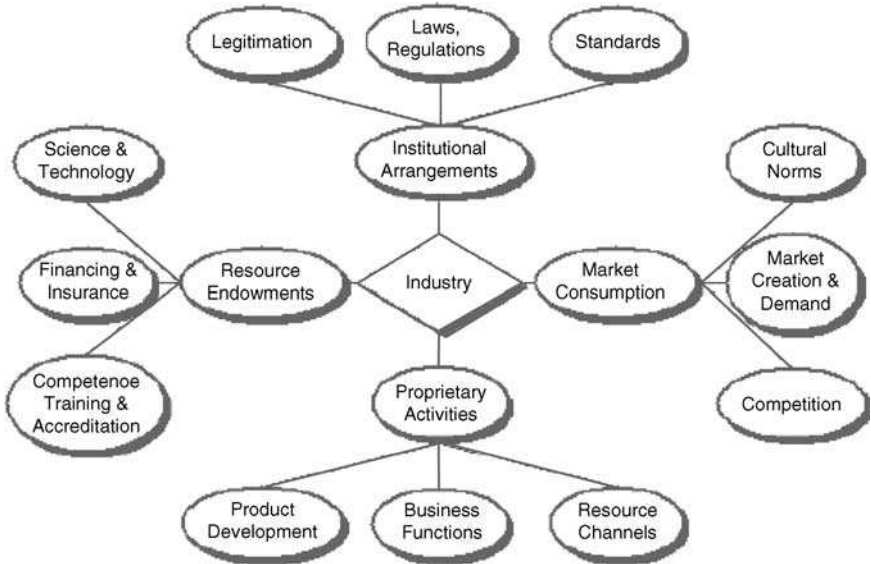


Fig. 2. An Infrastructure for Entrepreneurship. Source: Van de Ven, Polley, Garud and Venkataraman (1999).

accorded to an actor who happens to have been on the stage at a critical moment.”

The specific characteristics of an industrial infrastructure vary with the technology on which it is based. In general, Van de Ven and Garud (1989, 1993) propose a framework, shown in Fig. 2 that identifies the key infrastructure components for most industries. The framework adopts an augmented view of an industry as consisting not only of the set of firms producing similar or substitute products (Porter, 1980), but also many other public and private sector actors who perform critical roles in developing and commercializing a new technology. This industrial infrastructure includes the following four sub-systems:

*Institutional arrangements:* The governmental agencies, professional trade associations, and scientific/technical communities that legitimate, regulate, and standardize a technology.

*Resource endowments,* which include advancements in basic scientific and technological knowledge, financing and insurance arrangements, and training of competent professionals.

*Consumer demand.* For new-to-the-world technologies, informed, competent, and responsible consumers do not pre-exist; the market must be created.

*Proprietary activities,* which transform the available supply of public resources (scientific knowledge and work force competence) into proprietary products and services to meet customer demand.

This framework, developed initially from studies of the development of the cochlear-implant technology by Van de Ven and Garud (1989, 1993), has been extended in studies of technological communities by Garud and Rappa (1994); new business startups by Aldrich and Fiol (1994); the American film industry by Mezas and Kuperman (2000); flat panel display technologies by Murtha, Lenway and Hart (2001); and Java technology standards by Garud, Jain and Kumaraswamy (2002). As Powell argues, the organizational field of an emerging industry is not only multi-disciplinary but also multi-institutional. He writes that all the necessary skills and organizational capabilities needed to compete are not readily found under a single firm's roof and that technological process goes hand-in-hand with the evolution of the industry and its supporting institutions (1998, p. 233).

Thus, notwithstanding common folklore of the entrepreneur as a rugged individualist working alone, innovation is a collective achievement. This vision of corporate entrepreneurship as collective and emergent does not deny the importance of the role of individual entrepreneurs; instead it celebrates collective entrepreneurship. Numerous entrepreneurs in the public and private sectors play crucial roles in the construction of institutions for social and technical change.

This collective view of corporate entrepreneurship leads to the proposition that *the entrepreneurs who run in packs will be more successful than those who go it alone*. Traditional models of CE have emphasized that entrepreneurs act independently and compete to be the first into the market in order to reap monopoly profits from their new product or service. This strategy may be successful when the institutions of property rights to knowledge and technologies are clear and enforceable (e.g. with strong patents). Such situations seldom exist for knowledge-intensive service innovations because the institutions that govern intellectual property rights may not yet exist or need to be constructed while the innovation is being commercialized. In these situations, entrepreneurs place themselves into a risky and costly position if they choose to "go it alone." Running in packs means that entrepreneurs coordinate (i.e. simultaneously cooperate and compete) with others as they develop and commercialize their innovation. Running in packs is analogous to bicycle racers who cue their pace to one another and take turns breaking wind resistance until the ending sprint.

The argument for running in packs emphasizes that the interests of entrepreneurs with stakes in a technological innovation are both intertwined and divergent (Ben-Ner, 1993). The actors seek both to maximize their total surplus and their respective shares in the surplus. The total surplus amounts to creating an industry infrastructure that makes it collectively possible to commercialize a new technology. This draws actors together and drives them to cooperate because no one actor has sufficient resources, competence, or legitimacy to do it alone.

The goal of maximizing individual shares propels actors to compete with each other to reap entrepreneurial rents that derive from introducing a dominant technology or service. However, enlightened corporate entrepreneurs realize that the total expected value of reaping monopoly shares of an orphan technology are much lower than they are from gaining relatively small shares of a larger and growing new industry. This is perhaps why population ecology studies have found that having more competitors in a new organizational niche increases the survival probability of its members until a threshold level is reached where resource scarcity limits the growth of all members of a population (Carroll & Swaminathan, 2000; Hannan & Freeman, 1989). Gaining legitimacy is a key problem in the emergence of a new technology, and the growth of a critical mass of actors is often a prerequisite for legitimacy.

Large corporate entrepreneurs who go it alone to be the first movers often experience the greatest conflicts of interest because they tend to generate the greatest amount of visibility, which limits their abilities to capture significant proprietary advantages. This is because their dominance serves as a model that is imitated by others and diffused throughout the industry. Thus, the single actor who chooses to “go it alone” must bear significant first mover burdens which permit free-riding by others. In return for these burdens, first movers are generally believed to have the greatest degrees of freedom to shape institutional rules, standards, and legitimacy in the directions that benefit them the most (Porter, 1985).

However, studies show that these first-mover benefits are seldom achieved for technologies with weak appropriability regimes (i.e. those that are easy to imitate, reverse engineer, or substitute) (Teece, 1987). For example, Anderson and Tushman (1990) found that the original breakthroughs in cement, glass, and minicomputers almost never became the dominant design except where strong patent protection existed. As a result, the technological designs of the first movers often do not become the dominant design that ultimately yields the greatest profits. This is because while striking out to be the first to introduce a new technology, the first mover inevitably makes mistakes. And the followers, who are observing the practice of the first mover, can make adjustments in their own technologies. As a result, after the first mover has introduced the product in the market, then the second, third, and fourth movers, who have been carefully following the leader, often can rapidly introduce a more significant, advanced, and better product or service.

In short, there are strong economic motives for first movers to run in packs, not alone. Running in packs is necessary during highly ambiguous periods of innovation development when knowledge and interests change rapidly, when the costs of innovation exceed their proprietary benefits, and when property rights to an innovation are difficult to protect.

## THE LEADERSHIP PROBLEM – BALANCING PLURALISTIC INTERESTS

As we have discussed, CE involves many groups of people with potentially competing mental models and political interests from within and outside of the organization. The diverse views and interests of internal and external constituents involved in CE point to *the leadership problem of managing entrepreneurship in pluralistic settings*.

Pluralism involves interactions between powerful, interdependent groups within a social system, each with different, legitimate, and potentially competing interests. In a pluralistic organization, leadership roles between these interdependent groups are shared, objectives are often divergent, and power is diffuse (Denis, Lamothe & Langley, 2001). Van de Ven highlights the importance of pluralism in management research and practice in his 1999 Academy of Management meeting call for papers:

Organizations are growing larger in vertical and virtual connections, merging and acquiring others with colliding cultures, hiring more technical/professional workers . . . , interfacing in more competitive, international and global economies, and adopting widely distributed information technologies. The net result is *pluralistic organizations*, or the co-existence of groups with different, legitimate, and potentially competing strategies and mental models within the same organization, which itself is in the process of movement. In these pluralistic settings, we are challenged to examine how different mutually dependent groups accommodate and learn from each other as they co-evolve in their change and development journeys (2000, p. 3).

Katz and Kahn (1978) define leadership as acts of influence beyond mechanical compliance with routine directives on organizational-relevant matters by any member of the organization. This view suggests that almost any individual in an organization may act as a leader and that different persons may contribute in different and diverse ways to the leadership of the organization. In their review of leadership research, Katz and Kahn (1978) linked the distribution or sharing of leadership behavior with organizational effectiveness. Because the sharing of influence increases the quality of decisions and the motivation of organizational participants, Katz and Kahn proposed that the more influential leadership acts are widely shared, the more effective the organization.

This view of leadership calls attention to the difference between leadership as something done by a person, and leadership as a function shared by many people. Baveles (1960) distinguishes between leadership as a personal quality and leadership as an organizational function. The first remains the dominant view of leadership and leads us to look at the qualities, abilities, or behaviors of the individual leader at the top of the organizational pyramid. The latter refers to the distribution of decision-making power and influence throughout an organization. It leads us to

look at the patterns of influence and power exercised by organizational participants and the specific conditions or situations in which they exercise leadership.

In these terms we come close to the notion of leadership, not as a personal quality, but as an organizational function. Under this concept it is not sensible to ask of an organization, 'who is the leader?' Rather we ask 'how are the leadership functions distributed in this organization?' The distribution may be wide or narrow. It may be so narrow – so many of the leadership functions may be vested in a single person – that he [she] is the leader in the popular sense. But in modern organizations this is becoming more and more rare (Baveles, 1960, pp. 494–495).

The practice of shared leadership roles among many members of an organization is essential in managing pluralistic organizations. CE leaders are engaged in inherently paradoxical processes. Ford and Backoff define a paradox as "some 'thing' that is constructed by individuals when oppositional tendencies are brought into recognizable proximity through reflection or interaction" (1988, p. 89). When an established organization initiates an entrepreneurial venture, members must develop new understandings about the emerging innovations and businesses that may differ from their understandings about established technologies and businesses. Innovative and entrepreneurial activities require exploring new ideas, bending the rules, and creating new structures-actions that fit poorly within established organizational practices (Jelinek & Litterer, 1995). Organizations engaging in corporate innovation and entrepreneurship must strike a delicate balance between allowing members to develop their innovative and entrepreneurial ideas, yet also facilitating relationships and integration among all of the organization's members. This balancing extends beyond the organization's boundaries to include other organizations involved in building the infrastructure for developing and commercializing an entrepreneurial venture.

Leaders at all levels shape the internal and external contexts that either foster or impede effective social exchanges between the actors involved in managing the paradoxical tensions and conflicts that arise in corporate innovation and entrepreneurship within an existing organization and the larger industry. However, developing and applying the skills needed to manage these tensions and conflicts is not easy. Quinn's (1988) competing values framework of leadership roles (Fig. 3) emerged from a series of studies by Quinn and Rohrbaugh (1983) that identified the criteria of successful organizational leaders. They found that complex and dynamic organizations require managers to fulfill the many competing expectations. Quinn develops a typology of eight leadership roles.

*Innovator:* Creative, future-oriented, monitors external environment.

*Broker:* Politically astute, maintain external legitimacy, spokesperson.

*Producer:* Task-oriented, motivated to increase production, goal-oriented.

*Director:* Planning, goal setting, evaluates performance.

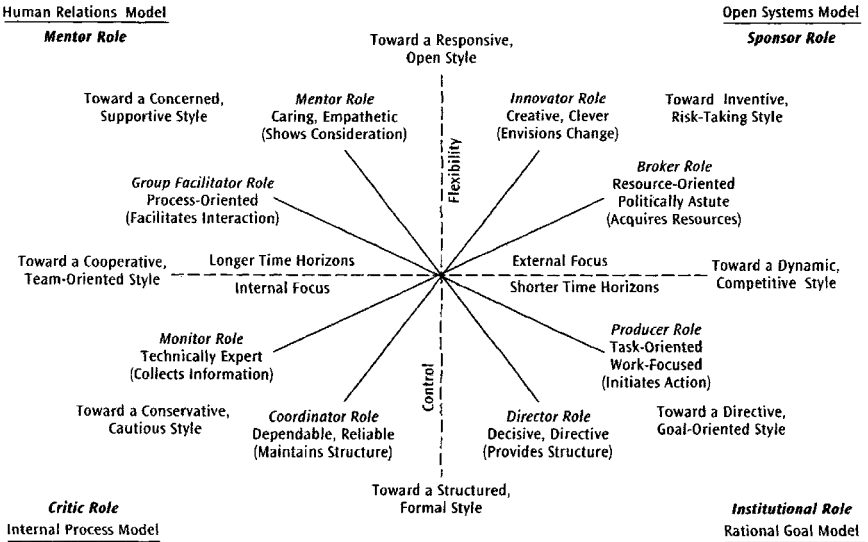


Fig. 3. Innovation Leader Roles Superimposed on Robert Quinn's (1988) Competing Values Framework of Leadership Roles. Source: Van de Ven et al. (1999, p. 114). Used with permission.

*Coordinator:* Scheduling, organizing, crisis management.

*Monitor:* Rule-oriented, assures compliance.

*Facilitator:* Build cohesion, conflict management, problem solving.

*Mentor:* People development, training, skill building.

Quinn (1988) argues that organizational effectiveness is the result of leaders maintaining a creative tension between contrasting organizational demands of control versus flexibility and internal focus versus external focus. Quinn finds that effective managers are able to move in and out of these various leadership roles while ineffective managers have great difficulty balancing competing philosophies and roles. Ineffective managers "... become trapped in their biases. Effective managers have a variety of styles. Although they may have one or two roles that are underplayed, their profiles are far more balanced than the profiles of ineffective managers" (1988, p. xviii).

Bartunek (1993) points out that achieving balanced diversity as required in a pluralistic organization calls for strong leadership to tolerate the ambiguity of holding multiple perspectives, balance the power among managers with different perspectives, and enable their interaction toward a creative outcome. In the cases where she observed such balanced internal diversity, leaders used a negotiation



approach to issue management, like that described by Ury, Brett and Goldberg (1988). Bartunek notes that where a negotiation style was used, the eventual resolution of conflicts brought about a more complex and creative understanding than had been present before. The outcomes occurred in part because powerful people were able to hold their own perspectives while also respecting and understanding alternative perspectives of others.

Leading in pluralistic settings represents a significant departure from popular treatments of leadership, which emphasize unity and consensus among the organization's leaders around a single, common strategic vision. A unified homogeneous leadership structure is effective for routine trial-and-error learning by making convergent, incremental improvements in relatively stable and unambiguous situations. However, this kind of learning is a conservative process that serves to maintain and converge organizational routines and relationships toward the existing strategic vision. As Levinthal (1997) discusses, while such learning is viewed as wisdom in stable environments, it produces inflexibility and competency traps in changing worlds.

Peter Senge (1994) argues that the search for heroic leaders may be a critical factor diverting our attention away from building organizations that, by their very nature, continually adapt and reinvent themselves.

It is extremely easy to think of "leaders" as those few special people who bring about significant institutional change. This leads to an endless search for real *Leaders*, heroic figures who can rescue us from recalcitrant, non-competitive institutions. But the search for leaders might actually divert our attention from a deeper need – the need to understand why it is that those institutions find it so hard to evolve in the first place. Failing to create institutions that, by their very nature, continually adapt and reinvent themselves keeps us "hooked" on heroic leaders as our only hope for survival. This sets up a reinforcing spiral of crisis and responses in the form of new, still more heroic leaders. The price we pay is incalculable: institutions that lurch from crisis to crisis, continually stress on the members of those institutions . . . the belief that the common people are powerless to change things – only the mythical leaders have such power (Senge, 1994, p. 2).

Pluralistic leadership encourages expression of the requisite variety of diverse perspectives that are needed for learning by discovery (Polley & Van de Ven, 1995). This type of learning entails mindful alertness to anomalies (Jelinek, 1997) shifting core assumptions and decision-making premises, developing new interpretive schemes (Bartunek, 1993), unlearning prior premises and established routines (Virany, Tushman & Romanelli, 1992), and creating a learning community (Senge, 1994). While routine trial-and-error learning reduces variety by focusing on a singular vision, learning by discovery increases the variety and diversity of perspectives from which new understandings and objectives can emerge (Hedberg, Nystrom & Starbuck, 1976). Thus, a *pluralistic leadership*

*structure increases the chances for technological foresights and decreases the likelihood of oversights, enhancing an organization's ability to engage in innovative and entrepreneurial activities.*

## CONCLUSION

Corporate entrepreneurship has been defined as new business creation within an existing organization as well as renewal and innovation of the organization. CE is centrally concerned with innovation. Innovation is the development and implementation of new ideas by people who engage in transactions with others within the organizational and industry contexts over time.

As these definitions suggest, four basic concepts are central to studying CE over time: people, process, industry, and leadership. Associated with these four concepts are four central problems in the management of CE: managing attention, developing ideas into good currency, developing the industry infrastructure, and managing the pluralistic context. Although these concepts and problems have diverse origins in the literature, previously they have not been combined into an interdependent set of critical concepts and problems for studying corporate innovation and entrepreneurship management.

What leads people to pay attention to new ideas? We argued that an understanding of this issue should begin with an appreciation of the physiological limitations of human beings to pay attention to non-routine issues and their corresponding inertial forces in organizational life. The more specialized, insulated, and stable an individual's job, the less likely that individual will recognize a need for change or pay attention to innovative ideas. Likewise, as established organizations develop a dominant logic about how to manage existing businesses, the less likely organizations will be to pay attention to innovative and entrepreneurial ideas even when environmental signals of the need for change are abundant. It was proposed that attention must be managed in organizations to trigger the action thresholds of members to innovate and engage in entrepreneurial activity.

An invention or creative idea does not become an innovation until it is implemented or institutionalized. Indeed by most standards, the success of an innovation is largely defined in terms of the degree to which it gains good currency (i.e. becomes an implemented reality and is incorporated into the taken-for-granted assumptions and thought structure of organizational practice). Thus, a key measure of innovation success or outcome is the currency of the idea, and a basic research question is how and why do some new ideas gain good currency while the majority do not? Based on work by [Schon \(1971\)](#), [Quinn \(1980\)](#), and others, we think the answer requires longitudinal study of the social and political processes

by which people become invested in or attached to new ideas and push them into good currency.

Once people begin to pay attention to new ideas and become involved in a social-political process with others to push their ideas into good currency, a third problem of developing the industry infrastructure emerges. A common characteristic in the development of innovations is that multiple functions, resources, and disciplines are necessary to transform innovative ideas into reality – so much so that individual organizations involved in specific transactions or parts of the innovation lose sight of the whole innovative effort. If left to themselves, they will design impeccable microstructures for the innovation process that often result in macro-nonsense. The running in packs metaphor was proposed for designing the innovation process in such a way that individual organizations cooperate with other organizations, industries, and nations since no actor has sufficient resources, competencies, or legitimacy to do it alone. The growth of a critical mass of actors is often a prerequisite for gaining the legitimacy needed to establish an innovation or new venture.

Finally, members of entrepreneurial organizations often hold different mental models and competing political interests and work within an environment of other actors with equally diverse views. This points to the leadership problem of managing the context for corporate innovation and entrepreneurship. In order to capitalize on internal and external diversity, we argued that leaders must engage in pluralistic leadership to manage the tensions created by contrasting organizational and industry demands. Pluralistic leadership involves sharing and rotating leadership roles with others, developing mindful alertness to anomalies, absorbing ambiguity by means of mutual support, and information sharing within the organization and across organizational boundaries.

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# THE RELEVANCE OF THEORIES OF CHANGE FOR CORPORATE ENTREPRENEURSHIP SCHOLARS

Dawn R. DeTienne

## INTRODUCTION

Corporate entrepreneurship is a process of organizational change within established firms, which involves creation, transformation and/or the development of an entrepreneurial philosophy (Covin & Miles, 1999; Guth & Ginsberg, 1990; Schendel, 1990; Sharma & Chrisman, 1999; Zahra, 1993). Researchers and executives alike emphasize the importance of change in corporate entrepreneurship. According to Stevenson and Jarillo-Mossi (1986, p. 14), “If a company wishes to continue to be entrepreneurial, it must convince everyone that change is the company’s overriding goal,” or, as stated by Michael Dell, “The only constant in our business is that everything is changing” (Brown & Eisenhardt, 1998, p. 1).

Various theoretical perspectives have been developed to explain organizational change, yet these theories have had limited use in entrepreneurship literature. The objective of this chapter is to explore how these theories explain change in entrepreneurial organizations and to highlight important streams of research and research questions. This chapter is not completely inclusive of all theoretical perspectives. Rather, it highlights those perspectives (organizational ecology, evolutionary, continuous change, and cognitive theory) wherein the basis for change is transformation through technology or product innovation. Because innovation is a primary way by which organizational change occurs (Burgelman, 1991; Chakravarthy, 1997; Eisenhardt & Tabrizi, 1995), this research

points to the importance of an in-depth understanding of these theoretical perspectives.

Underlying each of these theories are differing perspectives on the role of the environment, the organization, the leadership, and the individual members of the organization. For example, theories of population ecology have focused primarily upon “selection processes as represented by the study of organizational mortality” (Swaminathan, 1996, p. 543) and the role of the environment. Other theoretical perspectives on organizational change have focused upon individual cognition and how individuals “uniquely interpret complex and changing environments, and how knowledge informs action” (Huff & Huff, 2000, p. 14). Each of the theories of change addressed in this chapter will be explored through historical development (original thinkers, fields of study and influential research that brought the theories to the organization), level of analysis, time frame, change agents, contributions to corporate entrepreneurship, and finally future research questions proposed by each of the prominent theories.

This chapter begins with a discussion of the relationship between organizational change and corporate entrepreneurship followed by a section on each of the theoretical perspectives. These individual sections will include the historical development of the theory and current and potential contributions of the theory. Each section will conclude with future research questions. Charts are provided that allow the reader to analyze the differing aspects of each theory. This chapter does not suggest that there is one theory that is best suited to explain corporate entrepreneurship, but, to borrow a phrase from strategic management scholars Prahalad and Hamel (1994, p. 15), there is “an abundance of issues which can be studied from a multiplicity of theoretical vantage points.” This is certainly true for corporate entrepreneurship.

## **ORGANIZATIONAL CHANGE AND CORPORATE ENTREPRENEURSHIP**

Corporate entrepreneurship has developed as a prominent way by which organizations change and transform (Covin & Miles, 1999; Lumpkin & Dess, 1996). In 1990, Guth and Ginsberg described corporate entrepreneurship as comprising two types of change: (1) the birth of new businesses within existing organizations (i.e. internal innovation or venturing); and (2) the transformation of organizations through strategic renewal. The first type of change is most often referred to as corporate venturing and is defined as “an activity which seeks to generate new businesses for the corporation in which it resides through the establishment of

external or internal corporate ventures” (Von Hippel, 1977, p. 163). Corporate venturing has been well documented in the corporate entrepreneurship literature (cf. Block & MacMillan, 1993; Burgelman, 1983). The second type of change described by Guth and Ginsberg (1990) is transformation through strategic renewal. Strategic renewal “refers to the revitalization of the company’s operations by changing the scope of its business, its competitive approach, or both” (Zahra, 1996, p. 1715). Stopford and Baden-Fuller (1994) found that troubled firms in hostile environments can adopt policies fostering entrepreneurship, thereby strategically renewing their organizations and significantly impacting the industry rules and structures.

Covin and Miles (1999, p. 48) point to a third type of change that is finding prominence in corporate entrepreneurship literature – that of “an entrepreneurial philosophy that permeates an entire organization’s outlook and operations.” Organizations seek to develop this entrepreneurial philosophy as a way to permanently transform rather than to regularly implement some new change ideas. This entrepreneurial philosophy has been described in the literature in various terms including entrepreneurial management (Brown, Davidsson & Wiklund, 2001; Stevenson & Jarillo, 1990), entrepreneurial posture (Covin & Slevin, 1991), and entrepreneurial orientation (Lumpkin & Dess, 1996; Ramachandran & Ramnarayan, 1993). According to Stevenson and Jarillo (1990, p. 25), entrepreneurial management concerns “the quest for growth through innovation, be this technological or purely managerial.” Brown, Davidsson and Wiklund (2001) developed a twenty-item testing instrument for Stevenson’s conceptualization of entrepreneurial management. Through factor analysis, they found six dimensions of entrepreneurial management: strategic orientation, resource orientation, management structure, reward philosophy, growth orientation, and entrepreneurial culture. This research points to the importance of opportunity-based management practices in the quest for growth and value creation through innovation.

Covin and Slevin (1991) contend that organizational posture involves three types of organizational-level behaviors: risk taking, extensiveness and frequency of product innovation, and the pioneering nature of the firm (propensity to complete aggressively). Lumpkin and Dess (1996, p. 136) defined entrepreneurial orientation as the “processes, practices, and decision-making activities that lead to new entry” and identified five dimensions of an entrepreneurial orientation: autonomy, innovativeness, risk taking, proactiveness, and competitive aggressiveness. Several empirical studies have relied upon these five dimensions to identify corporate entrepreneurship (cf. Wiklund, 1999; Zahra & Covin, 1995).

In each of the three types of corporate entrepreneurial change listed above (corporate venturing, transformation and the development of an entrepreneurial

philosophy), innovation plays a critical role. Stopford and Baden-Fuller (1994, p. 522) observed “most authors accept that all types of entrepreneurship are based on innovations that require changes in the pattern of resource deployment and the creation of new capabilities.” Dougherty (1996, p. 424) describes this relationship between change and innovation when she states “innovation enables organizations to improve the quality of their output, revitalize mature businesses, enter new markets, react to competitive encroachment, try out new technologies, . . . develop alternative applications for existing product categories, to name just a few outcomes.” Innovation, in this context, most certainly refers to product innovation, but could also include innovations in processes, structure, and human resources.

To the observer, the constructs of organizational change, corporate entrepreneurship, and innovation can seem convoluted. What occurs first? Which construct leads to the other? It might help to use the analogy of an automobile. The automobile serves as a vehicle of change for individuals. It allows people to get from point A to point B (a desired future state). Corporate entrepreneurship is also a vehicle of change. It allows organizations to get to some desired future state. The type of automobile you choose is dependent upon your destination/needs/desires. The same is true for change within corporate entrepreneurship. Some firms will find that they are best suited to adapt/change through the creation of new ventures, others through strategic renewal and still others through the development of an entrepreneurial philosophy. Despite the type of vehicle you choose, you still need a driver of change. Even if you have purchased the right vehicle you will not get to point A until you actually drive the vehicle away from the curb. Innovation plays that role within the entrepreneurial organization. Innovation is the action that is undertaken and a driver of change in the organization. March (1981, p. 569) states “students of innovation in organizations have persistently observed that both innovations and organizations tend to be transformed during the process of innovation.”

Without innovation, corporate entrepreneurship would be analogous to a beautiful automobile without a driver – attractive, appealing, and useless to move in the desired direction. CEOs and/or entrepreneurial champions can “talk” entrepreneurship, but until they understand how change occurs and take steps to enhance the corporate environment for innovation, they will be constantly trying to catch those who do. Covin and Miles (1999, p. 49) state it succinctly “without innovation there is no corporate entrepreneurship.”

I now turn to discussions of each of the theoretical perspectives. These perspectives were chosen because they provide insight into change at all levels of analysis – beginning with a macro perspective which focuses on the role of the environment and working toward the micro level which focuses on the role of individual thought.

## ORGANIZATIONAL ECOLOGY

### *Historical Development*

The theory of organizational ecology has been defined as “sociology’s quantitative study of organizational vital rates (founding, growth, and mortality) that emphasizes the force of external selection over internal adaptation” (Van Witteloostuijn, 2000, p. vi). This perspective “argues that organizational survival is determined by environmental selection.... While managers develop and implement strategies, these strategies do not directly determine success. Instead, they are one of many sources of random variation that will be selected – for, or against – by the environment” (Tsai, MacMillan & Low, 1991, p. 9). Although the terms organizational ecology and population ecology appear to be used synonymously at times, real differences exist. Population ecology was first introduced by bioecologists and is an extension of Darwinian biology. Organizational ecology (OE), ironically, “is an adaptation of the population ecology model of bioecologists to populations of organizations” (Hawley, 1988, p. xii). Some of the primary concepts of population ecology models have been carried over to organizational ecology (i.e. environmental selection) and others have been developed specifically for organizational ecology (i.e. niche density) (Table 1).

Although researchers (i.e. Carroll, 1988) contend that the organization ecology movement began with Hannan and Freeman’s (1977) revolutionary article on the population ecology of organizations, the earlier work by Campbell (1969) had an impact on theoretical development. According to Campbell (1969), three generic processes occur as organizations struggle over scarce resources: variation, selection, and retention. In the OE perspective, the process of variation occurs at the birth of the organization and is introduced through new organizations.

However, OE is primarily a selection model of organization change, wherein selection processes are the result of a fit between organization and environment (Carroll, 1988). The dynamics that determine organizational selection are the conditions at organization founding (Boeker, 1988) such as legitimacy (Aldrich & Fiol, 1994), inertial forces such as barriers to entry and sunk costs (Hannan & Freeman, 1984), and the density (number) of organizations in a given population (Hannan & Freeman, 1988). For example, firms founded during high-density periods have genetic weaknesses due to scarceness of resources. In addition, “selection processes favor large, generalist organizations” (Agarwal, Sarkar & Echambadi, 2002, p. 975). However, as market concentration increases, large incumbents are pushed toward the center of the resource space, which frees up niche opportunities for smaller, specialized entrants.

**Table 1.** Theories of Change and Historical Development.

Date	Original Thinkers and Classic Works	Field of Study
<b>Organizational ecology theory</b>		
1950, 1968	Hawley questions why there are so many kinds of organizations and contends that the diversity of organizational forms is isomorphic to the diversity of environments; populations studied must have unitary character.	Human ecology
1961	Burns and Stalker contend that organizations are subject to inertial pressures.	Management
1969	Campbell identifies three generic processes that occur as orgs struggle over scarce resources: variation, selection and retention.	Sociology
1977	Hannan and Freeman extend the work of Hawley; they contend that there are large limitations on the ability of organizations to adapt (through strategic choices); patterns of organizations are due to selection processes; explicit focus on populations of organizations.	Sociology
1984	Hannan and Freeman contend that individual organizations are subject to such strong inertial forces that they are unable to make radical changes in strategy or structure in the face of environmental threats.	Sociology
1988	Hawley states "organizational ecology is an adaptation of the population ecology model of biologists to populations of organizations."	
1988	Carroll contends cross-sectional data is not appropriate for OE studies which must employ longitudinal data.	
1988	Hannan and Freeman further develop niche concept and density dependence.	
1988	Boeker contend choices made early in the development of organizations shape and constrain future options.	
1999	Aldrich reminds us that selection processes, within ecology models, result from degree of fit between organizations and their environments; DV is usually events – foundings, disbandings and occasionally transformations.	
2002	Agarwal, Sarkasr & Echambadi find that it is vital to incorporate the effects of time in OE models.	
<b>Evolutionary theory</b>		
1859	Darwin publishes "Origin of the species"	Biology
1899	Mead is one of the first to apply evolutionary theory to social science in his work on social reform in the American Journal of Sociology.	Sociology
1961	Ginsberg proposes that the development of the Indo-European languages shows evolutionary processes as early as 1788.	Linguistics

Table 1. (Continued)

Date	Original Thinkers and Classic Works	Field of Study
1969	Campbell brings evolutionary theory to the social sciences with his classic “Variation and Selective Retention in Socio-Cultural Evolution.” He focuses upon those social processes (variation, selection and retention) which would make an evolutionary process possible at the societal level.	Economics
1982	Nelson & Winter developed an evolutionary theory of the capabilities and behavior of firms operating in a market environment.	
1994	Baum & Singh edited “Evolutionary Dynamics of Organizations.” The principle focus was on the hierarchical nature of organizational evolution. The four sections were divided into intraorganization, organization, population and community evolution.	
1996	Schendel edited a special issue of Strategic Management Journal on Evolutionary Perspectives on Strategy	
1999	Baum & McKelvey	
1999	<a href="#">Aldrich (1999: 40)</a> publishes the “encyclopedia” on evolutionary theory contending that “evolutionary theory applies to many levels of analysis: groups, organizations, populations and communities” and that external selection forces are not deterministic.	
Continuous change theory in management literature		
1963	Maruyama contends through work in cybernetics that small changes do not stay small	
1996	Orlikowski finds fundamental changes occur as the result of a series of ongoing and situated accommodations	
1997	Brown and Eisenhardt explore processes of firms that continuously innovate	
1999	Weick and Quinn contrast episodic change with continuous change and contend that change is an ongoing mixture of reactive and proactive modifications, guided by purposes at hand	
1999	Covin and Miles use the term “sustained regeneration” to refer to continuous change	
2001	Pettigrew, Woodman and Cameron call for research into continuous change	
2001	Peterson & Meckler find that radical changes can be directly dependent on incremental, predictable change	

Other major components of OE theory include the unitary characteristic of populations wherein members of a given population are affected similarly by changes in environment (Hawley, 1968), and the inability of organizations to change form – at least quickly or routinely (Hannan & Freeman, 1988). Other components include a competitive interdependence which drive organizations to find niches (Hawley, 1988), a long-term perspective (Dess & Beard, 1984), use of longitudinal data rather than cross-sectional data (Barnett & Burgelman, 1996), events (foundings, transformations and disbandings) as dependent variables (Baum & Singh, 1994), and levels of analysis that tend to be at the organization and population levels (Dess & Beard, 1984).

A current issue in OE theory is whether the theory should evolve to include other concepts or whether it is sufficient as it stands. Some current researchers (i.e. Pfeffer, 1993) have called for a relatively rigid adherence to the theoretical perspectives of the founders in order to maintain a high degree of consensus, as well as consistency, in methods and dependent variables. Others indicate that the tenants of the theory should be relaxed. They contend that the tenants have become blurred with other theoretical perspectives, such as transaction cost theory and evolutionary theory. For example, Amburgey and Rao (1996), in their introduction to an Academy of Management Special Issue on Organizational Ecology, suggest that OE should include concepts of adaptation and become a theory that “can include new concepts and technique that arise.”

Another current issue is the appropriate level of analysis. Early theoretical development (i.e. Hannan & Freeman) proposed that the population is the correct level of analysis. This tenant has been relaxed to include both the population (industry) and the organization (Van Witteloostuijn, 2000). Other researchers (i.e. Swaminathan, 1996, p. 543) call for the use of OE to include “problems at the intraorganizational and community levels of analysis.” For example, Shane and Stuart (2002) use data on the life histories of 134 firms, founded to exploit MIT inventions, to investigate the question of how the initial resource endowments of the entrepreneur affect organizational survival.

### *Potential Contributions to Corporate Entrepreneurship*

Recent research into OE, innovation, and entrepreneurship have included the following research streams: liability of newness (Shepherd, Douglas & Shanley, 2000), liability of smallness (Venkataraman & Van de Ven, 1998), liability of adolescence (Mahmood, 2000), and national environments for entrepreneurs (Shane & Kolvereid, 1995). What other topics in corporate entrepreneurship and innovation can OE theory address? Three areas of corporate entrepreneurship



research amenable to the OE perspective include: (1) Internal venture applications; (2) Environmental effect on project retention; and (3) Absorptive capacity. I now propose future research questions that may be explored using OE theory.

Previous research indicates that there is a liability of newness and smallness in entrepreneurial ventures. However, we have yet to explore these phenomena in a corporate entrepreneurship context. Future research should explore whether liability of newness is more prevalent in start-ups or in internal ventures. We may discover that internal ventures are protected from liability of newness pressures or that the honeymoon period is extended because of better or longer term funding through the parent organization. If empirical research bears out this proposition, internally funded ventures may have the ability to reach positive cash flow faster than start-ups.

Organizational ecology theory indicates that the environment is the primary selector of firms that survive. A significant rich area of research is how the environment affects projects within the firm. Specifically, do environmental jolts affect all projects evenly or are firms more likely to eliminate “new” projects? For example, if a firm experiences an environmental jolt (e.g. terrorism threat for an airline), is the firm likely to move resources from one project to meet an immediate need? Which projects are most likely to be eliminated or no longer funded? Furthermore, which types of projects are likely to be funded? Do some firms seek to “hit the big one” thereby minimizing their long-term liability while other firms are more likely to fund several small projects rather than a few large ones (a reverse application of the liability of smallness perspective)? What affect does this have on survival rates?

Organizational ecology also anticipates that organizational slack or absorptive capacity will affect the survival of firms. Hannan and Freeman (1977, p. 949) state: “populations of organizational forms will be selected for or against depending upon the amount of excess capacity they maintain and how they allocate it.” Future research will be important to understand the relationship between the amount and type of absorptive capacity and firm survival. For example, will generalist firms (those with high levels of absorptive capacity) be better positioned to survive in chaotic environments? What is the appropriate amount of absorptive capacity given a particular industry? Research should explore the possibility that there is an inverse U-shaped relationship between opportunity recognition and/or innovation and absorptive capacity (e.g. Nohria & Gulati, 1996) wherein both too little and too much may be detrimental.

Another area of interest in relation to absorptive capacity and corporate entrepreneurship is how to operationalize the construct of absorptive capacity. Currently much of the empirical research has operationalized it as investments in R&D personnel, R&D intensity and/or investments in scientific and technical

training. Although these variables may contribute to the construct, it is likely that absorptive capacity should include some measure of how “firms acquire, assimilate, transform and exploit knowledge” (Zahra & George, 2002, p. 186). Further development of the construct will make it possible to better empirically test the relationships between absorptive capacity and firm survival.

Each of the three areas listed above discusses important areas of research within OE and the entrepreneurial firm. Although many questions were posed, they certainly are not inclusive. The research in OE is in position to guide our thinking toward some of these questions.

## EVOLUTIONARY THEORY

### *Historical Development*

Evolutionary theory provides a generic framework for understanding social change by focusing on processes of variation, selection, retention, and struggle (Aldrich, 1999). Although most individuals contend socio-cultural evolution began with the work of Darwin, others propose that these perspectives appeared in early linguistics and were apparent in early Greek literature (Campbell, 1969; Ginsberg, 1961). The first to bring evolutionary theory to the social sciences, Campbell (1969, p. 69) explains evolutionary theory in this manner: “. . . it is technology, language, social organization, and culture that are evolving,” through processes of variation, selection, and retention. He goes on to point out the importance of evolutionary theory to our understanding of innovation: “The fact that variation-and-selective-retention theory strongly predicts independent invention makes it very appropriate to the data on independent discovery and invention in science and technology” (Campbell, 1969, p. 78). Campbell’s work was followed by Nelson and Winter’s (1982) application of evolutionary theory to economic change.

Nelson and Winter (1982, p. 18) were primarily concerned “with the dynamic process by which firm behavior patterns and market outcomes are jointly determined over time.” Their view of evolutionary theory (ET) was designed as a major reconstruction of orthodox economics and follows this logic: Firms have, at any given time, certain capabilities and routines that are modified over time as a result of both random events and deliberate problem-solving efforts. Over time, natural selection processes occur as the market determines which firms are profitable and which need to be winnowed out (Nelson & Winter, 1982). Although organizations are selected through processes of external selection, these processes are not deterministic. According to Aldrich (1999, p. 40), “indeterminacy is a key feature of evolutionary analysis, and human agency is very much a part of the explanation.”

Although often misidentified as a clone to population ecology theories, ET should be viewed as having a more distinct DNA stream – more of a “cousin.” Evolutionary theory borrows from population ecology no more than it borrows from other theoretical perspectives (e.g. organizational learning, institutional theory and resource dependence theory). Van Witteloostuijn (2000, p. vii) contends that organizational ecology is a “branch of the evolutionary tree” and is in the center of evolutionary approaches. Aldrich (1999) argues that the differences between ET and population ecology theories are based upon how the different perspectives view the four generic processes: variation, selection, retention, and struggle over scarce resources. The discussion below regarding these differences flows directly from Aldrich (1999). Evolutionary theorists view the process of variation as having one of two possible sources: intentional (problemistic search) and blind (accidents, chance). Population ecologists view the process of variation as having occurred at the birth of the organization with variation introduced through new organizations.

The generic process of selection is also different. Evolutionary theorists view selection processes as both external (market forces, competitive pressures) and internal (bureaucratization) and population ecologists view selection processes as resulting from a fit between organization and environment. Retention in the evolutionary model occurs when selected variations (routines, structures, procedures) are preserved. The population ecology view is that organizations are structurally inert with decision makers retaining those traditional practices that lock existing structures in place. Finally, evolutionary theorists argue that underlying selection is the issue of scarcity of resources that causes organizations and individuals to struggle for legitimacy. In short, ET borrows from several theoretical perspectives in combining its overall theoretical perspective. For example, it borrows heavily from the organizational learning literature in the retention phase, from institutional theory in the internal selection phase, and from resource dependence theory in the struggle phase. Aldrich (1999) asserts there are at least six different theoretical perspectives on which evolutionary explanations can draw: the four discussed above (organizational ecology, organizational learning, institutional theory, and resource dependence theory) as well as interpretive theory and transaction cost economics.

### *Potential Contributions to Corporate Entrepreneurship*

Because of the number of theoretical perspectives that are subsumed within evolutionary theory, it is not surprising that it is the most used theory in recent organizational studies. The number of peer reviewed articles utilizing ET is remarkable. *Strategic Management Journal* published a special issue in 1996 on evolutionary perspectives on strategy and since that time has published two

dozen articles utilizing an evolutionary perspective. During that same time frame, *Management Science* published over a dozen articles, and the *Academy of Management Journals* published nearly a dozen.

However, very few of these articles addressed corporate entrepreneurship or innovation. A few exceptions are the use of ET to explain the technological positions of the ten largest Japanese semiconductor producers from 1982 to 1992 (Stuart & Podolny, 1996), a study of the U.S. bicycle industry from 1880 to 1918 (Dowell & Swaminathan, 2000), an evolutionary perspective on corporate restructuring including entry and exit (Chang, 1996), an evolutionary model that contrasts hot spots and blind spots in geographical cluster of firms and innovation (Pouder & St. John, 1996), and a study into how initial resource endowments affect organizational life chances (Shane & Stuart, 2002). It is surprising that little research in entrepreneurship utilizes the evolutionary approach when “an evolutionary approach studies the creation of new organizational structures (variation), the way in which entrepreneurs modify their organizations and use resources to survive in changing environments (adaptation), the circumstances under which such organizational arrangements lead to success and survival (selection), and the way in which successful arrangements tend to be imitated and perpetuated by other entrepreneurs (retention) (Aldrich & Martinez, 2001).”

What are the important topics in corporate entrepreneurship and innovation that ET can address? Applying Aldrich and Martinez’s (2001) four conceptualizations of the value of evolutionary theory to entrepreneurship, I propose that ET may be positioned to help understand the following phenomena: In the arena of variations, areas of future research may include the question of how firms create new entrepreneurial ventures – is it primarily through external alliances (Legnick-Hall, 1992), acquisitions (Zahra, 1995), spin-offs, venture incubation (Lee, 2003), or management buy-outs (Singh, 1990)? For example, it would be beneficial for both researchers and practitioners to understand how the different variations of new ventures affect the life cycle of the firm, the time to first sale, the long term performance, and ultimately the survival. We may find that one form (e.g. spin-offs) leads to a reduced time to first sale and therefore allows these firms to become market leaders. Or we may find that another form (e.g. venture incubation) leads to an inability to separate the firm from the parent firm and therefore stalls in its development.

Furthermore, we might be interested in the relationship between the existing firm and the new firm (despite the form of creation). How should these relationships be structured to provide synergy for both firms? Since at least 90% of all radical innovation comes from small and emerging firms, perhaps large firms would be better served to “plant new ventures” through spin-off processes. We might actually be experiencing a reverse of the acquisition logic, which assumes that firms can

“purchase” resources and capabilities, to a perspective wherein firms spin-off new ideas and opportunities. These ventures may not be subjected to liability of newness pressures because of the networking and resource sharing of the larger firm.

In the area of adaptation, we investigate the use of resources as vehicles for adaptation. For example, can opportunity recognition become a valuable and rare resource for the corporate venture (Alvarez & Busenitz, 2001), and if so, how do we develop that resource? Future research should explore how opportunities are currently identified in the firm. At the individual level there are several theoretical perspectives (e.g. systematic search, passive search, fortuitous discovery, and learning) that suggest processes of opportunity identification. Whether these theoretical perspectives are valid in the corporate entrepreneurial environment remains to be explored. If they are not, grounded theory methods should be employed to better understand how opportunities are identified in the firm and whether individuals can be trained or conditioned to become alert to opportunity identification. Furthermore, researchers interested in human resources, might explore how compensation and reward systems might lead to opportunity recognition as a competitive advantage. For example, would individuals be motivated to recognize opportunities if they were rewarded for doing so? What type of rewards (extrinsic vs. intrinsic) would best motivate employees?

In the areas of selection and retention, we might ask how a firm’s orientation affects its ability to develop innovation and to survive. Specifically, does the development of an entrepreneurial philosophy (Covin & Miles, 1999) positively relate to innovation and firm performance and is therefore part of the selection/retention process? Future research should explore what components of an entrepreneurial philosophy (e.g. entrepreneurial orientation factors [Lumpkin & Dess, 1996]; entrepreneurial management factors [Stevenson & Jarillo, 1990]) are critical success factors. Each of the four areas of ET conceptualized by Aldrich and Martinez (2001) as adding value to entrepreneurship literature are explored above. Some (certainly not all) future research questions are listed. ET is, and will continue to be, an important theoretical perspective to guide our thinking about innovation and corporate entrepreneurship.

## CONTINUOUS CHANGE

### *Historical Development*

Continuous change is a theoretical framework used to describe organizational changes that are ongoing and cumulative. “Continuous change is driven by alertness and the inability of organizations to remain stable. Change is an

ongoing mixture of reactive and proactive modifications, guided by purposes at hand" (Weick & Quinn, 1999, p. 379). In their challenge for future research into organizational change, Pettigrew, Woodman and Cameron (2001, p. 704) call for the "rare, but much-needed research" that "treats change as a continuous, non-episodic phenomenon." They describe continuous change as "small, uninterrupted adjustments, created simultaneously across units, which create cumulative and substantial change." For example, Hewlett Packard transformed from an instrument company to a computer company through continuous changes in new product development. Covin and Miles (1999), use the term "sustained regeneration" to describe the type of change in which corporate entrepreneurial firms regularly and continuously introduce new products or services.

The definitions should not be construed to imply that continuous change is incremental innovation. On the contrary, researchers are quick to point out that continuous change is cumulative and substantial. In his research on complexity theory and second cybernetics, Maruyama (1963) showed that small changes do not stay small. Continuous change can in fact be quite paradigm breaking if it occurs at the edge of chaos. This viewpoint is succinctly stated by Orlikowski (1996, p. 66) in her work on continuous change: "Each variation of a given form is not an abrupt or discrete event . . . . Rather, through a series of ongoing and situated accommodations, adaptation and alteration, sufficient modification may be enacted over time so that fundamental changes are achieved . . . . Each shift in practice creates the conditions for further breakdowns, unanticipated outcomes and innovation which in turn are met with more variations."

An organization that is poised to change continuously is associated with many of the following characteristics: task authority rather than hierarchical authority; self-organizing rather than fixed systems; ongoing job redefinition; transformation through continuous altering of products; and mindful construction of responses in the moment rather than mindless application of past routines (Brown & Eisenhardt, 1997; Burgelman, 1991; Weick & Quinn, 1999; Wheatley, 1992). Brown and Eisenhardt (1998, p. 4) referred to those firms that are able to continuously innovate as firms "competing on the edge." These firms are able to balance the structure necessary to be functional with the agility required to change continuously.

As one looks to the market for examples of firms that appear to include some of the above characteristics, we think of firms such as Dell, GE, and 3M. These firms exhibit continuous change and provide examples of firms where change is not planned, deliberate, routine, standardized, or controlled. Rather, change in this context is unscheduled, emergent, non-routinized and at times uncontrollable.

The research into this type of change is relatively new, but early work seems to suggest that the processes of improvisation, experimentation, translation,

learning and time-paced transitioning are valuable for firms that continuously change. Improvisation is described as something performed or done without any preparation or set text to follow (Orlikowski, 1996). Experimentation is an attempt “to gain insight into the future through small, fast and cheap probes” (Brown & Eisenhardt, 1998, p. 131; Sitkin, 1992). Both improvisation and experimentation have been found to predict innovation in high technology firms (DeTienne & Koberg, 2002). Translation is the “continuous adoption and editing of ideas that bypass the apparatus of planned change . . . [wherein] the first actor in the chain is no more important than the last; ideas do not move from more saturated to less saturated environments . . . and are implemented depending on the purpose at hand” (Weick & Quinn, 1999, p. 376). Learning may be conscious or unconscious, and intentional or unintentional. However, it generally results in significant new insights and awareness. Time-paced transitioning – rhythmic, time paced transitions that “create an almost seamless switch from one project to the next” (Brown & Eisenhardt, 1997, p. 21) have also been shown to be highly correlated with product innovation within high technology firms (DeTienne & Koberg, 2002).

### *Potential Contributions to Corporate Entrepreneurship*

In the continuous change view, organizations change through both reactive and proactive modifications that are guided by individuals within the organization. This view suggests that processes can be put into place that help the organization monitor environmental changes (e.g. economic, technological, competitors) in order to be able to react to unexpected changes. These processes might include environmental scanning and time-paced transitioning. However, it also suggests that there is a role for organizations to be proactive – that is – to be enactors of change. Some processes that have been linked to the continuous change view that are proactive include improvisation, experimentation and translation.

In addition, each of the processes listed above must be explored within the context of corporate entrepreneurship. First, we must ask if the processes of improvisation, experimentation, translation, learning, and time-paced transitioning are prevalent in entrepreneurial firms. Second, we must ask if they should be. Do these processes lead to higher levels of innovation and ultimately performance? Because these measures are in the early stage of development, the initial research should seek to develop valid and reliable measures followed by rigorous empirical testing.

The theory of continuous change is relatively new to the organizational literature, yet scholars are optimistic that the view of organizations as continuously changing is consistent with actual practice within organizations. Grounded theory

development may be a necessary step to further develop the continuous change perspective. As [Shaffer and Hillman \(2000, p. 178\)](#) noted “It [grounded theory] is particularly useful for studying issues that are without much existing theoretical development.” Certainly, the observations of entrepreneurs and CEOs suggest that change is continuous and guided by individuals within the organization. Further development of this theory is warranted as well as the processes that allow firms to continuously change.

## COGNITIVE THEORY

### *Historical Development*

Cognition, “the process of knowing or perceiving” (Webster’s 20th Century Dictionary, 1979), is the basis for many cognitive theories within the social sciences. Much of this research has built upon the work of [Simon \(1947\)](#), who proposed that the world is much more complex than the human brain and humans have limited information-processing capabilities. In order to cope with the magnitude of stimuli coming into the brain, individuals develop schemas, cognitive maps, mental models, or knowledge structures that organize the stimuli into manageable components.

According to [Mintzberg, Ahlstrand and Lampel \(1998\)](#), cognition can be viewed from varying perspectives: First are the objectivists, whose work focuses on biases and heuristics, viewing the mental limitations of human cognition as the most important perspective. An example of this type of work is the research on the biases and heuristics in strategic decision making ([Busenitz & Barney, 1997](#)). Second, researchers, with an information processing view, suggest that decisions within firms are the result of a process of attention, encoding, storage and retrieval, and choice ([Corner, Kinicki & Keats, 1994](#); [Simon & Houghton, 2002](#)). Third, some cognitive researchers focus upon cognitive maps ([Huff, 1990](#)), which, as in geography, give us direction and guidance. Finally, there are the constructionists who suggest that “the information flowing in through filters, supposedly to be decoded by cognitive maps, in fact interacts with cognition and is shaped by it” ([Mintzberg et al., 1998, p. 165](#)), suggesting that the mind creates its own reality.

How do these concepts relate to corporate entrepreneurship? [Huff and Huff \(2000, p. 14\)](#) contend that “cognitive theories . . . are uniquely equipped to ask, ‘how do individuals and collectives uniquely interpret complex and changing environments.’” At the organizational level, researchers are seeking to understand the impact that organizational cognition (social cognition) has on decisions of the firm. According to [Fiske and Taylor \(1984\)](#), social cognition refers to how people



make sense of other people and themselves within organizations. It is the way in which individuals within an organization think about that organization and “lies at the heart of decision making, communication, strategic action, and virtually every important organizational process” (Sims & Gioia, 1986, p. ix). Social cognition argues that teams are “social artifacts of shared cognitive maps or enactments of a collective mind, rarely a simple combination of the cognition of individual members” (Allaire & Firsirotu, 1984; Hayes & Allinson, 1988; Shepherd & Krueger, 2002).

Other research asserts that the learning of individual members of a team may accumulate over time and result in a shared mental model (March, 1991), thereby suggesting that events in the past may impact shared cognition. According to Ickes and Gonzalez (1996), social cognition is the subjective reactions of at least two individuals to their interaction experiences and is the shared meaning that they jointly construct through their interaction behaviors. As Shamir (1990) points out, many of the new organizational structures are built on cooperation, requiring strong linkages between individual and collective effort.

### *Potential Contributions to Corporate Entrepreneurship*

What cognitive theories then will inform corporate entrepreneurship? Huff and Huff (2000, p. 20) contend that four potential cognitive theories of the firm are: (1) decision making and choice; (2) culture; (3) knowledge acquisition and use; and (4) sensemaking. In this section, I address the potential of each of these theoretical perspectives to inform corporate entrepreneurship and change. In the area of decision making and choice, two important research questions emerge for corporate entrepreneurship. The first is “under what conditions do corporate entrepreneurs rely upon heuristics for decision making?” Busenitz and Barney (1997) found that entrepreneurs were much more likely than managers to use at least two types of biases and heuristics – overconfidence and representativeness – as simplifying mechanisms. Future research should explore these biases and heuristics to determine if their findings are generalizable across industries and organizations of varying size. An appropriate question might be “do entrepreneurs use biases and heuristics more or less, given different environmental conditions and organizational structures?” In addition, other biases and heuristics should be explored. For example, the consistency bias suggests that as individuals we are nearly obsessive about our desire to appear consistent with previous decisions. “Once we make a choice or take a stand, we will encounter personal and interpersonal pressures to behave consistently with that commitment” (Cialdini, 1993). This bias may explain why individuals are likely to escalate their commitment to a losing

project or venture and may have a significant impact on the decisions made by entrepreneurial managers.

Secondly, “can entrepreneurs be taught to recognize their own inherent biases and those bestowed upon them by the firm?” Research has shown that individuals are boundedly rational and their decisions ultimately affect all aspects of the organization. Therefore, it is critical to understand why an individual makes a particular decision, despite economic evidence suggesting an alternative decision. DeTienne, Shepherd and DeCastro (2002) found perception of other opportunities and personal sunk costs to be cognitive factors relating to the persistence of poorly performing firms. Other research into escalation of commitment (e.g. Ross & Staw, 1993) contends that decision makers will continue to fund projects even though economic indicators suggest they should be eliminated. What then are the cognitive factors that lead decision makers to use biases and heuristics and can individuals learn to recognize inherent biases?

In the area of culture, an important area of research is how organizations should develop an entrepreneurial culture. If the goal is to develop an entrepreneurial philosophy, how then do we do that? Burns and Stalker (1961, p. 10) were among the first to suggest that an organizational “code of conduct” is important to organizational managers and policy makers because it “anchors individuals inside organizations to a dependably constant system of shared beliefs.” Russell and Russell (1992, p. 644) contend that “in uncertain contexts such as innovation, norms and shared beliefs become the primary source of guidance because formal organizational procedures become ineffective.” Norms, “those overarching ‘shalts and shalt nots’ ” (Cabrera & Bonache, 1999, p. 54), are fairly resistant to short-term changes and therefore take time to permeate the souls of organization members. Therefore, future researchers may choose to explore how norms and shared beliefs can be used in the implementation of an entrepreneurial philosophy.

In the area of knowledge acquisition and use, an important question posed by Huff and Huff (2000, p. 20) is “what needs to be known in order to act and how can firms effectively acquire, store, update, and use knowledge?” Smilor (1997) argues that learning is central to entrepreneurship because effective entrepreneurs are exceptional learners. Therefore, research is indicated which explores the idea that successful entrepreneurs are “better learners” than the general population. Another important area of inquiry is “how much information do entrepreneurs require in order to act?” Research in this area should further explore if the important question is how much information or if it is how valuable is the information. And finally, in the area of knowledge acquisition and use, a primary line of inquiry revolves around where knowledge resides in the organization and how can it be captured. Research should explore whether knowledge is embodied in machines locations, individuals, processes or competencies and whether it can be codified. Some

knowledge stores are tacit and reside in individuals who cannot explain the process they go through in applying their skills (Dollinger, 2003, p. 99). This is a rich area of research and an important one to corporate entrepreneurship scholars who study corporate venturing.

In the area of sensemaking, an important research question becomes “how do individuals within the firm interpret stimuli?” Secondly, “why is it interpreted this way?” and finally “does the way in which individuals make sense of a situation impact the decisions they make?” For example, take a firm that has recently received some information that suggests a competitor may be close to releasing a product similar to one the current firm expects to release the following year. Some individuals may interpret that information as a motivating factor to speed up release of the product; others may interpret it as a need to add features to the existing product in order to achieve differentiation and still others may interpret it to mean that they had better look for new employment. Why do individuals interpret the information differently and how does that impact the decision that is made?

Cognitive theories in corporate entrepreneurship are relatively unexplored and much of the leading edge research by entrepreneurship scholars is engaged in exploring these new avenues. What impact these theories will have on corporate entrepreneurship and the ability of firms to be able to change through technological innovation remains to be seen. However, further development of these theories is warranted as entrepreneurship scholars seek to understand the individual within the social fabric of the organization.

## **DISCUSSION**

This chapter explored four of the prominent theoretical perspectives associated with technological and innovative change in the entrepreneurial organization. Each of the theories of change was explored through historical development (original thinkers, fields of study and influential research that brought the theories to the organization), and current contributions to corporate entrepreneurship. Future research questions of interest to entrepreneurship scholars were examined. During this exploration, important distinctions among the theories of change in this chapter have surfaced, including the level of analysis, the time frame of analysis, the initiator of change, and the role of the entrepreneur. Each of these distinctions is discussed below and [Table 2](#) describes these distinctions in detail.

The level of analysis appropriate within each theoretical lens is especially important for entrepreneurship researchers who often claim (at least by the articles that are published) that entrepreneurship research is concerned with multiple

**Table 2.** Theories of Technological Change.

Theory	Primary Level of Analysis	Secondary Levels of Analysis	Time Frame for Change to Occur	Initiator of Change	Role of the Entrepreneur
Organization Ecology	Population	Organization	Long	Environment	Fit the organization to its environment
Evolutionary Theory	Population Organization	Community Intraorganization	Moderate to Long	Random events Deliberate problem solving efforts	Find solutions to specific problems, direct organizational resources
Continuous Change	Organization	Groups Individuals	Short to Continuously	Decision makers within the firm	Make sense of environment, redirect individuals, enact change
Cognitive Theory	Individual	Organization	Varies	Individual sensemaking, organizational culture (including subcultures), knowledge acquisition and learning	Create cultures conducive to change, provide opportunities for individuals to acquire knowledge, provide training

levels of analysis. In order to legitimize the field it is critical that we use theoretical perspectives at the appropriate level of analysis. The organizational ecology perspective allows researchers to explore foundings, transformations, and disbandings within populations (Baum & Singh, 1994). Therefore, this perspective looks at populations of organizations that have a unitary characteristic – primarily industries, but also might revolve around organizational structure, size, age, or dominant designs. For example, a population might be described as those organizations that use a particular dominant technology rather than those that are in the same industry. The evolutionary perspective, in its all-encompassing approach, has been used at the intraorganization, organization, population, and community levels. The primary levels of analysis in continuous change theory are the organization and the individual. In cognitive theory, the primary level of analysis is the individual, his or her cognitive structures and how individual cognition affects social (group) cognition.

Another distinction among theories is the time frame for change. In the OE perspective, change occurs to populations over long periods of time. Researchers can use longitudinal analysis to explore how these populations change. In the evolutionary perspective, the time frame varies from moderate to long depending upon how long of an evolutionary period we are investigating. In the continuous change perspective, change is constant and cumulative. In the cognitive view, change varies depending upon the theoretical perspective.

A third varying distinction of the theoretical perspectives is the initiator of change, or what causes changes to occur. In the organizational ecology perspective, change occurs in the environment and firms that best fit to the changes will survive. In the evolutionary perspective, change can occur from random events as well as deliberate problem-solving efforts. In the continuous change perspective, change occurs from within the organization as decision makers anticipate and even enact change in the environment. In the cognitive perspective, change occurs as individuals make sense of the environment and can include the impact of culture, knowledge acquisition and learning.

A final distinction is the role of the entrepreneur in each theoretical perspective. In the OE perspective, the role of the entrepreneur is to fit the organization to its environment. In the evolutionary perspective, it is to find solutions to specific problems and direct organizational resources in such a way that the firm will not be selected out. In the continuous change perspective, the role of the entrepreneur is to make sense of his/her environment and redirect individuals as well as to enact change in the environment. The role of the entrepreneur in the cognitive perspective is to understand why individuals do the things they do, to create cultures conducive to change, and to provide opportunities for individuals to acquire knowledge and training.

*Cross Level Research*

The purpose of this chapter has been to present theoretical perspectives on technological change that have been applied in other research areas, but less so in entrepreneurship. Throughout this chapter I have pointed to the difference between the theoretical perspectives and how different perspectives lead us to explore different units of analysis. However, I would be remiss not to point out the importance of cross-level research. Many researchers (e.g. Goodman, 2000) have observed that our obsession with the single unit of analysis has limited our understanding of the effect that an activity or outcome at one level has on the outcomes at another level. In this final section, I describe how cross-level (meso) research may inform corporate entrepreneurship.

Because corporate entrepreneurship is a process of organizational change it has applications at all levels of change. Some changes made in firms are of the system-wide variety – for example, a decision to install an enterprise-wide software (e.g. SAP) program. It is quite obvious that this type of change affects all individuals, groups and subcultures within the organization and the effect of such a change should be studied at all levels. However, there are other types of change, which seemingly occur and affect only one functional area or one SBU. For example, a decision to move to a paperless communication system in the accounting department of a large firm seemingly affects only the subgroup in which the change is instilled. However, “initial small changes can have long-term reverberations, non-linearities in changes, and incubation periods before positive accelerating feedback cycles begin” (Goodman, 2000; Shulman & Rowe, 2003, p. 333). The paperless decision in fact might affect how top management presents materials to the board of directors and how the board interprets that decision which could have long term ramifications for the organization.

How then do researchers investigate the effect of change without becoming caught up in the mess of feedback loops, control variables and cause-and-effect discrepancies? There is no simple answer. But there are processes which exist which allow us to delve into cross-level research. For example, Goodman (2000) suggests that by studying organizational linkages, we can explain the generative mechanisms that account for when and how one system affects another system (Shulman & Rowe, 2003). Monge and Contractor (2003) provide a toolbox of multilevel, organizational form network modeling tools that provide insights into modeling these complex relationships. As anyone who has been involved with cross-level research can attest to, there are many difficulties with this type of research. Random trigger events, the required complex tracking system, complex decisions about control variables and the sheer magnitude of decision points deter scholars from using cross-level research. However, entrepreneurship scholars, with our ability to

explore new venture creation, may be better positioned to explore/track changes using a cross-level approach giving us a “competitive advantage” over other disciplines.

The objective of this chapter was to explore current theories of change in the context of corporate and to highlight important streams of research and research questions. As I stated in the beginning, this chapter is not inclusive of all theoretical perspectives, but the desire is that enough perspectives were included to encourage entrepreneurship scholars to apply and develop these theories for use in entrepreneurship literature.

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# EQUIFINALITY, CORPORATE ENTREPRENEURSHIP AND STRATEGY-STRUCTURE-PERFORMANCE RELATIONSHIPS

Daniel F. Jennings and Kevin G. Hindle

## INTRODUCTION

Zahra and Covin (1995, p. 46) report that “the current interest in corporate entrepreneurship arises from its potential usefulness as a means for renewing established organizations and increasing their ability to compete in their chosen markets.” In addition, a number of researchers support a contention made by Schollhamer (1982, p. 82), that “corporate entrepreneurship is a key element for gaining competitive advantage and consequently greater financial strength” (Covin & Slevin, 1991; Peters & Waterman, 1982; Zahra & Covin, 1995). Interestingly, however, other researchers argue that corporate entrepreneurship can be risky and may be detrimental to a firm’s short-term financial performance (Burgelman & Scales, 1986; Fast, 1981).

Thus, the preceding statements have created considerable interest in research on corporate entrepreneurship. However, from time to time, researchers in the area of corporate entrepreneurship provide new research directions by suggesting future avenues of research inquiry. One such future area for inquiry has been suggested by Dess, Lumpkin and McGee (1999) who posit that the relationship among traditional models of business-level strategy, organizational structure, organizational processes and corporate entrepreneurship is not well understood and that future

research should explore those relationships. Further, Dess, Lumpkin and McKee (1999) state that the relationship between corporate entrepreneurship and organizational performance is not “immediately apparent” because Zahra and Covin (1995) report that the benefits of corporate entrepreneurship often take many years to reach fruition.

In order to explore the relationship among strategy-structure-performance and corporate entrepreneurship we used the notion of equifinality and investigated 148 U.S. electrical distribution firms from 1998 to 2002. We identified both entrepreneurial and non-entrepreneurial (conservative)<sup>1</sup> electrical distributors and then examined their strategy-structure-performance relationships.

In the following section we discuss theoretical arguments pertaining to the linkage of equifinality with strategy-structure-performance in entrepreneurial and conservative organizations and then apply those arguments to electrical distributors in order to develop specific operational hypotheses.

## THEORETICAL APPROACH AND HYPOTHESES

### *Equifinality*

About seventy-five years ago, the biologist Ludwig von Bertalanfy (1930) began a study to investigate the movement of organisms within a biological system. von Bertalanfy (1930) formulated certain concepts concerning the organism as an open system. He also defined the principle of equifinality by stating that “a particular outcome can be reached by different paths from the same starting condition and different starting conditions may also lead to the same outcome” (von Bertalanfy, 1960, p. 29).<sup>2</sup> Figure 1 depicts the concept of equifinality.

In the process of using the open systems model to legitimize organizational studies, Katz and Kahn (1966) discussed the properties of open systems and included the notion of equifinality. By 1972, the systems paradigm had peaked and eventually went out of fashion by 1976 (Ashmos & Huber, 1987). However, in the strategic management and strategic marketing literature, many statements have been made that within a certain strategic typology, no one strategy is neither inferior nor superior to that of another strategy (Despande & Farley, 1998; Kald, Nilsson & Rapp, 2000). In fact, Miles and Snow (1978) and Porter (1980) argue that the strategies described in their respective typologies are neither inferior nor superior. Certain researchers have posited that the notion of equifinality may offer insights into that superiority-inferiority argument (Gresov & Drazin, 1997; Jennings, Rajaratnam & Lawrence, 2003; Jennings & Seaman, 1994; Matsuno & Mentzer, 2000). Also, strategic management research has focused on the notion

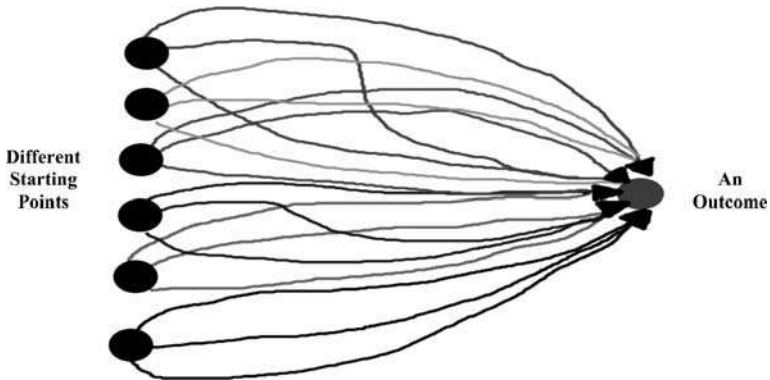


Fig. 1. An Illustration of Equifinality. Source: von Bertalanfy (1960).

of equifinality pertaining to strategy, structure, and performance relationships. At first, a conceptual argument developed in the strategic management literature in which it was argued that an optimal strategy-structure match yields a superior performance (Boeker & Goodstein, 1991; Ford & Baucus, 1987; Sharma & Vredenburg, 1998; Van de Ven & Drazin, 1985). In fact, the notion that strategy and structure influences the success of an organization has been expressed rather clearly in Chandler's (1962) study of industrial organizations. The issue in those conceptual arguments was that equifinality, a characteristic of open systems, allows a feasible set of equally effective, internally consistent patterns of strategy and structure. Next, several empirical research studies on equifinality reported that an optimal-strategy-structure match yields a superior performance (Doty, Glick & Huber, 1993; Jennings & Seaman, 1994; Matsuno & Mentzer, 2000). However, research from the perspective of equifinality has not received much attention from researchers of corporate entrepreneurship. Interestingly, Dess, Lumpkin and McGee (1999, pp. 88–89) noted the following:

One might expect that firms seeking to be more entrepreneurial should adopt differentiation strategies rather than cost leadership strategies. However a study by Dess, Lumpkin and Covin (1997) indicated that cost leadership strategies were associated with higher performance in firms where managers used an entrepreneurial approach to decision making. Further, contrary to their expectations, Zahra and Covin (1993) found that cost leadership was positively associated with new product development.

Following the preceding observation, Dess et al. (1999, p. 88) posited that “the conceptualization of entrepreneurial strategies may be too narrow.” Thus, we argue that the notion of equifinality may well explain the preceding concern expressed by Dess et al. (1999).

### *Corporate Entrepreneurship*

Zahra, Jennings and Kuratko (1999) report that in defining corporate entrepreneurship, most researchers have used either Miller and Friesen's (1982) measure of corporate entrepreneurship or Covin and Slevin's (1988) modified version of that instrument. Miller and Friesen's (1982) conceptualization of corporate entrepreneurship focuses on three related dimensions: proactiveness, innovation, and risk taking. Covin and Slevin (1988) extended Miller's (1982) instrument to gauge a firm's disposition towards achieving a competitive advantage and added Khandwalla's (1977) measure of the proclivity for risks of projects. Covin and Slevin (1988) referred to their measure of corporate entrepreneurship as "entrepreneurial style" and stated that entrepreneurial style is an aggregate measure of three dimensions: the willingness to take business risks, the willingness to be proactive when competing with other firms, and the willingness to innovate, i.e. to favor change and innovation in order to obtain a competitive advantage. Zahra, Jennings and Kuratko (1999) argue that the consistent use of the two preceding measures of corporate entrepreneurship has created a serious misfit between the construct of corporate entrepreneurship and its measurement, raising a question about the meaning of what has been found and its theoretical and practical importance. Further, Zahra, Jennings and Kuratko (1999) state that one notable exception to the measurement of corporate entrepreneurship is the research of Jennings and Lumpkin (1989) who utilized the work of Schumpeter (1947), Ansoff (1979) and Hambrick (1983) to define corporate entrepreneurship as the extent to which new products are developed. Jennings and Lumpkin (1989) also used archival data to measure new product additions. For this study we used Miller and Friesen's (1982) measure of corporate entrepreneurship and speculated that our sample of electrical distributors would include both entrepreneurial and conservative (non-entrepreneurial) organizations.

### *Strategy*

A strategy is a plan for interacting with the competitive environment to achieve organizational goals. Generally, organizational science researchers do not consider goals and strategies to be interchangeable. Instead, a goal defines where the organization wants to go, and strategy defines how the organization will get there (Chaffee, 1985; Mintzberg, 1978). Researchers have developed classifications called typologies to provide operational definitions of business-level strategy. Two widely used typologies are Porter's (1980) Generic Strategies and the Miles and Snow (1978) Typology.



*Porter's (1980) Generic Strategies*

**Porter (1980)** conceptualized that organizations cope with competitive forces by using certain generic strategic approaches to outperform other firms. **Porter (1980)** designated these strategic approaches as three generic strategies: (1) overall cost leadership; (2) differentiation; and (3) focus. According to **Porter (1980)**, no organization can successfully perform at an above-average level by trying to be all things to all people. **Porter (1980)** proposes that management must select a strategy that will allow an organization to attain a competitive advantage. The strategy that management chooses depends on the organization's strengths and its competitor's weaknesses. When an organization sets out to be the low-cost producer in its industry, it is following a cost-leadership strategy. Success with this strategy requires that the organization be the cost leader and not merely one of the contenders for that position. Organizations can achieve a cost advantage by efficiency in operations, economies of scale, technological innovation, low-cost labor, or preferential access to raw materials.

An organization that seeks to be unique in its industry in ways that are widely valued by buyers is following a differentiation strategy. It might emphasize high quality, extraordinary service, innovative design, technological capability, or an unusually positive brand image. The key is that the attribute chosen must be different from those offered by rivals and significant enough to justify a price premium that exceeds the cost of differentiating.

**Porter's (1980)** first two generic strategies (overall cost leadership and differentiation) seek to achieve a competitive advantage in a broad range of industry segments. The focus strategy aims at either a cost advantage (cost focus) or differentiation advantage (differentiation focus) in a narrow segment. Thus, management will select a segment or group or segments in an industry (such as product variety, type of end buyer, distribution channel, or geographical location of buyers) and tailor a strategy to serve them at the exclusion of others. The goal is to exploit a narrow segment of a market. Research suggests that a focus strategy may be the most potent for a small business firm. This is because a small business does not have the economies of scale or internal resources to successfully pursue one of the other two strategies (**Zahra, 1993**).

*Miles and Snow's (1978) Typology*

The **Miles and Snow (1978)** typology is based on three premises. The first is that over a period of time successful organizations develop a systematic, identifiable approach to environmental adaptation as they focus on three types of problems: (1) an entrepreneurial problem that deals with the definition of market-product domain; (2) an engineering problem involving the organization's technical problem; and (3) an administrative problem arising from structure and process issues. The second

premise is that four identifiable strategic orientations exist within an industry: Defenders, Prospectors, Analyzers, and Reactors. According to [Miles and Snow \(1978\)](#), Defenders emphasize a narrow domain by controlling secure niches in their industries. They engage in little or no product/market development and stress efficiency of operations. Prospectors constitute the other end of the continuum; they constantly seek new opportunities and stress product development. Analyzers exhibit characteristics of both Defenders and Prospectors. Finally, Reactors do not follow a conscious strategy and are viewed as a dysfunctional organizational type.

The third premise of the [Miles and Snow \(1978\)](#) typology is that the Defender, Analyzer, and Prospector strategies, if properly implemented, can lead to effective performance. Much depends on the internal consistency among the three elements of the adaptive cycle. Each type emphasizes different functions to produce a set of sustainable, distinctive competencies. The Reactors lack a coherent strategy. Therefore, the [Miles and Snow \(1978\)](#) typology proposes that Defenders, Analyzers, and Prospectors will outperform the non-adaptive Reactors.

A number of researchers state their preference for using Miles and Snow's strategy types because it is the only typology that characterizes an organization as a complete system and it provides a useful format for studying successful implementation of different strategies ([Conant, Mokwa & Varadarjan, 1990](#); [Croteau & Bergeron, 2001](#); [Hrebiniak & Snow, 1980](#); [Lengnick-Hall, 1992](#); [McDaniel & Kolari, 1987](#); [Zahra & Pearce, 1990](#)).

Several researchers report that entrepreneurial and conservative organizations can employ either a prospector or defender strategy ([Dess, Lumpkin & Covin, 1997](#); [Lengnick-Hall, 1992](#); [Zahra & Covin, 1993](#); [Zahra & Pearce, 1990](#)). Thus, we speculate that entrepreneurial and conservative electrical distributors in our study will also employ either a prospector or defender strategy.

### *Structure*

Organizational structure refers to how the various parts of an organization are arranged to achieve consistency and coherence. The seminal work on structure is [Weber's \(1947\)](#) description of the ideal type of *bureaucracy*. [Burns and Stalker \(1961\)](#) discovered a relationship between the external environment and an organization's internal management structure. For example, when the environment was stable, the internal organization was characterized by rules, procedures, and a clear hierarchy of authority. These organizations were formalized and decision making was centralized. [Burns and Stalker \(1961\)](#) called this a *mechanistic* structure.

In rapidly changing environments, the internal organization was much looser, free flowing, and adaptive. Rules and regulations often were not written down, or

if written down, were ignored. The hierarchy of authority was not clear. Decision-making authority was decentralized. Burns and Stalker (1961) used the term *organic* to characterize this type of management structure.

Burns and Stalker (1961) also learned that as environmental uncertainty increases, organizations tend to become more organic, which means decentralizing authority and responsibility to lower levels, encouraging employees to take care of problems by working directly with one another, encouraging teamwork, and taking an informal approach to assigning tasks and responsibility. Thus, the organization becomes more fluid and is able to adapt continually to changes in the external environment (Courtright, Fairhurst & Rogers, 1989).

Using the work of Kast and Rosenzweig (1973) and Dunn (1971), Chakravarthy (1982) conceptualized that organizations use different strategies to match their structural arrangements and argued that organizations with a prospector strategy will adopt an organic structure while organizations with a defender strategy will adopt a mechanistic structure. Jennings and Seaman (1994) found support for Chakravarthy's (1982) preceding conceptual argument.

We present the following research hypotheses based upon Chakravarty's (1982) conceptual argument together with the empirical findings of Jennings and Seaman (1994).

- H1a: Entrepreneurial electrical distributors with a prospector strategy will have an organic structure.
- H1b: Entrepreneurial electrical distributors with a defender strategy will have a mechanistic structure.
- H1c: Conservative electrical distributors with a prospector strategy will have an organic structure.
- H1d: Conservative electrical distributors with a defender strategy will have a mechanistic structure.

### *Performance*

While organizational performance has been described as the achievement of a firm with respect to some criterion or criteria, certain researchers have argued that organizational performance is a complex and multidimensional phenomenon (Dess & Robinson, 1984; Dutton & Duncan, 1987; Hart & Banbury, 1994; Jennings & Young, 1990).

#### *Performance Frameworks*

A variety of frameworks have been developed to conceptualize organizational performance. Three such frameworks have been widely used and involve: (1) the goal

approach (Etzioni, 1961) in which performance is viewed as attaining some goal or objective; (2) the systems resource approach (Yuchtman & Seashore, 1967) which is the organization's ability to exploit its environment in the acquisition of scarce and valued resources to sustain its functioning; and (3) the constituency approach (Thompson, 1967) whereby constituents contribute their activities to organizations in return for incentives, the contribution of each in the pursuit of his or her particularistic ends being a contribution to the satisfaction of the ends of others. This approach does not consider organizational success in terms of goals being achieved, but rather through its capacity to survive through being able to gain enough contributions from the members by providing sufficient rewards or incentives.

Other researchers have tended to avoid these perspectives and have used economic dimensions of organizational performance such as rate of return, cash flow, and sales growth (Hambrick, 1981). Also, Hart (1992) built upon the work of Venkatraman and Ramanujam (1986) and argues that performance consists of the three constructs of financial performance, operational performance, and organizational performance. According to Hart (1992) and Venkatraman and Ramanujam (1986) financial performance involves such indicators as return on investment, return on sales, return on equity, earnings per share, and sales growth. Operational performance involves business-level activities such as new product introduction and marketing effectiveness. Organizational performance reflects broad organizational outcomes and capabilities such as employee satisfaction and an organizational focus on quality or adaptability.

Some researchers argue that multiple measures of performance should be utilized while others assert that a single measure will suffice (Hirsch, 1975; Lenz, 1980). Also, Jennings and Seaman (1994) noted that generally it is the researcher who selects the particular performance measure that is being investigated. However, it may be more appropriate to use performance measures that are utilized by managers in the organizations being studied because such measures tend to reflect organizational specific objectives.

For the present study, we surveyed industry executives to determine a performance measure that reflected a financial condition for electrical distribution firms. Based on the responses of those industry executives, two performance ratios, *earnings and turns*, were utilized in the present study. The *earnings ratio* measures profitability by using gross margin divided by net sales and the *turns ratio* reflects the amount of inventory used by the firm and is defined as net sales divided by inventory. The *earnings and turns ratios* were used for a five-year period, 1998 through 2002. Many industry analysts (Bates, 2001) argue that, when used together, the *earnings and turns ratios* provide the "real health" of an electrical distributor.

A review of the literature on corporate entrepreneurship research for the years 1990 through 2002 indicated that sixty-eight articles have been published in

peer-reviewed academic journals pertaining to how certain factors affect the performance of entrepreneurial organizations. Twenty-two of the preceding sixty-eight articles were theoretical while the remaining forty-six were empirical studies. None of those sixty-eight articles published from 1990 through 2002 focused on the effects of the strategy-structure match on performance in entrepreneurial organizations (EO) or on the notion of equifinality. Further, none of the preceding studies considered how the various factors that were investigated affect non-entrepreneurial organizations. Table 1 illustrates those studies describing the factors that affect organizational performance in EO.

Chakravarthy (1982) also posited that organizations having specific strategy-structure arrangements will have differences in performance because of the notion of inertia. For example, investments in technologies and human skills are costly and may not always be made (Hart, 1992; Homburg, Krohmer & Workman, 1999; McKelvey & Aldrich, 1983). The availability of organizational slack provides resources for adaptation, innovation, and improved decision making (Barney, 1986; Singh, 1986) while reduced slack, or a scarcity of resources, induces a managerial paralysis causing rigidity which propels the organization to a decreased performance (Bozeman & Slusher, 1979; Priem, Rasheed & Kotulic, 1995; Varadarajan, Jayachandran & White, 2001). Jennings and Seaman (1994) report a performance differences among organizations having a prospector strategy-organic structure and also among organizations with a defender strategy-mechanistic structure.

We anticipate, based on Chakravarthy's (1982) conceptualization, the empirical findings of Jennings and Seaman (1994), and our discussion of organizational inertia, that performance differences will occur among entrepreneurial and conservative organizations having similar strategy-structure arrangements as follows:

- H2a: Performance differences as measured by an earns and turns ratio will occur among entrepreneurial electrical distributors that have a prospector strategy-organic structure.
- H2b: Performance differences as measured by an earns and turns ratio will occur among entrepreneurial electrical distributors that have a defender strategy-mechanistic structure.
- H2c: Performance differences as measured by an earns and turns ratio will occur among conservative electrical distributors that have a prospector strategy-organic structure.
- H2d: Performance differences as measured by an earns and turns ratio will occur among conservative electrical distributors that have a defender strategy-mechanistic structure.

### *Strategy-Structure Match*

Two sets of pervasive arguments exist among contingency theorists with respect to how fit affects performance. One such argument suggests that a one-best

**Table 1.** Research Studies on How Certain Factors Affect the Performance of Entrepreneurial Organizations (EO).

1. **The relationship of the corporate entrepreneurial (CE) construct to performance.**  
Kemelmgor (2002), Brown, Davidsson and Wiklund (2001), Thornton (1999), Lumpkin and Dess (1996), Bruton et al. (1996), Granstrand and Alange (1995), Jennings and Young (1990)
2. **The relationship between marketing strategies and performance in EO.**  
Matsuno, Mentzer and Ozsomer (2002), Menon (1997)
3. **The relationship between marketing mix and performance in EO.**  
Barrett (2000)
4. **The relationship between marketing orientation and performance in EO.**  
Wood, Bhuian and Kiecker (2000), Barrett and Weinstein (1998, 1997)
5. **The relationship between marketing pioneering and performance in EO.**  
Simon et al. (2002), Covin, Slevin and Heeley (1999)
6. **The relationship between business strategies and performance in EO.**  
Kuratko, Ireland and Hornsby (2001), Twomey and Harris (2000), Blanchard (1999), Floyd and Wooldridge (1999), Lengnick-Hall (1992), Chittipeddi and Walleth (1991)
7. **The relationship between financial strategies and performance in EO.**  
Vozikis et al. (1999), Keels, Bruton and Scifres (1998), Pearce, Kramer and Robbins (1997), Park and Kim (1997), Zahra (1995, 1991), Jennings and Seaman (1990)
8. **Environmental effects on performance in EO.**  
Hostager et al. (1998), Dess, Lumpkin and Covin (1997), Slevin and Covin (1997), Parnell, Wright and Tu (1996), Zahra and Covin (1995), Zahra (1993)
9. **Effect of international environmental hostility on performance in international EO.**  
Zahra and Garvis (2000)
10. **Technology effects on performance in EO.**  
West (1998), Zahra (1996), Covin and Slevin (1994), David (1994)
11. **Leadership effects on performance in EO.**  
Floyd and Wooldridge (1994)
12. **Top management effects on performance in EO.**  
Hitt (1999), Herron (1992), Grinyer and McKiernan (1990), Lant and Mezias (1990), Ross (1990)
13. **Effects of the differences in innovative finesse and traditional managerial activities on performance in EO.**  
Brazeal (1996)
14. **Innovation effects on performance in EO.**  
Ahuja and Lampert (2001), Attuahene-Gima and Ko (2001), Drazin and Schoonhoven (1996), Baden-Fuller (1995), Guth (1995), Lengnick-Hall (1991)
15. **Differences between intrapreneurship and entrepreneurship on performance in EO.**  
Antoncic and Hisrich (2001), Shrader and Simon (1997), Carrier (1994, 1996)
16. **Effects of growth strategies on performance in EO.**  
Koen (2000), Kilmer (1990)
17. **Effects of strategic management practices on performance in EO.**  
Barringer and Bluedorn (1999)
18. **Effects of organization culture on performance in EO.**  
Choueke and Armstrong (2000)
19. **Effects of learning strategies on performance in EO.**  
Liu, Luo and Shi (2002), Honig (2001)

**Table 1.** (Continued)

- 
- |     |   |
|-----|---|
| 20. | <b>Effects of knowledge and competence development on performance in EO.</b><br>Zahra (1999)                  |
| 21. | <b>Effects of networking optimization on performance in EO.</b><br>Birkinshaw (1998)                          |
| 22. | <b>Effects of being a multinational corporation on performance in EO.</b><br>Birkinshaw (1999, 1997)          |
| 23. | <b>Effects of firm resources and strategic orientation on performance in EO.</b><br>Borch (1999)              |
| 24. | <b>Effects of strategy structure and process on performance in EO.</b><br>Dess, Lumpkin and McGee (1999)      |
| 25. | <b>Effects of ownership and governance on performance in EO.</b><br>Zahra, Neubaum and Huse (2000)            |
| 26. | <b>Effects of post acquisition success on performance in EO.</b><br>Thomson and McNamara (2001)               |
| 27. | <b>Effects of bureaucratic pathologies on performance in EO.</b><br>Dixon, Kouzmin and Korac-Kakabadse (1998) |
- 

strategy-structure arrangement exists to fit a given industry environment (Dill, 1958; Hage & Aiken, 1970; Lawrence & Lorsch, 1969; Lorsch & Morse, 1974). The other argument is that organizational effectiveness results in fitting certain characteristics to contingencies that reflect the situation of the organization (Burns & Stalker, 1961; Galbraith, 1973; Pugh et al., 1969). These contingencies include the environment (Burns & Stalker, 1961), organizational size (Child, 1975), and strategy (Ansoff, 1988; Chandler, 1962; Datta, 1991; Seth, 1990).

Another group of researchers have conceptualized that fit occurs with the organization's external environment as the driving force and that managers seek to align and integrate their internal processes with the organization's external domain (Covin & Slevin, 1991; Govindarajan, 1988; Naman & Slevin, 1993; Venkatraman, 1989; Venkatraman & Prescott, 1990) to maintain or improve effectiveness.

An overriding premise from these perspectives of fit is that certain moderating factors may affect an optimal strategy-structure match and that organizations with a certain strategy-structure configuration may have a higher or lower performance than do other organizations with similar strategy-structure configurations (Dess, Lumpkin & Covin, 1997; Dess et al., 1995; Langnick-Hall, 1992).

Thus, in considering the moderating effects of an optimal strategy-structure match we anticipate the following hypotheses:

- H3a:* Entrepreneurial electrical distributors that have the best prospector strategy-organic structure match will have the highest performance as measured by an earnings and turns ratio, compared to other entrepreneurial prospector strategy-organic structure electrical distributors.

- H3b:* Entrepreneurial electrical distributors that have the best defender strategy-mechanistic structure match will have the highest performance as measured by an earns and turns ratio, compared to other entrepreneurial defender strategy-mechanistic structure electrical distributors.
- H3c:* Conservative electrical distributors that have the best prospector strategy-organic structure match will have the highest performance as measured by an earns and turns ratio, compared to other conservative prospector strategy-organic structure electrical distributors.
- H3d:* Conservative electrical distributors that have the best defender strategy-mechanistic structure match will have the highest performance as measured by an earns and turns ratio, compared to other conservative defender strategy-mechanistic structure electrical distributors.

### *Equifinality*

In an earlier section we discussed the notion of equifinality from the perspective of strategy management. In that argument, equifinality, a characteristic of open systems, is the notion that allows a feasible set of equally effective internally consistent patterns of strategy and structure (Jennings & Seaman, 1994; Van de Ven & Drazin, 1985). Further, a group of contingency theorists argue that a variety of strategy-structure configurations are possible (Donaldson, 2001; Pfeffer, 1997; Scott, 1992). Our final hypothesis pertains to the issue of equifinality.

- H4:* Equal levels of performance as measured by an earns and turns ratio will occur among: (a) entrepreneurial electrical distributors with a prospector strategy-organic structure having the best strategy-structure match; (b) entrepreneurial electrical distributors with a defender strategy-mechanistic structure having the best strategy-structure match; (c) conservative electrical distributors with a prospector strategy-organic structure having the best strategy-structure match; and (d) conservative electrical distributors with a defender strategy-mechanistic structure having the best strategy-structure match.

## RESEARCH METHODS

We elected to study electrical distribution firms based on Starbuck's (1993) argument that when attempting to understand the dynamics of organizational phenomena and to develop understanding, insight is more likely to result from a study of extreme cases than from traditional firms. Electrical distribution firms represent such extreme cases. For example, an electrical distributor moves goods and services from producers to consumers to overcome major time, place, and possession gaps that separate goods and services from those who would use them. In 2002, total U.S. sales of electrical distribution firms were \$67 billion and the total



population of U.S. electrical distribution firms in 2002 consisted of 1500 firms. Sales of these firms ranged from US\$5 Million to US\$9 Billion (NAED, 2002). Further, many electrical distribution firms started as small businesses and evolved to large-size firms with multiple operations located in different cities. Also, electrical distributors are both family-owned businesses as well as being part of major international conglomerates.

### *Measuring Corporate Entrepreneurship*

Miller and Friesen's (1982) index was used to measure corporate entrepreneurship. As we discussed in an earlier section, such an index has been widely used and validated. The seven scale items, presented in Appendix 1, were rewritten to confirm to the electrical distribution channel. While Miller and Friesen's original instrument solicited responses using a 7-point Likert scale, our scale was reduced to a 5-point rating category for questionnaire design consistency and to facilitate participant responses. Aiken (1987) studied the effects on ratings using different scales and found that two-category scales were significantly different from three, four, five, six, or seven category scales, but that no significant difference existed among 3, 4, 5, 6, or 7-point scales. Aiken (1987, p. 54) concludes that "using a small number of categories (but greater than two) is as effective as a larger number of categories." Thus our use of a 5-point Likert scale to measure corporate entrepreneurship is no different from Miller and Friesen's (1982) 7-point Likert scale.

### *Measuring Strategy*

Snow and Hrebiniak's (1980) procedure describing the strategy types of the Miles and Snow (1978) typology was used to measure strategy. As described in Appendix 2, study participants were asked to check the type best describing the strategic behavior of their firm. This paragraph approach has been commonly used and validated extensively (James & Hatten, 1995; Rajagopalan, 1986) and is considered more convenient than the lengthy multi-item strategy typologies used by Hambrick (1981). Also, several studies have validated the ability of managers to self-diagnose their firm's strategic orientation using the Miles and Snow strategy typology (Conant, Mokwa & Varadarajan, 1990; Shortell & Zajac, 1990; Slater & Narver, 1993). Further, an argument has been made that practicing managers have the cognitive ability to identify the type of strategy employed by their firm and that researchers should utilize this knowledge (Dean & Sharfman, 1996; Downey & Ireland, 1979; Hunt & Power, 1985; Kiesler & Sproull, 1982). Several researchers

**Table 2.** Hage's (1965) Organizational "Means" Variables Related to Organic and Mechanistic Structures.

Variables	Structural Value	
	Organic	Mechanistic
Formalization		
1. Codified jobs	Low	High
2. Variations within jobs	Low	High
Stratification		
3. Status among jobs	Low	High
4. Mobility barriers between low and high jobs	Low	High
Complexity		
5. Number of specialties	High	Low
6. Required level of high training	High	Low
Centralization		
7. Number of decision-making jobs	High	Low
8. Number of areas where decisions are made by decision-makers	High	Low

*Note:* Adapted from J. Hage (1965, pp. 293, 305).

state that the most appropriate and relevant way in which key issues pertaining to types of strategies employed by firms and the selection of competitive positions can be assessed is to ask the involved managers (Day & Nedungadi, 1994; Geletkanycz & Black, 2001; Morgan & Piercy, 1998).

### *Measuring Structure*

In this study, we used Hage's (1965) instrument that measures organic and mechanistic structures. This instrument which is described in Appendix 3, includes two items for each of four variables (formalization, stratification, complexity, and centralization) was rewritten to conform to the electrical distribution channel. Table 2 illustrates how Hage's (1965) four variables relate to organic and mechanistic structures. Study participants were asked to indicate the extent to which these structural variables described their electrical distributorship. Responses were measured using a 5-point Likert scale.

### *Measuring Performance*

The two performance ratios (earnings and turns) depicted in Appendix 4 were reported by study participants for the years 1998–2002. Because many of the firms included

in our study are privately-owned, our performance measures are subjective. In some instances, retrospective interviews with top managers are the only possible source of performance data. While such interviews may provide inaccurate and biased data, Huber and Power (1985) defend this methodology and offer certain prescriptions for improving this research technique. Also, an argument persists that dysfunctional aspects of research may occur with respect to utilizing subjective measures of organizational performance. However, Downey and Ireland (1979, p. 632) provide the following rationale for the use of subjective data:

An objective-subjective categorization has had, however, at least two dysfunctional effects on organizational research. First, it has tended, a priori, to push research away from qualitative data when they might be useful for assessing some performance dimensions. The objective-subjective dilemma has equated objectivity, and thus scientific inquiry, with quantification. As a result, qualitative assessments have been avoided by researchers because of an understandable desire not appear “unscientific.”

Second, the objective-subjective categorization has equated subjective measures with measurement of perceptions. The defining of all measures of perceptions as subjective is based on a confusion over *whose* subjectivity is involved. The objectivity that is desired in scientific inquiry refers to objectivity on the part of the researcher. Subjective behavior on the part of those being studied, however, may well be a legitimate topic for scientific inquiry.

Two empirical research studies (Dess & Robinson, 1984; Jennings & Young, 1990) have found no significant differences between subjective and objective measures.<sup>3</sup>

### *Sample Selection*

Using a mailing list provided by the National Association of Electrical Distributors, a random sample of 460 electrical distribution firms were selected from the 2002 total population of 1,500 electrical distribution firms. The firms that were selected had 2002 sales ranging from US\$ 5 Million to US\$ 9 Billion, were both privately and publicly owned, had been in existence for at least ten years, and were located throughout the U.S.

### *Data Collection*

A pilot-tested questionnaire, together with a cover letter was sent to the top two senior managers of each electrical distributor in the sample. Each manager was requested to respond to questions pertaining to the entrepreneurial style of their firm (Appendix 1) and their firm's particular strategy and structure (Appendices 2 and 3). Only the most senior manager was asked to respond to the performance question (Appendix 4). The two top managers from 166 electrical distributors

provided responses that identified the entrepreneurial style, strategy and structure of their respective firms while the senior most managers from each of the preceding 166 firms provided performance data. Such a reply from 166 firms is a response rate of 36.1%. However, 148 replies (a response rate of 32.2%) was used for data analysis. Such a usable response rate of 32.2% is considerable to be acceptable for field research in the area of corporate entrepreneurship (Zahra & Covin, 1995). Senior managers of non-responding firms were contacted by e-mail and these managers cited lack of time as the major reason for not responding.

### *Data Analysis*

A major objective of our study is to investigate those electrical distributors having either a prospector or defender strategy. Thus, those responding firms that reported employing either an analyzer or reactor strategy were excluded from the study. Accordingly, the 18 electrical distributors (166 less 148) whose responses were received but not used reported employing either an analyzer or reactor strategy. In fact, 16 of those firms reported an analyzer strategy and two indicated a reactor strategy. Also replies from 11 of the 18 unusable responses were from electrical distributors reporting that their firm classification was entrepreneurial and the remaining nine unusable responses indicated a conservative firm classification.

A frequency table was developed to identify those 148 responding electrical distributors as being either entrepreneurial or conservative. Seventy-two firms reported being entrepreneurial while 76 firms indicated a conservative orientation. Thirty-three of the responding 72 entrepreneurial electrical distributors reported the use of a prospector strategy while the remaining 39 indicated a defender strategy. Twenty-nine of the responding 76 conservative electrical distributors reported employing a prospector strategy while the remaining 47 reported using a defender strategy. Table 3 details the distribution of responding electrical distributors by both organizational (entrepreneurial or conservative) classification and by type of strategy (prospector or defender) and structure (organic or mechanistic) employed.

Our next approach was separate the responding electrical distributors into the following four categories:

- Category 1 – entrepreneurial firms having a prospector strategy-organic structure.
- Category 2 – entrepreneurial firms having a defender strategy-mechanistic structure.
- Category 3 – conservative firms having a prospector strategy-organic structure.

**Table 3.** Study Respondents.

	Number	Percent	
Sample size	460	100.00	
Respondents	166	36.10	
Usable responses	148	32.20	
Organizational Classification	Prospector Strategy Organic Structure	Defender Strategy Mechanistic Structure	Total
Entrepreneurial	33	39	72
Conservative	29	47	76
Total	62	86	148

Category 4 – conservative firms having a defender strategy-mechanistic structure.

*Size Effects*

Certain researchers (Lindsay & Rue, 1980; Robinson, 1982) have argued that small-sized firms may exhibit different characteristics than large-sized firms and should be considered as a separate class in data analysis. As organizations increase in size, they emphasize predictability and formalized roles which cause organizational behavior to become rigid, predictable, and inflexible (Downs, 1967; Quinn & Cameron, 1983). Since differences in size can influence a firm’s performance, as well as other organizational variables, a covariance analysis (ANCOVA) was used to control for organizational size for each of the four categories of electrical distributors described in the preceding section. *F*-ratios for differences in performance (earnings and turnover ratios) means were 47.83 ( $p < 0.0001$ ), 43.78 ( $p < 0.0001$ ), 222.97 ( $p < 0.0001$ ), 273.55 ( $p < 0.0001$ ), respectively. These test statistics suggest that performance mean differences were not simply an artifact of electrical distributor size.

*Non-Response Bias*

An analysis of non-response bias (Armstrong & Overton, 1977) was conducted. The procedure requires that responses be numbered sequentially in the order in which they are received. Next, mean scores of the first quartile (which are assumed to be most motivated) are compared to those of the last quartile (assumed to be

most similar to non-respondents). No significant difference in means ( $p < 0.05$ ) were revealed, indicating that there is no evidence of response bias.

## RESULTS

### *Entrepreneurial Type, Strategy and Structure Characteristics*

As mentioned earlier, respondents were asked to identify their firms as being either entrepreneurial or conservative using the questionnaire described in [Appendix 1](#). Cronbach's (1951) coefficient alpha for our corporate entrepreneurship measure (the seven scale items in [Appendix 1](#)) was 0.79 – exceeding the value of 0.70 which would indicate construct validity (Van de Ven & Ferry, 1980). Scores on the seven-scale items were averaged to produce an overall corporate entrepreneurship index. A high score on the index indicates entrepreneurial activity and vice versa. The 72 entrepreneurial firms had an index of 4.25 while the 76 conservative firms had an index of 1.56. Further, the index scores of the entrepreneurial and conservative firms were significantly different ( $t = 42.93$ ,  $p < 0.0001$ ). The coefficient alpha for the structural variables of formalization, stratification, complexity, and centralization were 0.89, 0.87, 0.81, and 0.84, respectively. Inter-rater reliabilities for the responses of the two top managers were: (1) a range of 0.82–0.90 for the eight structural means; and (2) 0.88 for organizational strategy. Mean scores, standard deviations, inter-rater reliabilities and alpha coefficients for organizational classification, strategy and structure are presented in [Tables 4 and 5](#).

The eight structural variables loaded on one factor using a factor analysis with an orthogonal varimax rotation and were highly correlated. [Table 6](#) illustrates the Pearson correlation coefficients for these items.

### *Hypotheses*

As indicated in [Table 7](#), all thirteen hypotheses were supported.

#### *Hypotheses 1a and 1b*

We predicted in the first two hypotheses that entrepreneurial electrical distributors with a prospector strategy will have an organic structure and that entrepreneurial electrical distributors with a defender strategy will have a mechanistic structure. Statistical analyses (chi-square value of 148.37,  $p < 0.0001$  and a  $t$  test;  $t = 4.11$ ,  $p < 0.0001$ ) provide support for both hypotheses.

**Table 4.** Means<sup>a</sup>, Standard Deviations, and Reliabilities for Entrepreneurial (EO) Organizational Type, Strategy and Structure Characteristics.

Strategy Variables	EO Type and Prospector Strategy ( <i>N</i> = 33)		EO Type and Defender Strategy ( <i>N</i> = 39)		Inter-rater Reliability	Alpha Coefficient
	Means	S.D.	Means	S.D.		
Formalization						0.89
1. Codified jobs	1.82	0.68	3.83	0.64	0.90	
2. Variation within jobs	1.89	0.73	3.91	0.75	0.86	
Stratification						0.87
3. Status among jobs	1.78	0.64	3.64	0.71	0.88	
4. Mobility barriers between low and high jobs	1.92	0.62	3.51	0.68	0.85	
Complexity						0.81
5. Number of specialties	2.88	0.92	1.94	0.81	0.80	
6. Required level of training	3.01	0.97	1.86	0.92	0.82	
Centralization						0.84
7. Number of decision making	3.06	1.01	2.01	0.95	0.82	
8. Number of areas where decisions are made	2.97	0.99	1.87	0.83	0.85	

<sup>a</sup> 1 = never; 5 = always. Table 2 details how the structural variables are related to both organic and mechanistic structure while Appendix 3 describes the research questionnaire.

**Table 5.** Means<sup>a</sup>, Standard Deviations, and Reliabilities for Conservative (CO) Organizational Type, Strategy and Structure Characteristics.

Structural Variables	CO Type and Prospector Strategy ( <i>N</i> = 29)		CO Type and Defender Strategy ( <i>N</i> = 47)		Inter-rater Reliability	Alpha Coefficient
	Means	S.D.	Means	S.D.		
Formalization						0.92
1. Codified jobs	3.14	0.71	3.83	0.79	0.88	
2. Variation within jobs	3.28	0.73	3.87	0.82	0.86	
Stratification						0.88
3. Status among jobs	3.34	0.69	3.79	0.86	0.76	
4. Mobility barriers between low and high jobs	3.07	0.75	3.98	0.77	0.74	
Complexity						0.74
5. Number of specialties	2.01	1.13	2.45	0.72	0.78	
6. Required level of training	2.07	1.28	2.32	0.87	0.84	
Centralization						0.85
7. Number of decision making	1.86	1.37	2.26	0.92	0.87	
8. Number of areas where decisions are made	2.12	1.01	2.18	0.81	0.79	

<sup>a</sup> 1 = never; 5 = always. [Table 2](#) details how the structural variables are related to both organic and mechanistic structure while [Appendix 3](#) describes the research questionnaire.



**Table 6.** Pearson Correlation Coefficients<sup>a</sup> for Structural Variables.

	V1	V2	V3	V4	V5	V6	V7	V8
V1 – Codified jobs	1.000							
V2 – Variation within jobs	0.774	1.000						
V3 – Status among jobs	0.785	0.825	1.000					
V4 – Mobility barriers among low and high jobs	0.763	0.748	0.782	1.000				
V5 – Number of specialties	−0.739	−0.772	−0.822	0.792	1.000			
V6 – Training	−0.744	−0.753	−0.797	−0.748	0.876	1.000		
V7 – Decision making jobs	−0.786	−0.741	−0.811	−0.821	0.763	0.692	1.000	
V8 – Decision making areas	−0.752	−0.778	−0.782	−0.811	0.792	0.705	0.744	1.000

<sup>a</sup> All correlation coefficients significant at 0.0001 level.

**Table 7.** Hypotheses of Investigation and Levels of Support.

Hypotheses	Summary Indication of Support	F Value
1a. Entrepreneurial electrical distributors with a prospector strategy will have an organic structure	Supported	<0.0001
1b. Entrepreneurial electrical distributors with a defender strategy will have a mechanistic structure	Supported	<0.0001
1c. Conservative electrical distributors with a prospector strategy will have an organic structure	Supported	<0.0001
1d. Conservative electrical distributors with a defender strategy will have a mechanistic structure	Supported	<0.0001
2a. Performance differences will occur among entrepreneurial electrical distributors having a prospector strategy-organic structure	Supported	<0.0001
2b. Performance differences will occur among entrepreneurial electrical distributors having a defender strategy-mechanistic structure	Supported	<0.0001
2c. Performance differences will occur among conservative electrical distributors having a prospector strategy-organic structure	Supported	<0.0001
2d. Performance differences will occur among conservative electrical distributors having a defender strategy-mechanistic structure	Supported	<0.0001
3a. Entrepreneurial electrical distributors with the best prospector strategy-organic structure when compared to other entrepreneurial electrical distributors having a prospector strategy-organic structure	Supported	0.05
3b. Entrepreneurial electrical distributors with the best defender strategy-mechanistic structure match will have the best performance when compared to other entrepreneurial electrical distributors having a defender strategy-mechanistic structure	Supported	0.05
3c. Conservative electrical distributors with the best prospector strategy-organic structure match will have the best performance when compared to other conservative electrical distributors having a prospector strategy-organic structure	Supported	0.05
3d. Conservative electrical distributors with the best defender strategy-mechanistic structure match will have the best performance when compared to other conservative electrical distributors having a defender strategy-mechanistic structure	Supported	0.05
4. Equal performance will occur among (a) entrepreneurial electrical distributors having the best prospector strategy-organic structure match, (b) entrepreneurial electrical distributors having the best defender strategy – mechanistic structure match (conservative) electrical distributors having the best prospector strategy-organic structure match, (d) conservative electrical distributors having the best defender strategy-mechanistic structure match.	Supported for performance measures of “turns,” earns, and earns × turns	“earns” $p = 0.859$ turns $p = 0.884$ earns × turns $p = 0.971$

*Hypotheses 1c and 1d*

We predicted in these two hypotheses that conservative electrical distributors with a prospector strategy will have an organic structure and that conservative electrical distributors with a defender strategy will have a mechanistic structure. Both hypotheses were supported (chi-square value of 135.24,  $p < 0.0001$  and a  $t$  test;  $t = 3.89$ ,  $p < 0.0001$ ).

*Hypotheses 2a, 2b, 2c, and 2d*

In these four hypotheses we speculated that performance differences would occur among: (1) entrepreneurial electrical distributors with a prospector strategy-organic structure; (2) entrepreneurial electrical distributors with a defender strategy-mechanistic structure; (3) conservative electrical distributors with a prospector strategy-organic structure; and (4) conservative electrical distributors with a defender strategy-mechanistic structure. Earlier, we explained that during data analyses, the responding electrical distributors had been formed into the following four categories:

- Category 1 – entrepreneurial firms having a prospector strategy-organic structure.
- Category 2 – entrepreneurial firms having a defender strategy-mechanistic structure.
- Category 3 – conservative firms having a prospector strategy-organic structure.
- Category 4 – conservative firms having a defender strategy-mechanistic structure.

Our approach in investigating Hypotheses 2a, 2b, 2c, and 2d was to cluster the responding electrical distributors by category using a cluster technique described by Kerlinger (1973) and Osgood, Suci and Tannenbaum (1957). As depicted in Figs 2 and 3, three clusters were generated from each of the preceding four categories.

As illustrated in Fig. 2, the previously confirmed 33 entrepreneurial electrical distributors having a prospector strategy-organic structure were separated into three clusters of 9, 11 and 13 electrical distributors, respectively. The 39 previously confirmed entrepreneurial electrical distributors having a defender strategy-mechanistic structure were separated into clusters of 13, 11 and 15 electrical distributors, respectively.

Also, as illustrated in Fig. 3, the previously confirmed 29 conservative electrical distributors having a prospector strategy-organic structure were separated into three clusters of 9, 11 and 9 electrical distributors, respectively. The 47 previously confirmed conservative electrical distributors having a defender strategy-mechanistic

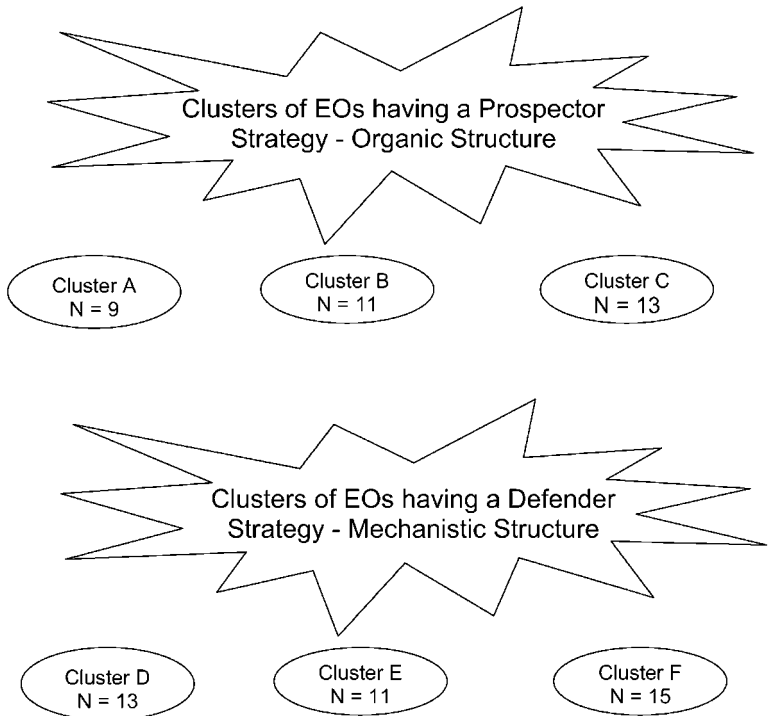


Fig. 2. Clusters of Entrepreneurial (EOs) Electrical Distributors.

structure were separated into clusters of 15, 18 and 14 electrical distributors, respectively.

Statistical means and standard deviations of the structural variables for each cluster, together with performance data are described in Table 8 for those responding entrepreneurial electrical distributors and in Table 9 for those responding conservative electrical distributors. The reader will note that Tables 8 and 9 contains the three performance measures of earns, turns, and earns times turns. Survey respondents reported their earns and turns for each of the five years 1998 through 2002 and we then multiplied the respective earns and turns to generate an earns times turns measure for each of the five years 1998 through 2002.

ANOVA tests indicated that the average structure means of the three clusters in each of the four categories were significantly different ( $F = 74.542$ ,  $p < 0.0001$  for entrepreneurial electrical distributors with a prospector strategy-organic structure;  $F = 79.387$ ,  $p < 0.0001$  for entrepreneurial electrical distributors with a defender strategy-mechanistic structure;  $F = 95.187$ ,  $p < 0.0001$  for

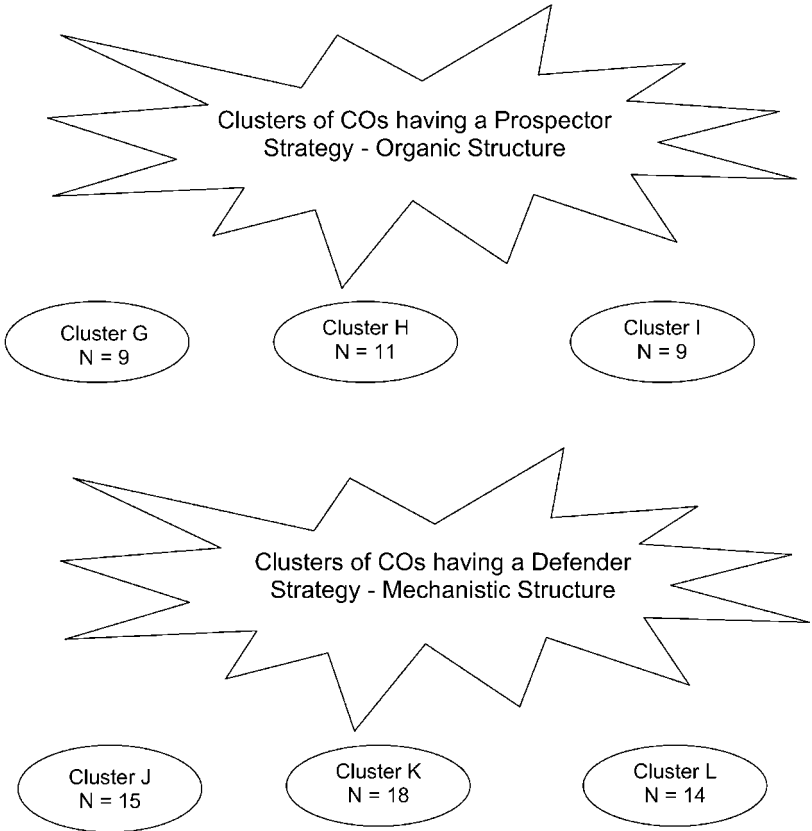


Fig. 3. Clusters of Conservative (COs) Electrical Distributors.

conservative electrical distributors with a prospector strategy-organic structure;  $F = 153.361, p < 0.0001$  for conservative electrical distributors with a defender strategy-mechanistic structure).

Because the three performance measures of earns, turns, and earns times turns, were not highly correlated, they were treated independently for computational purposes. An ANOVA test indicated that performance was significantly different for the strategy-structure clusters in each of the four categories. Thus, Hypotheses 2a, 2b, 2c, and 2d are supported. The ANOVA result for the performance measures of earns, turns, and earns times turns for entrepreneurial electrical distributors with a prospector strategy-organic structure are: ( $F = 7.332, p = 0.003$ ;  $F = 18.134, p < 0.0001$ ;  $F = 29.203, p < 0.0001$ ), respectively. The ANOVA

**Table 8.** Means<sup>a</sup> Standard Deviations and Performance Data<sup>b</sup> for Cluster Groups of Entrepreneurial Electrical Distributors.

	Entrepreneurial Type – Prospector Strategy				
	Organic Structure		Performance		
	Mean	S.D.	Earns	Turns	Earns × Turns
Cluster A ( <i>N</i> = 9)	2.90	0.49	27.07	3.25	87.12
Cluster B ( <i>N</i> = 11)	1.47	0.14	33.84	4.08	139.29
Cluster C ( <i>N</i> = 13)	2.81	0.24	28.89	3.05	87.59
	Entrepreneurial Type – Defender Strategy				
	Mechanistic Structure		Performance		
	Mean	S.D.	Earns	Turns	Earns × Turns
Cluster D ( <i>N</i> = 13)	3.88	0.30	37.37	4.05	136.06
Cluster E ( <i>N</i> = 11)	3.21	0.22	28.22	3.19	89.10
Cluster F ( <i>N</i> = 15)	3.09	0.14	29.32	3.04	88.66

*Note:* The Earns value is expressed as a percentage while the Turns value is expressed as a whole number.

<sup>a</sup> Because all eight structural variables are highly correlated, an average value was used.

<sup>b</sup> All performance measures are averages for the years 1998–2002.

result for the performance measures of earns, turns, and earns times turns for entrepreneurial electrical distributors with a defender strategy-mechanistic structure are: ( $F = 6.418, p = 0.004$ ;  $F = 27.698, p < 0.0001$ ;  $F = 40.727, p < 0.0001$ ), respectively.

The ANOVA result for the performance measures of earns, turns, and earns times turns for conservative electrical distributors with a prospector strategy-organic structure are: ( $F = 6.527, p = 0.005$ ;  $F = 2.995, p < 0.0001$ ;  $F = 61.294, p < 0.0001$ ), respectively. The ANOVA result for the performance measures of earns, turns, and earns times turns for conservative electrical distributors with a defender strategy-mechanistic structure are: ( $F = 8.797, p = 0.001$ ;  $F = 39.809, p < 0.0001$ ;  $F = 63.531, p < 0.0001$ ), respectively.

*Hypotheses 3a, 3b, 3c, and 3d*

To investigate the strategy-structure-performance relationship, we used the work of Hage (1965) in which he argued that his (Hage’s) structural variables that are described in Table 2 provide a continuum for measuring the degree of an organization’s organic or mechanistic structure. For example, organizations with low structural means are more organic while those with a high structural mean are mechanistic. Using Hage’s (1965) argument, for those entrepreneurial electrical

**Table 9.** Means<sup>a</sup> Standard Deviations and Performance Data<sup>b</sup> for Cluster Groups of Conservative Electrical Distributors.

	Conservative Type – Prospector Strategy				
	Organic Structure		Performance		
	Mean	S.D.	Earns	Turns	Earns × Turns
Cluster G (N = 9)	2.89	0.42	27.33	3.81	105.12
Cluster H (N = 11)	2.54	0.18	28.76	3.14	89.85
Cluster I (N = 9)	1.56	0.21	32.80	4.05	133.66
	Conservative Type – Defender Strategy				
	Mechanistic Structure		Performance		
	Mean	S.D.	Earns	Turns	Earns × Turns
Cluster J (N = 15)	4.24	0.19	34.12	4.09	140.58
Cluster K (N = 18)	3.21	0.25	29.70	3.04	90.17
Cluster L (N = 14)	3.14	0.17	29.27	3.14	91.20

<sup>a</sup>Because all eight structural variables are highly correlated, an average value was used.  
<sup>b</sup>All performance measures are averages for the years 1998–2002. The Earns value is expressed as a percentage while the Turns value is expressed as a whole number.

distributors depicted in Table 8, Cluster B would have the best strategy-structure match in their category because they have the best type of organic structure (their corresponding structural means were lower than those of Clusters A and C). Similarly, from Table 8, Cluster D would have the best strategy-structure match in their category because they have the best type of mechanistic structure (their corresponding structural means were higher than those of Clusters E and F). Continuing with Hage’s (1965) argument, for those conservative electrical distributors depicted in Table 9, Cluster I would have the best strategy-structure match in their category because they have the best type of organic structure (their corresponding structural means were lower than those of Clusters G and H). Similarly, from Table 9, Cluster J would have the best strategy-structure match in their category because they have the best type of mechanistic structure (their corresponding structural means were higher than those of Clusters K and L).

In summary, we find that from Category 1 (entrepreneurial electrical distributors with a prospector strategy-organic structure) those electrical distributors in Cluster B have the best strategy-structure match. Also, those electrical distributors with the best strategy-structure match from Category 2 (entrepreneurial electrical distributors with a defender strategy-mechanistic structure), Category 3 (conservative electrical distributors with a prospector strategy-organic structure) and Category 4

**Table 10.** Analysis of Variance Results of Performance Measures by Cluster of ENTREPRENEURIAL Electrical Distributors.

Performance Measure	<i>F</i>	Scheffe (0.05) Multiple Comparison
Prospector strategy – organic structure		
Earns	7.332*	Cluster B
Turns	18.134**	Cluster B
Earns × turns	29.203**	Cluster B
Defender strategy – mechanistic structure		
Earns	6.418***	Cluster D
Turns	27.698**	Cluster D
Earns × turns	40.727**	Cluster D

*Note:* Cluster B significantly different from clusters A and C for performance of Earns, Turns and Earns times Turns at 0.05 significance level. Cluster D significantly different from clusters E and F for performance of Earns, Turns and Earns times Turns at 0.05 significance level.

\* $P < 0.003$ .

\*\* $P < 0.0001$ .

\*\*\* $P < 0.004$ .

(conservative electrical distributors with a defender strategy-mechanistic structure) are Clusters D, I and J, respectively.

For Hypotheses 3a, 3b, 3c, and 3d to be supported, those clusters in each category with the best strategy-structure match would have a higher performance. Tables 10 and 11 presents an analysis of variance results of performance measures by the

**Table 11.** Analysis of Variance Results of Performance Measures by Clusters of Conservative Electrical Distributors.

Performance Measure	<i>F</i>	Scheffe (0.05) Multiple Comparison
Prospector strategy – organic structure		
Earns	6.527*	Cluster I
Turns	2.995**	Cluster I
Earns × turns	61.294**	Cluster I
Defender strategy – mechanistic structure		
Earns	8.797***	Cluster J
Turns	39.809**	Cluster J
Earns × turns	63.531**	Cluster J

*Note:* Cluster I significantly different from clusters G and H for performance measures of Earns, Turns and Earns times Turns at 0.05 significance level. Cluster J significantly different from clusters K and L for performance measures of Earns, Turns and Earns times Turns at 0.05 significance level.

\* $P < 0.005$ .

\*\* $P < 0.0001$ .

\*\*\* $P < 0.001$ .



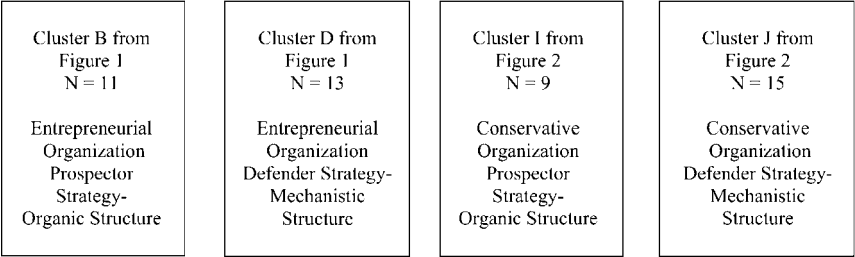


Fig. 4. Clusters of Electrical Distributors with Superior Strategy – Structure – Performance.

clusters in each category together with the results of Scheffe’s multiple range test at the 0.05 significance level for performance differences.

For those electrical distributors in Category 1, Cluster B was significantly different from Clusters A and C for the performance measures of earns, turns, and earns times turns which provides support for Hypothesis 3a. In Category 2, the performance measures of earns, turns, and earns times turns for Cluster D was significantly different from Clusters E and F which provides support for Hypothesis 3b. In Category 3, the performance measures of earns, turns, and earns times turns for Cluster I was significantly different from Clusters G and H which provides support for Hypothesis 3c. In Category 4, the performance measures of earns, turns, and earns times turns for Cluster J was significantly different from Clusters K and L which provides support for Hypothesis 3d.

*Hypothesis 4*

The final hypothesis stated that electrical distributors in each of the four categories with the best strategy-structure match would have equal performances. For Hypothesis 4 to be supported, electrical distributors in Clusters B, D, I and J would have the same performance. Figure 4 illustrates these four clusters.

An ANOVA analysis of the three performance measures for the four clusters depicted in Fig. 3 indicated that no significant differences existed for the performance measures of earns, turns, earns times turns ( $F = 0.217, p = 0.859$ ;  $F = 0.079, p = 0.884$ ;  $F = 0.253, p = 0.971$ ), respectively. Thus, Hypothesis 4 is supported.

**DISCUSSION**

The major purpose of this study was to investigate the relationship among corporate entrepreneurship and traditional models of strategy, structure and performance. Our study indicates that both entrepreneurial and conservative electrical

distributors with an optimum strategy-structure match tend to have a higher performance than those entrepreneurial and conservative electrical distributors without an optimum strategy-structure match. For example, in our study, entrepreneurial and conservative electrical distributors with either the best prospector strategy-organic structure match or the best defender strategy-mechanistic structure match tended to have a higher performance than those entrepreneurial or conservative electrical distributors whose strategy and structure was not optimally matched. These findings suggest that a higher performance is determined by an organization's strategy-structure match and not whether the organization is either entrepreneurial or conservative or what specific type of strategy-structure arrangement is employed. These findings support arguments from strategic management researchers regarding strategy, structure, and performance. This argument is that managers cope with changes in their organization's external environment through the choice of an appropriate strategy and the design of a matching structure (Andrews, 1971; Ansoff, 1979; Miller, 1986; Nadler, 2001). Furthermore, both strategic management and corporate entrepreneurship researchers argue that a misalignment between strategy and structure affects performance (Chandler, 1962; Child, 1975; Dess, Lumpkin & Covin, 1997; Dess, Rasheed, McLaughlin & Priem, 1995; Miller, 1986).

The findings of this study also indicate that: (a) entrepreneurial electrical distributors having the best prospector strategy-organic structure match; (b) entrepreneurial electrical distributors having the best defender strategy-mechanistic structure match; (c) conservative electrical distributors having the best prospector strategy-organic structure match; and (d) conservative electrical distributors having the best defender strategy-mechanistic structure match have equal performance. This finding tends to support: (1) the notion of equifinality which allows a feasible set of equally, effective, internally consistent patterns of strategy and structure; and (2) the argument made against the early contingency theorists that there is no best single strategy or structure to fit a given industry environment.

Building on the work of Miller (1994) and Anderson and Zeithaml (1984), Covin, Slevin and Heeley (1999, p. 179) argue that "hostile environments pose constant threats to the viability of business operations . . . one common through incompetently tested prescription for managing in hostile environments is the adoption of aggressive, proactive, or more generally entrepreneurial postures." Thus, an important element in our study is the condition of the external environment facing those electrical distributors during the time period (1998–2002) of our study. Was that external environment facing those electrical distributors hostile, benign, or munificent? Covin, Slevin and Heeley (1999, p. 195) offer the

following definition for environmental hostility: “generally a decline in the average profitability of the industry over the latest three-year period would be associated with a level of environmental hostility.” While the intent of our study was not to examine environmental conditions, we were able to calculate profitability trends for the last three years. For the past three years (2000–2002) the earnings, turns, and earnings times earnings ratios declined 21.6, 14.3, and 33.1%, respectively for the 72 entrepreneurial electrical distributors included in our study. For the 76 conservative electrical distributors included in our study, the earnings, turns, and earnings times turns ratios declined 20.3, 15.1, and 32.7%, respectively. Industry statistics for the last three years (2000–2002) indicated that the earnings, turns, and earnings times turns ratios for all reporting electrical distributors ( $N = 1237$ ) declined 22.3, 14.8, and 34.6%, respectively while their net profit before tax declined 42.6% for that same time period (NAED, 2002). Thus, based on Covin, Slevin and Heeley’s (1999) definition of environmental hostility, it appears that our study occurred during a period of environmental hostility. This determination is significant, because our study suggests that during a hostile environment the major driving factor towards achieving high performance is the extent of a firm’s strategy-structure match. Also, firms do not have to rely on having an entrepreneurial posture when facing a hostile environment.

This study presents several areas for future research. For example, researchers might wish to examine the relationship among corporate entrepreneurship, strategy, structure, and performance in different industry settings. Also, another area for future research involves conducting longitudinal analyses of the evolution of strategies, structures, and environments to establish just how the strategy-structure match becomes optimum.

The findings of this study also have important implications for practicing managers. Conservative electrical distributors with an optimum strategy-structure match performed just as well as entrepreneurial electrical distributors with an optimum strategy-structure match. This finding suggests that top managers, even in the face of a hostile environment, can defend an existing approach for competing, so long as their strategy-structure alignment is done consistently well. Further, these findings suggest that the conventional wisdom regarding the importance of “transforming and restructuring” which pervades both popular and academic publications may have certain exceptions. For example, as stated earlier, the notion of equifinality suggests that a variety of approaches can yield success while conventional wisdom seems to recommend the one best way. Managers must minimize misfits between their strategy-structure match as they prepare their organizations to deal with organizational changes. In essence, managers may have to fine tune the structure of their organization in the face of

environmental change. We hope that this study will provide fertile ground for future research.

## NOTES

1. In an investigation of entrepreneurial and non-entrepreneurial organizations, Miller and Friesen (1982) referred to non-entrepreneurial organizations as “conservative.” Thus, we adopted that same convention and use the term conservative to refer to non-entrepreneurial organizations.
2. von Bertalanfy is considered to be the father of General Systems Theory and a pioneer in the development of Complexity Science (Guberman, 2002; Horgan, 1995; Richardson, 2002).
3. The Jennings and Young (1990) measure was corporate entrepreneurship while the Dess and Robinson (1984) measure was return on assets.

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## **APPENDIX 1: RESEARCH QUESTIONNAIRE USED TO MEASURE CORPORATE ENTREPRENEURSHIP**

Response ranged from 1 = strongly disagree; to 5 = strongly agree.

(1) strongly disagree, (2) disagree, (3) neither agree nor disagree, (4) agree, and (5) strongly agree. Specific questions were:

- (1) Our distributorship has made many dramatic changes in the mix of its products and services over the past five years.
- (2) Our distributorship has emphasized making major innovations in its products and services over the past five ears.
- (3) Over the past five years, this distributorship has shown a strong proclivity for high-risk projects (with chances of very high return).

- (4) Our distributorship has introduced many new products or services over the past five years.
- (5) This distributorship has emphasized taking bold, wide-ranging actions in positioning itself and its products and services over the past five years.
- (6) This distributorship has shown a strong commitment to research and development, technical leadership, and innovation.
- (7) This distributorship has followed strategies that allow it to exploit opportunities in its external environment.

*Source:* Adapted from [Danny Miller and P. H. Friesen \(1982\)](#).

## **APPENDIX 2: RESEARCH QUESTIONNAIRE USED TO MEASURE ORGANIZATIONAL STRATEGY**

Listed below are four primary strategies utilized by electrical distribution firms. Each of these strategies is neither better nor worse than another. CIRCLE THE ONE that best describes your distributor's strategy:

- (1) This type of distributorship attempts to locate and maintain a secure niche in a relatively stable product or service area. The distributorship tends to offer a more limited range of products than its competitors, and it tries to protect its domain by offering higher quality, superior service, lower prices and so forth. Often this type of firm is not at the forefront of developments in the industry – it tends to ignore industry changes that have no direct influence on current areas of operation and concentrates instead on doing the best job possible in a limited area.
- (2) This type of distributorship typically operates within a broad product-market domain that undergoes periodic redefinition. The distributorship values being “first in” in new product/service and market areas even if not all of these efforts prove to be highly profitable. The distributorship responds rapidly to early signals concerning areas of opportunity, and these responses often lead to a new round of competitive actions. However, this type of distributorship may not maintain market strength in all of the areas it enters.
- (3) This type of distributorship attempts to maintain a stable, limited line of products/services, while at the same time moving out quickly to follow a carefully selected set of the more promising new developments in the industry. The distributorship is seldom “first in” with new products/services. However, by carefully monitoring the actions of major competitors in areas compatible with its stable product/service-market base, the distributorship can frequently be “second in” with more cost-efficient products/services.

- (4) This type of distributorship does not appear to have a consistent product-market orientation. The distributorship is usually not as aggressive in maintaining established products/services and markets as some of its competitors, nor is it willing to take as many risks as other competitors. Rather, the distributorship responds in those areas where it is forced to, by environmental pressures.

*Source:* Adapted from C. C. Snow and L. G. Hrebiniak (1980).

### **APPENDIX 3: RESEARCH QUESTIONNAIRE USED TO MEASURE ORGANIZATIONAL STRUCTURE**

Response ranged from 1 = never; to 5 = always as follows: (1) never, (2) rarely, (3) occasionally, (4) frequency, and (5) always. Specific questions were:

- (1) Codified job descriptions are used by our distributorship.
- (2) Ranges of variation are allowed within jobs in our distributorship.
- (3) Differences exist in income and prestige among jobs in our distributorship.
- (4) Rate of mobility between low and high-ranking jobs is a barrier in achieving particular status levels.
- (5) Specialists (lawyers, economists, information systems experts, CPAs, human relations experts, and logisticians) are employed by your distributorship to either make (or assist) decisions.
- (6) The level of training required for your lowest level manager and each succeeding level varies considerably.
- (7) A proportion of jobs are used to participate in making decisions.
- (8) Decision makers are involved in making decisions at most levels of our distributorship.

*Source:* Adapted from J. Hage (1965).

### **APPENDIX 4: PERFORMANCE MEASURES**

Performance measures are defined as follows:

- (1)  $\text{Earns Ratio} = \frac{\text{gross margin}}{\text{net sales}}$
- (2)  $\text{Turns Ratio} = \frac{\text{net sales}}{\text{inventory}}$

Response to performance measures:

Year	Earns Ratio	Turns Ratio
1998	—	—
1999	—	—
2000	—	—
2001	—	—
2002	—	—





# INTERNATIONAL CORPORATE ENTREPRENEURSHIP AND THE EVOLUTION OF ORGANIZATIONAL COMPETENCE: A KNOWLEDGE-BASED PERSPECTIVE

Shaker A. Zahra, Heidi M. Neck and Donna J. Kelley

## INTRODUCTION

Research on corporate entrepreneurship (CE) has grown rapidly over the past decade (for reviews, see [Dess et al., 2003](#)). This interest in CE stems from rising international competition, requiring companies to learn new skills and develop new competencies (Eisemhardt & Santos, 2003). These competencies enable companies to compete in new market arenas both at home and internationally, creating value for shareholders ([McGrath, MacMillan & Venkataraman, 1995](#)). With more and more companies focusing on international expansion, recent research on CE has focused on examining international issues. Though most past research is comparative in nature, some has investigated companies' international expansion as a forum within which CE activities unfold ([Zahra & Garvis, 2000](#)).

This chapter focuses on international corporate entrepreneurship (ICE), defined as those activities that companies undertake in their foreign markets aiming

to improve organizational performance. Applying the learning and knowledge perspectives, we propose that ICE activities enable a company to gain new, perhaps radically new, knowledge that it can use to augment its existing knowledge base. International expansion, when creatively exploited, can expose the firm to a variety of external sources of innovation that leads to the creation of new business that generates new revenue streams that improve organizational performance. Further, we propose that knowledge augmentation through internationalization is a time consuming and complex process. Knowledge integration requires the firm to: (a) develop the absorptive capacity (Zahra & George, 2002b); (b) engage in effective and timely knowledge sharing (Zahra & Nielsen, 2002); and (c) exploit newly acquired knowledge in future innovations and venturing efforts, thereby ensuring successful organizational transformation. Our discussion of the various roles senior managers play in cultivating and exploiting knowledge from international markets fills a gap in research on the role of entrepreneurial activities in international operations.

This chapter uses the organizational learning (Huber, 1991; Senge, 1990) and knowledge-based perspective (Fiol & Lyles, 1985; Grant, 1996a, b; Spender, 1996) to develop the arguments, showing that these are complementary views that can improve our understanding of the evolution and contributions of CE in international operations. The organizational learning perspective is particularly informative about the conditions under which the firm gains new knowledge from its ICE. The knowledge-based perspective is useful in understanding how companies exploit this knowledge and gain a competitive advantage. While international business scholars have applied the knowledge perspective in their analyses of the evolution of multinational enterprises (MNEs), entrepreneurship researchers have not made use of the rich propositions of this perspective in theorizing about a company's potential gains from ICE. We hope that our use of the knowledge perspective will encourage entrepreneurship scholars to pay more attention to the conditions within which ICE occurs and capitalize on the geopolitical mosaic that underlies this phenomenon. We fear that prior analyses of ICE have ignored the contextual variables that influence this complex phenomenon.

The chapter contributes to the literature in three ways. The first is by examining ICE, which is a young but growing area of the literature. With the growing globalization of business, there is a need to explore ICE activities. Companies use ICE to acquire knowledge developed in other markets and then incorporate this knowledge into their operations. ICE broadens the scope of a firm's search for new knowledge, allowing it to pursue different and innovative ventures. Drawing on recent research in economic geography (Dunning, 1993; Florida, 1995; Porter, 1996; Porter & Sölvell, 1998) the chapter shows that how and where the firm conducts its ICE activities significantly influence its potential learning (Dunning, 1994, 1998; Hitt, Hoskisson & Kim, 1997). Our discussion recognizes four streams

of research that can significantly influence future theory building on the payoff from ICE: the Uppsala model, the eclectic paradigm, the transnational model, and the born global. Each of these four research streams identifies potentially important variables that can determine whether a firm learns, what it learns and how the firm might gain an advantage from its international expansion through learning. Each stream, however, holds different assumptions about the nature of learning and, for us, has implications for understanding the payoff from ICE.

The chapter's second contribution lies in showing how ICE might generate strategic value through knowledge creation and exploitation in international markets. Therefore, it analyzes the various stages of knowledge creation and how ICE might induce learning and knowledge acquisition. Entrepreneurship scholars, especially those who write about born global new ventures, have spoken broadly about the importance of learning and new knowledge acquisition (Zahra, Ireland & Hitt, 2000). International business researchers have also spoken about these issues in general terms. Yet, prior analyses have tended to ignore how learning takes places and how companies go about transforming this learning into entrepreneurial activities. Therefore, an appreciation of the difficulties and challenges companies encounter in these efforts can make a major difference in understanding why certain companies gain an advantage from ICE while others do not.

The chapter's third and final contribution is discussing the various activities senior managers should undertake to learn from ICE and then deploy this knowledge to develop new organizational competencies. These activities lie at the heart of the entrepreneurial process that centers on recognizing, identifying, evaluating, and exploiting opportunities in existing and new international markets.

## **INTERNATIONAL CORPORATE ENTREPRENEURSHIP (ICE)**

ICE refers to those activities a firm undertakes to identify, evaluate, select and pursue opportunities outside its home markets (Zahra & Garvis, 2000). While corporate entrepreneurship (CE) activities involve innovativeness, proactiveness, and a willingness to take risks (Miller, 1983), ICE applies this posture to geographic exploration and expansion. For some firms, ICE unfolds as they begin to internationalize their operations. For others, ICE becomes evident as they reconfigure their resources in pursuit of opportunities in existing operations seeking expansion, efficiency, growth or profitability.

ICE activities need not be formal in nature. Research suggests that subsidiaries of MNEs exhibit varying degrees of autonomous entrepreneurial activities in their operations – reflecting these units' attempt to creatively exploit opportunities

in their local markets, secure independence from tight corporate controls, or explore ways to build new revenue streams. Some of these activities are likely to be incorporated into the MNEs' "formal" strategies (Burgelman, 1991; Burgelman & Sayles, 1986). Managing the dynamic interplay between formal and informal processes is one of the most important tasks of general management in today's MNE. Informal ICE efforts are probes into the future and feedback from these experiments can shape corporate thinking about formal ICE efforts to be undertaken in international markets.

Formal ICE activities usually center on identifying new market arenas and developing new competencies to exploit them. This requires both innovation and venturing. Innovation, as used throughout this chapter, is multi-faceted. It centers on the creation of goods, business models, systems and processes. Innovation also entails creating new organizational forms that allow the MNE to achieve efficiency and effectiveness.

Venturing means entering new markets or expanding within existing markets, aiming to gain superior performance. Venturing can be performed internally by creating new businesses or externally through alliances and acquisitions. International business scholars have long recognized that the mode of foreign entry has implications for the success or failure of international activities and the firm's gains from these transactions. This research also shows that organizations learn quite differently and learn different things from different modes of foreign entry (for a review, Zahra et al., 2000). The same logic applies to venturing activities in international markets.

## ICE AND ORGANIZATIONAL LEARNING

Much has been written about the nature and consequences of organizational learning (Fiol & Lyles, 1985; Hedberg, 1981; Herriot, Levinthal & March, 1985; Senge, 1990). Yet, the vast literature that exists on the topic remains fragmented because of persistent disagreements on what constitutes learning and how it is measured (Lyles & Salk, 1996; Stata, 1989). We agree with Huber (1991) who observes that organizations learn when they gain new knowledge that leads to a change in the range of its potential behaviors. *To us, learning means the acquisition of new knowledge that can be used to improve organizational performance immediately or over time.* Our emphasis on the importance of learning for improving organizational performance, though understandable, should not obscure the fact that some learning is haphazard and unfocused and therefore may depress organizational performance (Dodgson, 1993). Some learning is too abstract to have immediate commercial value. Yet, over time, organizational learning should have an effect on the firm's innovation and value creation.

Another persistent debate in the literature is whether organizations learn at all. There is a growing consensus that organizations learn through their members and that this learning forms the foundation of “organizational memory” that influences future strategic choices. Organizational memory usually contains the histories of successful and unsuccessful experiments performed formally or informally (Walsh & Ungson, 1991). Over time, these histories become intertwined with organizational culture and serve to condition individual and organizational behavior. This has led some scholars to propose that for organizations to learn new skills, they must first unlearn old habits and discontinue existing practices. Changing mental models and belief systems is a slow and difficult process.

ICE offers companies a range of opportunities through which they can learn. The first is learning by doing where firms acquire knowledge by tackling the various challenges associated with defining, evaluating and exploiting opportunities in their international markets. The second is vicarious learning by observing competitors, vendors and customers in existing or new markets. Companies learn from analyzing their rivals (Zahra & Chaples, 1993) as well as imitating the successful practices of their rivals (Kim, 1997). Companies also learn by interacting with suppliers and customers (Leonard-Barton, 1995). A third way companies learn through ICE is by grafting knowledge from the local foreign markets they enter (Huber, 1991) through environmental scanning and monitoring of market conditions.

The organizational learning perspective suggests that companies venturing into international markets can acquire a great deal of knowledge that they can use in their operations (Huber, 1991). Knowledge acquisition, as just noted above, can occur formally or informally. To have serious and enduring impacts on company performance, this knowledge should be shared, integrated and targeted in ways that permit the development of new skills. New skills take time to develop (Leonard-Barton, 1995) and should be integrated to create organizational competencies. These competencies are integrated sets of organizational skills that enable a firm to differentiate itself from the competition. They should remain current in order to develop the dynamic capabilities that companies need to succeed in their global markets (Eisenhardt & Martin, 2000; Teece, Pisano & Shuen, 1997).

## **LEARNING THROUGH INTERNATIONALIZATION: FOUR MODELS**

Four streams of research reinforce the growing importance of recognizing organizational learning and knowledge creation-exploitation as an important issue in ICE: the Uppsala model, the eclectic model, the transnational model, and born

global. While each of these models has different assumptions about the nature and role of organizational learning, they agree that it is of central importance in explaining and understanding a firm's gains in international markets.

### *The Uppsala Model*

The *Uppsala* (the internationalization process) *model* highlights the importance of experiential learning in inducing international expansion (Melin, 1992). Johanson and Vahlne (1977) posit that firms learn by doing, and as their knowledge base expands they seek to use this knowledge in new markets. Learning about local markets and geopolitical conditions, in turn, stimulates future international expansion (Barkema, Bell & Pennings, 1996). Johanson and Vahlne (1977) further suggest that firms undertake sequential steps to internationalize their operations and successfully acquire, integrate and use knowledge about foreign markets. Accumulation of this experiential knowledge leads to increasing commitment to internationalization (Melin, 1992).

Initial internationalization efforts provide an avenue for exploiting the firm's stocks of knowledge that have accumulated in domestic markets. Firms internationalize by exporting, licensing, allying themselves with other firms, and making greenfield investments. These activities reflect progressively complex transactions that require considerable knowledge and skills. The Uppsala model posits, moreover, that companies enter countries that are most similar to their own country's culture. Over time, accumulating experiential knowledge enables the firm to enter markets that are culturally dissimilar to their home base markets (Melin, 1992). In this context, organizational learning "amounts to reducing the psychic distance between home and host country by expanding knowledge of local conditions" (Barkema et al., 1996, p. 153). How much of this learning the firm gains depends heavily on its chosen mode of entry (Vermeulen & Barkema, 2001).

In some ways the Uppsala model echoes the key proposition of Vernon's (1966) theory of sequential market entry that highlights the product life cycle. Vernon argues that firms develop their new products and exploit them domestically, but as the product approaches maturity they venture abroad. The Uppsala model does not necessarily agree with Vernon's views but it highlights that knowledge gained in domestic markets becomes a foundation for international expansion. By entering markets that are closest to their national cultures, firms reduce barriers to the transfer of technology and knowledge and making appropriate adjustments to local markets (Barkema et al., 1996). These transfers are an important conduit for organizational learning that spurs future innovation and venturing.

The Uppsala model focuses primarily on the initial efforts to internationalize a company’s operations, possibly overlooking those companies that have amassed considerable experience in this regard (Melin, 1992). The model also holds a deterministic view of internationalization, proposing a predictably sequential pattern of evolution. Consequently, it ignores the possibility that some firms may skip some of these steps and leapfrog their competitors. The Uppsala model also highlights the exploitative side of learning, where the firm goes international to make use of their existing knowledge. However, more and more companies go international in order to acquire new knowledge and develop new skills. Decisions related to locating R&D and production facilities in foreign markets are influenced by this growing need for knowledge (Barkema et al., 1996). As such, firms proactively engage in exploratory learning that expands their knowledge bases and allows them to overcome inertia.

The Uppsala model is also limited because it does not say much about the process of competence development in the MNE. This process demands explorative and exploitative learning (Zahra, 2003). According to Fig. 1, basic industry, market and firm-specific conditions determine the pace, direction and approach to internationalization. In turn, internationalization enriches the firm’s social, organizational, technological and market learning. This learning allows the firm to develop unique skills and keep their existing capabilities current. Through knowledge integration, firms combine multiple skills to develop competencies. Knowledge integration

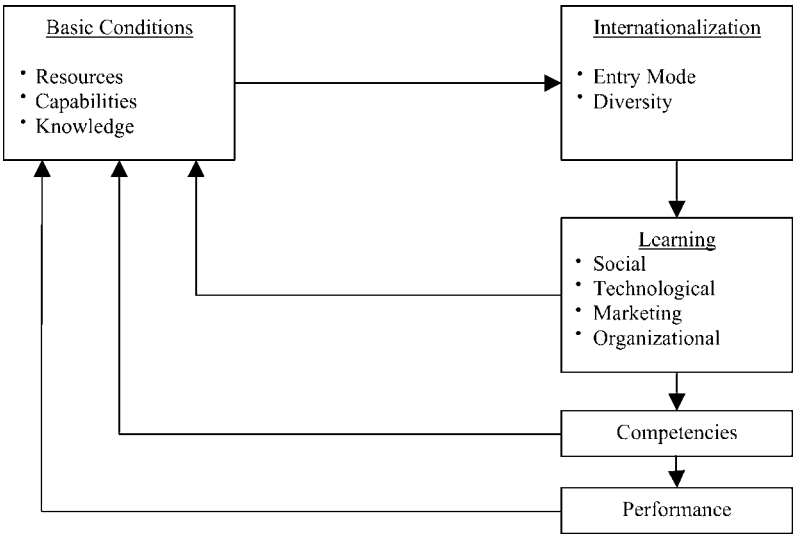


Fig. 1. The Internationalization – Competency Link.

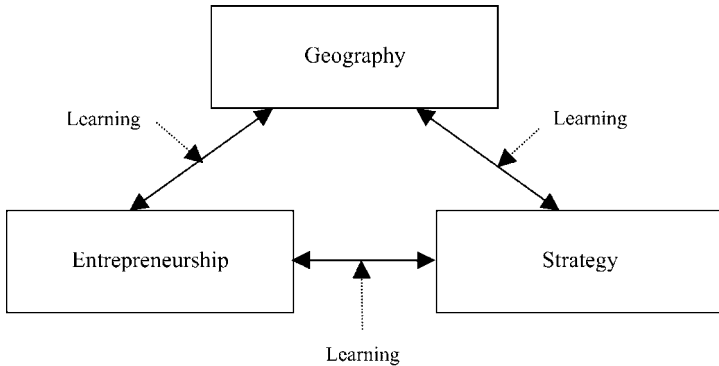


Fig. 2. Organizational Learning from ICE.

is the formal and informal process by which firms combine different types of internal and external knowledge, developed internally or externally (Grant, 1996a, b; Zahra et al., 2000). Exploratory and exploitative learning safeguard against dysfunctional inertia. Figure 2 illustrates this cycle. Understanding the process of knowledge creation within ICE requires attention to the geopolitical mosaic in which multinational firms compete, an issue we will discuss shortly.

### *The Eclectic Paradigm*

This paradigm proposes that three sets of variables explain MNEs evolution: ownership-specific advantages, internalization advantages, and localization advantages (Dunning, 1988). Ownership advantages arise from the control of unique and valued resources and skills. Internalization advantages result from conducting particular operations internally, thereby giving the firm control over quality. Internalization allows the firm to experiment and learn. Localization advantages arise from the firm's ability to capitalize on unique resources and assets in given locations. This model has been the subject of much discussion and criticism in the literature but it has been useful in explaining why MNEs come into existence (Melin, 1992). The model highlights the significance of localization advantages. For our purposes, the eclectic model helps to determine how and where firms gain the experiential knowledge that the Uppsala researchers discussed earlier. We see two sources of knowledge within the eclectic paradigm: doing business on a progressively global scale and then internalizing the learning that has occurred *and* gaining unique knowledge through the localization of specific business activities. When this latter condition exits, the MNE becomes a hub of knowledge inflows and



outflows. These flows renew the MNE's knowledge base, allowing it to recombine its resources in creative ways, corresponding to Schumpeter's (1934) vision of entrepreneurship.

### *The Transnational Model*

Bartlett and Ghoshal's (2000) *transnational model* is also informative about learning and knowledge creation and exploitation in ICE. These researchers differentiate between the multinational (or decentralized federation), international (coordinated federation) and global organizational (centralized hub) approaches. Each of these approaches has serious limitations, especially in developing and transferring knowledge (Melin, 1992). Therefore, Bartlett and Ghoshal advance the transnational approach to address these issues. This approach resembles that of Hedlund (1986), displaying a great deal of role differentiation in the MNE. This means that different subsidiaries enjoy varying degrees of autonomy in making decisions, depending on their mandate and conditions that exist in their local environments. This differentiation promotes autonomy, flexibility and agile responsiveness to the dynamic external environments in which MNEs compete. Differentiation also promotes interdependence that allows MNEs to capitalize on the synergies that might exist within their operations. Control within the transnational enterprise is achieved through a common vision, legitimization of different perspectives, and the acceptance of the need to contextualize strategic action (Dunning, 1998). Consequently, different units within the transnational organization have great discretion in addressing local concerns. This autonomy extends to these units' defining the strategic issues in their local context and crafting customized solutions to these issues, which is conducive to entrepreneurial discovery. This view mirrors a growing recognition of the role of organizational embeddedness in determining strategic action (Almeida & Kogut, 1994; Dunning, 1998). By capitalizing on the unique resources, assets and relationships that exist within their location, firms gain new knowledge that can fuel innovation and spark entrepreneurship within subsidiaries.

### *The Born Global Model*

The *born global* literature focuses on firms that have been created to compete on a global scale from their inception (McDougall, Shane & Oviatt, 1994). There is a vast body of research on this issue (Zahra & George, 2002a), highlighting the advantages new firms may have in learning through internationalization. Auto

and colleagues (2000) suggest that new firms have unique learning advantages because of their informal and flexible structures and internal systems that allow them to assimilate knowledge rapidly from foreign markets. These advantages appear to be significant in knowledge-based industries where learning matters for organizational survival and growth. Zahra and colleagues (2000) have shown that new firms in high technology industries learn a great deal about new technology and this learning influences these firms' future financial performance. Their analyses suggest a need to capture explorative and exploitative learning.

Entrepreneurship researchers studying international issues have not fully capitalized on the richness implied by the four models just discussed above. This gap in the literature is surprising because it ignores the most important part of the ICE story: why companies gain advantages from these activities. Going international may reflect an effort to imitate or escape intense domestic competition or achieve competitive differentiation through infusion of learning in different contexts. Internationalization does not create economic value unless done efficiently, creatively or both. It is this creativity that breeds efficiency and novelty, which enhances a firm's ability to gain entrepreneurial rents. This creativity becomes evident as the company encounters the geopolitical realities of its international markets.

## **THE GEOPOLITICAL MOSAIC OF ICE AND ITS IMPLICATIONS FOR ORGANIZATIONAL LEARNING**

One of the key propositions of learning theory is that organizational context matters for the types of knowledge to be gained (Senge, 1990). Thus, firms that internationalize their operations can benefit from the unique local knowledge in the markets (or countries) they enter (Almeida, 1996; Anand & Kogut, 1997; Shan & Song, 1997). This knowledge results from differences in resource endowments, national cultures, systems of innovation, and the distinct innovation clusters and networks that exist in different countries or markets. Economic geographers have long argued that different countries develop unique sources of comparative advantages, some of which persist over time (for a review, Porter & Sölvell, 1998). The sources of these advantages include geographic and historical factors that shape the evolution of certain national skills and competencies. Values and political ideologies further perpetuate differences across countries in particular skills. Institutional arrangements also help to capture, transmit and protect these sources of comparative advantage. This is especially the case with tacit knowledge, which is often geographically bounded (Almeida, 1996). Cultural and political factors make it difficult to diffuse knowledge from one part of the world to another. Even within the same country and industry, it is sometimes difficult to diffuse

technological knowledge, as found by Almeida and Kogut (1994) in their study of the U.S. semiconductor industry.

### *Knowledge-Based Competition*

Competition in today's dynamic markets is knowledge-based. Knowledge creation and exploitation, therefore, are important for global success. Companies cannot rely solely on their own knowledge because of the speed and persistence of technological advances. These advances are no longer limited to a few countries. Consequently, internationalization is motivated by a need to gain access to knowledge that resides in other parts of the globe. For instance, Kogut and Chang (1991) and Shan and Song (1997) found that foreign investors targeted U.S. biotechnology companies that had strong technological knowledge measured by patents. Florida and Kenny (1994) concluded that Japanese companies built R&D facilities in markets that had a strong local technological base. Almeida (1996) showed that foreign companies in the U.S. semiconductor companies used more local knowledge than their domestic rivals. In many cases, foreign direct investment (FDI) was motivated by a desire to offset home country disadvantages. Research by Kim (1997), Kummerle (1996) and Westney (1992) shows that MNEs' subsidiaries acquired and accumulated new knowledge from local (host) markets. Analysis of patent citations revealed that MNE subsidiaries acquired considerable data from their local sources (Frost, Birkinshaw & Ensign, 2002). Zahra et al. (2000) also reported that new ventures that expanded internationally gained considerable technological knowledge.

### *The Geopolitical Mosaic*

One of the key shortcomings of prior work is failing to recognize the role of geopolitical factors in shaping the specific outcomes of internationalization, be it within young firms or established companies. For example, while Zahra and Garvis (2000) acknowledge the importance of local knowledge and market conditions, their analysis does not incorporate these variables. As a result, this analysis has overlooked an important opportunity to factor geopolitical realities firms encounter as they expand internationally. This shortcoming is surprising because researchers have long recognized the powerful effects of these forces in theorizing about the antecedents and consequences of internationalization (Porter & Sölvell, 1998).

Geopolitical forces shape the evolution of certain types of knowledge in particular countries and the persistence of their comparative advantages. Singapore's rise to global prominence in information technology, India's rapid ascendance as

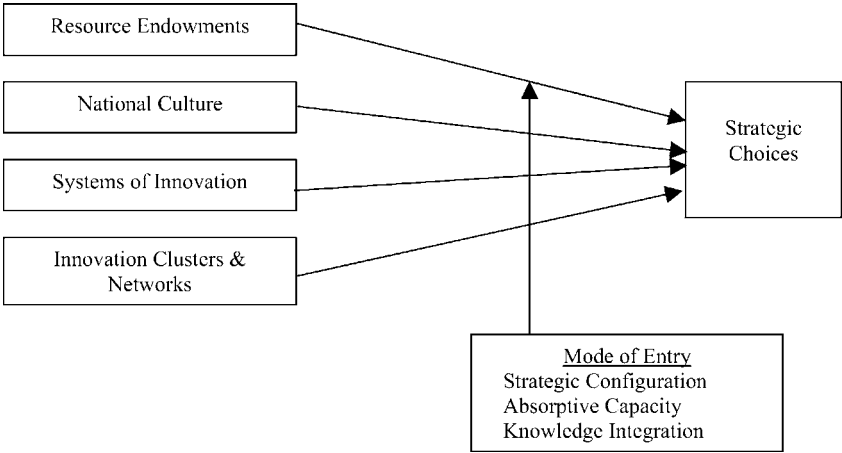


Fig. 3. Organizational Learning Theory.

a global leader in software engineering and Korea’s strong lead in semiconductors are the result of systematic efforts to capitalize on geopolitical forces in honing these countries’ comparative advantages. Therefore, Fig. 3 highlights four sources of potential differences across countries and markets in knowledge stocks: resource endowments, national culture, systems of innovations, and innovation clusters and networks. Knowledge resource endowments refer to the stock of knowledge accumulated over time within a country. Those knowledge stocks result from experience, education, and discovery.

*Resource Endowments*

Countries differ significantly in their natural resource bases and this can influence the level of economic interdependence with other countries (Krugman, 1991). Countries develop and organize their industries to benefit from their natural resources, aiming to achieve an enduring comparative advantage. This promotes the specialization of skills, which can influence the accumulation of national expertise in particular fields. Companies venturing into a given market might gain exposure to the tacit knowledge developed over several generations in these markets. Given the tacitness of this knowledge, the more interactions between the firm and its local agents (e.g. vendors), the greater the speed by which such knowledge is acquired. Companies venturing into these markets may, in fact, follow a model that resembles the Upssala model’s depiction of the internationalization process, discussed previously. They may export to these

markets then develop alliances or acquire local companies that allow them to gain particular knowledge quickly and, finally, to build facilities that capitalize on the natural resources and tacit knowledge that exist locally.

### *National Cultures*

National cultures are an important source of knowledge, as shown in Fig. 3. They transmit the values that encourage exploration and discovery. They also provide a frame of reference within which to identify relevant phenomena, how to approach them and make sense of what has been attempted and learned (Hofstede, 1980, 1993). National cultures are also the source of social knowledge about the rules that govern behavior, including business transactions (Hayton, George & Zahra, 2003). These rules define the willingness to share and transmit information, determining the development of new knowledge. Cultures that welcome interactions with different countries are likely to promote sharing of their information, which encourages knowledge creation and exploitation. But cultures themselves are sources of important social learning – how people think, what they think about and how they make decisions. Firms that expand internationally often go through a process of acculturation, where they become better acquainted with local cultures and recognize (and even embody) their values in making decisions (Rosenzweig & Nohria, 1994). Acculturation is a very difficult and demanding process (Barkema et al., 1996) and takes time to bear fruit. Social learning has important implications because entrepreneurial activities require risk sharing and bearing as well as the acceptance of ambiguity. Social learning also influences companies' preferences for various modes of entry and how they structure their operations (Sohn, 1994), determining their ability to promote and exploit ICE activities. Finally, Kogut and Singh (1988) have shown that national cultures influence the choice of foreign entry mode which, in turn, influences organizational learning (Barkema & Vermeulen, 1998).

### *National Systems of Innovation*

Nelson (1993) observes that countries differ significantly in their systems of innovation (Fig. 3), which determines their ability to rise to the leadership of particular technologies or industries. FDI decisions are often motivated by a need to gain new knowledge from other countries, especially those that held prominent technological leadership (Shan & Song, 1997). Kogut (1991) has documented the persistence of country-specific technological advantages.

Differences in national systems of innovation reflect varied social, cultural, and geopolitical forces. Differences in these systems encompass the variety of innovations generated and how they are carried out. German and U.S. companies, for example, differ in their preference for and support of process innovation (Zahra & Das, 1993). Japanese, Korean and U.S. companies also vary in their preferences for incremental and radical product innovation. Further, MNEs from different countries differ in their interest in capturing local knowledge and how they organize their R&D function for this purpose. Also, there are systematic differences across countries in how they organize for and perform innovations. Some countries are more systematic and analytical about their R&D activities; others exhibit considerable informality in this process. Countries also differ in their approaches to protecting the fruits of their innovation, as evidenced by the wide variations that exist across countries in intellectual property laws.

Differences in national systems of innovations can profoundly influence young and established companies' ability to acquire new knowledge as they go international. Companies entering the U.S. market, for example, would benefit from the complex and developed networks that exist between universities, governmental agencies, venture capitalists and younger technology-based companies (Shan & Song, 1997). This can intensify ICE. Still, some countries attempt to seal their innovation systems from outsiders in order to delay imitation. Entering these protected markets requires a great degree of creativity, stimulating ICE. Capturing the knowledge that exists in these markets also demands a great deal of entrepreneurialism.

### *Innovation Clusters and Networks*

Clusters refer to the presence of agglomeration effects that arise from the growing concentration of companies that produce particular goods. Economic geographers have long noted that over time companies in given industries cluster in close proximity. As the concentration of these firms increases, companies that serve these industries also locate nearby. These clusters allow for easier transfer of information, capital and goods. One of the most remarkable findings about innovation clusters is that, regardless of the factors that have led to their emergence, they persist over time – causing greater specialization across regions and countries. Innovation clusters develop their own local cultures, with attendant languages, rules and norms of exchange (Saxenian, 1990). For example, the culture of the Silicon Valley is remarkably different from the prevailing culture of Route 128 around Boston (Rogers & Larson, 1984). These differences persist despite the mobility among managers, engineers and venture capitalists between these two regions (Saxenian, 1991). The same thing can be said about the fashion

industry in Nice, France and Milan, Italy where major differences persist despite close interactions among companies in these clusters.

In addition to innovation and industry clusters, networks also develop over time. Formal and informal networks are important sources of knowledge. Formal networks arise through exchange and ownership relationships between companies. Informal networks emerge as a consequence of the frequent interactions that occur among key players in a formal network over time. Examples are the networks that exist in emerging high technology industries – embodying venture capitalists, entrepreneurs, governmental agencies and research universities (Shan & Song, 1997). Frequent interactions among these groups create trust that allows people to share important information, especially about sensitive issues. This information is useful in defining or exploiting entrepreneurial opportunities. Porter and Sölvell (1998) suggest that informal relationships with various stakeholders can generate important knowledge that fuels entrepreneurial discovery. This conclusion supports a growing body of research on the influence of networks on formal and informal entrepreneurial activities within and across firms (Pinchot, 1985; Zahra, Nielsen & Bogner, 1999).

The preceding discussion of Fig. 3 suggests that entrepreneurship researchers should recognize the multiplicity of sources of knowledge in foreign markets. This knowledge is usually embedded in physical, human and social capital (Porter & Sölvell, 1998). Companies that internationalize their operations need to use different strategies to tap these sources. The variety of potential linkages to be established through internationalization can enrich a firm's knowledge base. In turn, the variety of these external sources can influence the firm's innovative performance by improving patents, new product creation, enhancing the quality of new products, and the speed of new product introductions (Eisenhardt & Santos, 2000; Zahra et al., 2000).

The global geographic mosaic directly influences the firm's strategy by making several strategic options available and viable. It also indirectly influences strategy by stimulating ICE activities that spur future innovation and create novelty in what the firm does as well as how and where it competes. This direct influence is important because any competitive advantage the firm has is likely to erode quickly, especially in hyper competitive environments. In these industries, firms can sustain their competitive superiority and make profits only if they learn to leverage their entrepreneurial activities by creating new products, recombining their assets and resources in ways that alter industry precipice, or making existing competencies in the industry obsolete or strategically irrelevant. The knowledge-based view of the firm suggests that this becomes feasible when the firm develops and maintains the requisite absorptive capacity (Eisenhardt & Santos, 2003; Grant, 1996a, b), as illustrated in Fig. 3.

## THE ROLE OF ABSORPTIVE CAPACITY

Following the knowledge-based view of the firm, Fig. 3 suggests that new ventures' ability to learn from internationalization depends on their absorptive capacity. Cohen and Levinthal (1989, 1990) posit that this capacity reflects a firm's capacity to recognize, import and assimilate knowledge from external sources. The firm's prior knowledge determines its absorptive capacity. Zahra and George (2002b) agree with Cohen and Levinthal but extend their definition to incorporate an exploitative element. Zahra and George reason that capturing and assimilating knowledge are necessary but insufficient activities; the firm must also develop a capacity to exploit the knowledge it has received from their external environment. If one accepts this proposition, then a firm will achieve successful learning when it becomes proficient in understanding, assimilating and exploiting knowledge obtained from external sources.

Zahra et al. (2000) have already empirically linked new ventures' internationalization activities (e.g. alliances) to technological learning, defined as the acquisition of new knowledge that can stimulate the development and commercialization of new technologies. One weakness of the Zahra et al. (2000) study is the lack of recognition of the crucial role of absorptive capacity in technological learning through internationalization. Similarly, Autio et al.'s (2000) study has not recognized absorptive capacity in their analysis of the learning advantages of newness. Autio et al. believe that new ventures learn quickly as they venture abroad, observing that incoming knowledge does not have to fight for survival because their internal knowledge is limited. While theoretically appealing, this proposition appears to overlook the fact that new ventures have limited absorptive capacities and therefore may fail to benefit from their exposure to other countries' systems of innovation. Thus, the extent to which new ventures can learn through internationalization depends on their absorptive capacity.

What about well established companies? Patel and Pavitt (1991, 1998) suggest that established firms amass significant and diverse knowledge bases. Some of this knowledge is unrelated to established firms' core businesses and products. The diversity of this knowledge, however, is useful in identifying potentially relevant knowledge from foreign markets. For example, engineers with idiosyncratic knowledge who work in the firm's R&D can spot similar knowledge in foreign markets and articulate the relevance of this knowledge for their firm's operations. The same could be said about other types of knowledge (e.g. production, marketing, and distribution). Thus, given the diverse and dispersed nature of the knowledge in established firms, these companies learn as they expand internationally. For example, the existence of multiple locations for the firm's R&D activities enhances the creation of new knowledge by exposing the firm to a



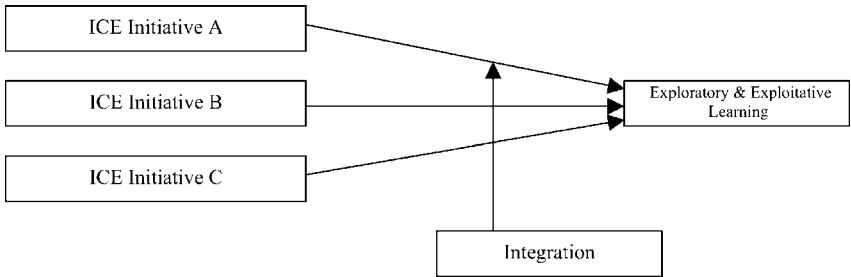
variety of knowledge bases, which may explain the growing trend among MNEs to having R&D facilities in different countries.

There are several problems with the logic just presented. First, while the existence of relevant knowledge can promote the recognition of useful, related knowledge in foreign markets, the comprehension and assimilation of this knowledge is an extremely complicated process. Comprehension is difficult because new knowledge is context-specific and culturally bound. It often embodies unique heuristics that cannot be easily understood. Assimilation of imported knowledge is also difficult because of the “not invented here” syndrome that makes some companies reluctant to use ideas or technologies developed elsewhere. Existing power centers may fight incoming knowledge that has the potential to disrupt the status quo or challenge their worldview. Assimilation of incoming knowledge also requires immersion in this knowledge and few managers have the time or incentive to do so. Finally, incoming information is often fragmented and managers sometimes cannot make sense of different pieces of this knowledge.

As the above discussion makes clear, there is a need for ICE activities that make the acquisition, assimilation and exploitation of external knowledge feasible. These are not mechanical processes; creativity and ingenuity are crucial in each of these activities. Thus, while “learning by doing” pervades each activity, established MNEs stand to gain significantly from ICE activities that stimulate or build on this learning.

## **KNOWLEDGE INTEGRATION AND LEARNING IN ICE**

As noted, incoming knowledge from foreign markets is often fragmented. Both new ventures and established firms encounter this problem, complicating their ability to fully absorb and exploit external knowledge. This makes it essential to integrate incoming knowledge by making sense of the data, information and knowledge obtained from foreign markets. This process adds coherence, if not meaning, to new knowledge. Companies, young and old, frequently integrate different types of knowledge in order to create new product, market and industry recipes. The knowledge-based view of the firm posits that combinative knowledge is at the core of strategic variety (Kogut & Zander, 1996), as shown in Fig. 4. Companies also combine knowledge in order to “fuse” their products and establish new industries in which they hold strong competitive positions. Japanese multinationals followed this strategy as they sought to differentiate themselves from their U.S. rivals (Kodama, 1992). Understandably, combining resources (e.g. knowledge) is an important entrepreneurial process that established companies



*Fig. 4. The Importance of Integration.*

use to renew themselves (Hamel & Prahalad, 1994). New ventures also use this process to challenge and revise industry recipes.

The knowledge gained from international operations is not always easy to articulate. Further, people are often unaware of what they learn. If they are aware, they sometimes may not appreciate its strategic relevance. The importance of new knowledge is determined not only by time and space but also by the creativity and ingenuity of the recipient firms. Thus, while it is essential for the firm to engage in knowledge integration, it matters a great deal how the new (i.e. combinative) knowledge is viewed and exploited. ICE activities take advantage of this knowledge by creating new businesses that build new revenue streams either through innovation or venturing.

The knowledge-based view of the firm highlights the need for a process (preferably formal) of knowledge integration (Grant, 1996a, b; Zahra et al., 2000). This process should not stop at combining knowledge – it should explore various uses of emerging, combinative knowledge. Both processes (integration and exploration) require creativity and imagination. Earlier, we discussed why firms may fail to engage in knowledge integration. Now, we turn our attention to why companies engaging in corporate entrepreneurship do not devote adequate attention to exploiting the combinative knowledge gained via internationalization.

## **VICIOUS OR VIRTUOUS ICE CYCLE: IMPLICATIONS FOR COMPETENCE DEVELOPMENT**

Companies internationalize their operations by using internal and external venturing modes. Internal venturing centers on incubating and creating new businesses and using new business models, often employing new organizational forms. External venturing focuses on entering new markets using alliances and

acquisitions, aiming to achieve successful business redefinition. Companies usually use the internal and external venturing approaches, either in sequence or simultaneously. Competence building through ICE requires managers to consider the implications of both modes and the effects of their dynamic interplay. This interplay can lead to a vicious or virtuous cycle.

*Substitution and the Vicious Cycle*

The vicious cycle between internal and external venturing has been documented in earlier work on diversification, albeit this work has centered on domestic operations. The results from this research stream help to illustrate how the cycle might unfold as the firm ventures internationally. If venturing is performed through acquisitions and alliances, companies might reduce investments in developing internal ventures by withholding support for R&D and other innovative activities, given limited managerial attention and resources, and therefore the need to weigh tradeoffs.

Also, by expanding through acquisitions and alliances managers may assume new external knowledge will be brought inside the firm. These benefits do not materialize without effective integration and building a portfolio of transactions. However, over time, these reductions might erode the firm’s competencies (Fig. 5). The knowledge gained from acquisitions and alliances might be difficult to understand or even use in the firm’s operations. Further, the need for organizational and cultural integration of acquired units might make it difficult to reap the full benefits of these strategic moves. Companies encounter similar problems working with alliance partners who may be unwilling to transfer or share their knowledge. While alliances might induce ICE, much depends on the organization and

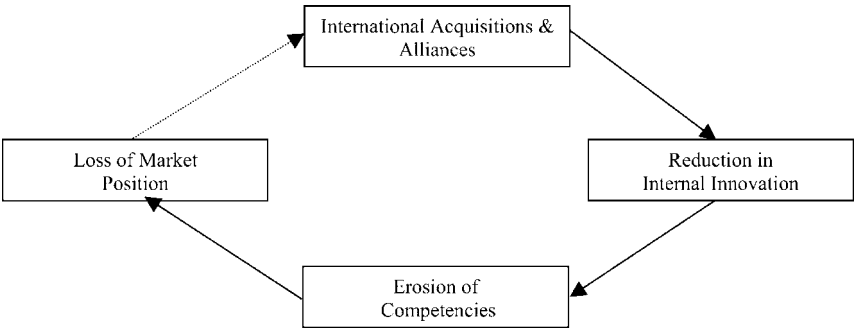


Fig. 5. The Vicious Cycle of ICE.

management of these complex relationships. As problems of integration increase, managers' attention to internal venturing might decline and the ability of the firm to benefit from these ventures might be undermined. As the firm's market position deteriorates, greater attention is given to external venturing, which further weakens internal venturing.

### *Complementarity and The Virtuous Cycle*

There is an alternative scenario, however, where internal and external venturing efforts *complement* each other (Fig. 6). Here, managers use external venturing selectively to fill gaps in existing businesses or knowledge bases, leapfrog the competition, connect diverse business operations within the corporate portfolio, or fuse new businesses. Complementarity, therefore, is the key driver of these external venturing activities and serves to ensure strategic coherence. Teece et al. (1994) suggest that such moves must balance the organizational need for learning novel things and the challenges associated with managing such diverse businesses. Learning from distant markets, therefore, is important because it gives the firm access to knowledge that goes well beyond what it currently knows. The firm also gains access to new networks where it can learn radically new things, which fuels exploratory learning (March, 1991; Zahra, 2003). But, exploratory learning can tax the organizational information processing capabilities and challenge its

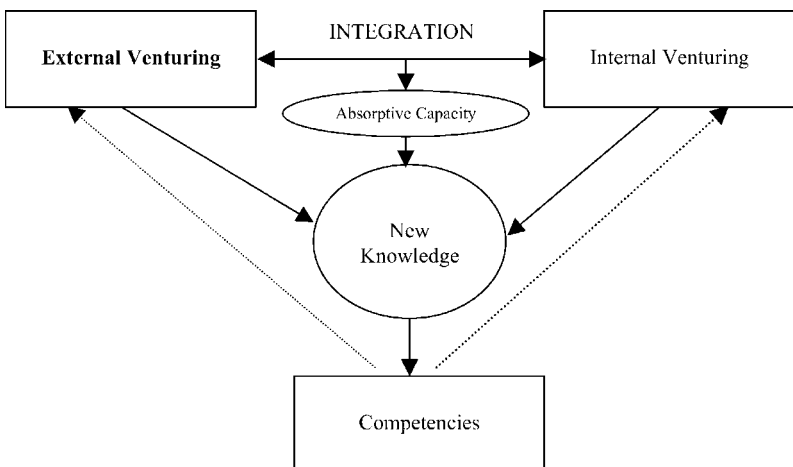


Fig. 6. The Virtuous Cycle of ICE.

memory. Radically new information is hard to process, digest and use immediately, as mentioned earlier.

Exploratory learning gained from venturing into distant markets helps to overcome three major traps companies may encounter in keeping their competence current (Ahuja & Lampert, 2001; Levinthal & March, 1993). One is the familiarity trap that arises from companies' tendencies to seek knowledge in areas where they are already strong or possess related knowledge. This trap reflects the path dependencies in firms' search for fresh knowledge. It also reflects flawed organizational cognition, where firms do not see the limits of what it knows. The maturity trap is another organizational pathology where firms seek and value knowledge or ideas that have been proven to be worthwhile elsewhere. Consequently, instead of locating promising ideas and developing them for its own needs, the firm buys knowledge that is already developed by other companies and may not necessarily understand this knowledge. Finally, the nearness trap refers to the fact that the firm looks for knowledge that is close to their existing knowledge bases. March (1991) posits that companies search for knowledge within the vicinity of their past practices, reflecting path dependencies and a need to reduce the costs of the search for new knowledge. Companies also have specific mental models that lead to a tendency to discard information that is not related to what they already know, failing to build a new set of capabilities. These traps prevent companies that engage in ICE from venturing beyond their boundaries and get radically new knowledge that fuels the exploration of new ideas.

Keeping organizational capabilities current requires both exploration and exploitation. Exploration opens the company's mind set to new ideas, setting the stage for gaining new insights that can be used to develop organizational competencies. Exploitation also makes it possible to use the newly acquired knowledge and create the requisite variety in organizational competencies. Learning from nearby markets, on the other hand, can give the firm useful information that complements and extends what it already knows as suggested in the Uppsala model. The firm can quickly process and absorb this knowledge and use it in its ongoing or new operations. This process enhances exploitative learning (March, 1991), where the firm learns by doing.

Creating a virtuous cycle in external ICE starts with a strategic audit where the firm defines its mission and any gaps that exist in its knowledge portfolio. This analysis can yield rich insights into the relative emphasis that a company should place in developing those capabilities internally or by externally venturing abroad. A key criterion to employ in their analysis is the degree to which strategic coherence is important and achievable. Integration, both organizational and knowledge-related, is essential for building strategic coherence. Managerial skills and talents have to be stretched enough to explore new ideas but should

not be pushed to the point where the effective coordination of effort and energy are overlooked.

## CONCLUSION

Throughout this chapter, we explored the potential role of ICE in stimulating explorative and exploitative learning. We argued that both types of learning are important for the creation and exploitation of new knowledge that can fuel innovation or venturing within the firm. Our discussion also recognized the fact that organizational learning is a complicated process, one that is shaped by, but takes advantage of the geopolitical realities of the characteristics of the firm's location and markets. The discussion suggested that in today's dynamic markets, competition is competence-based. Organizational competencies can and do decay quickly, requiring managers to invest heavily in replenishing existing competencies and building new ones. Entrepreneurship is important not only for maintaining and upgrading these competencies but also, and perhaps more important, in changing the firm's competitive landscape by overcoming the limitations imposed by geopolitical factors. Thus, ICE not only leverages the firm's resources and competencies (Zahra & Garvis, 2000) but also defines what the rules of competition should be. ICE is important for defining and pursuing opportunities; it is crucial in creating those opportunities throughout the firm's global operations (Zahra et al., 2001).

Explorative and exploitative learning are complementary activities in a firm's quest for knowledge for competence development. These activities help to upgrade the firm's knowledge base and expand its ability to redefine the competitive arena differently by changing the rules of rivalry. Learning provides the firm with new resources (e.g. different types of knowledge) and skills (e.g. learning to learn and learning to apply what has been learned). Learning also allows the firm to rid itself of outdated knowledge that no longer confers a strategic advantage, freeing up organizational resources to compete in the new markets. Thus, a key role for senior managers within ICE is to cultivate explorative and exploitative learning and use the knowledge gained in stimulating risk taking through innovation entrepreneurship.

The process of knowledge integration, discussed earlier in this chapter, lies at the heart of our definition of ICE. Combinative knowledge is a key source of innovation that leads to the emergence and evolution of organizational competence. Competence development, maintenance and upgrade require multiple skills that need to be integrated in coherent and novel ways that give the firm strategic superiority. At its best, ICE could be viewed as the organizational means to define

the industry and the relevant competencies necessary to win in evolving market spaces. Strategic change in a firm's global markets emerges slowly as managers conceive of ways to diffuse what has been learned in different markets, connect what has been learned to the firm's mission, and develop strategic options that aim to define where and how the firm competes. We need to understand the roles senior managers play in this process and how they gather and make sense of the knowledge gained from different and often distant markets.

Our discussion views ICE as an iterative, interactive process – with multiple players who have different interests. As [Nonaka and Takeuchi \(1995\)](#) highlight, many of the strategic initiatives emanate in the middle of the organization where managers are close to the market and their competitive realities. Much of the learning we discussed throughout this chapter is likely to occur in the middle of the organization and senior managers need to create the systems that will capture emerging knowledge and make sense of it. Middle managers are sometimes reluctant to share with senior executives what has been learned in foreign markets. Middle managers do not always have the time to engage in an elaborate dialog about the future of the firm. Senior executives, therefore, need to create the context in which new knowledge is captured and opportunities are considered. An ongoing, iterative process of learning exploration and knowledge exploitation provides a setting in which new competencies are developed and the competitive arena is defined. This context also sets the stage for future ICE activities.

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# INTERNATIONALIZING CORPORATE ENTREPRENEURSHIP: THE IMPACT ON GLOBAL HR MANAGEMENT

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D. Hisrich

## INTRODUCTION

Entrepreneurship is an emerging and evolving field of inquiry. Entrepreneurship research has been expanding its boundaries by exploring and developing explanations and predictions of entrepreneurship phenomena in terms of events such as innovation, new venture creation and growth as well as characteristics of individual entrepreneurs and entrepreneurial organizations. The largest institutionalized community of entrepreneurship scholars – the Entrepreneurship Division of the Academy of Management – has developed an entrepreneurship specific domain that incorporates the creation and management of new businesses, small businesses and family businesses, and the characteristics and special problems of entrepreneurs; it has further identified major topics such as new venture ideas and strategies, ecological influences on venture creation and demise, the acquisition and management of venture capital and venture teams, self-employment, the owner-manager, management succession, corporate venturing, and the relationship between entrepreneurship and economic development. One growing entrepreneurship research sub-field is corporate entrepreneurship (intrapreneurship), i.e.

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entrepreneurship in existing organizations. Emerging in the past two decades, the initial research in corporate entrepreneurship focused on new business venturing, i.e. the formation of new ventures by existing organizations, mostly corporations, and the focus on the entrepreneurial individual inside a corporation – this focus was then extended to include entrepreneurial characteristics at the organizational level. Corporate entrepreneurship research has evolved into three focal areas. The first area of focus is on the individual intrapreneur (Jennings, Cox & Cooper, 1994; Jones & Butler, 1992; Knight, 1989; Lessem, 1988; Luchsinger & Bagby, 1987; McKinney & McKinney, 1989; Pinchot, 1985; Ross, 1987; Souder, 1981), mainly emphasizing the intrapreneur's individual characteristics. The recognition and support of entrepreneurs in organizations is also a part of this focal area. The second area of focus has been on the formation of new corporate ventures (Burgelman, 1985; Carrier, 1994; Cooper, 1981; Fast & Pratt, 1981; Hisrich & Peters, 1984; Hlavacek & Thompson, 1973; Krueger & Brazeal, 1994; MacMillan, Block & Narasimha, 1984; Szypersky & Klandt, 1984; Vesper, 1990); this area's primary emphasis is on the different types of new ventures, their fit with the corporation, and their enabling corporate internal environment. The third area of focus is on the entrepreneurial organization (Burgelman, 1983; Drucker, 1985; Duncan et al., 1988; Hanan, 1976; Kanter, 1984; Kuratko et al., 1993; Merrifield, 1993; Muzyka, de Konning & Churchill, 1995; Pinchot, 1985; Quinn, 1979; Rule & Irwin, 1988; Schollhammer, 1981; Stevenson & Jarillo, 1990; Stopford & Baden-Fuller, 1994), which mainly emphasizes the characteristics of these organizations.

The main contributions of corporate entrepreneurship research to date have been in raising awareness and understanding of the role of entrepreneurship in existing organizations in terms of the revitalization and performance of those organizations, improving understanding of successful intrapreneurs and new corporate ventures, and improving the understanding of entrepreneurial organizations. While a great deal of understanding has been obtained in the past two decades, integrative efforts are still rare. This is especially important in today's business environments, where internationalization and globalization issues are gaining in importance. Integrative studies pull together crucial elements that are otherwise dispersed across different studies. By integrating various important factors a more concise and integral picture of business phenomena can be developed and a new understanding gained and implications advanced. Taking a multi-element contingency perspective is particularly important in examining international entrepreneurship and business activities where persons and firms from different economic environments are involved. Today, more than ever, it is important to examine corporate entrepreneurship in international contexts.

Scholars have repeatedly acknowledged the important role of effective human resource management (HRM) for successful corporate entrepreneurship (e.g. Kanter, 1983, 1985; MacMillan, 1987; Stevenson & Jarillo, 1990), including both formal

and informal aspects of HRM. [Shenkar and Zeira \(1987\)](#) point out that effective HRM is also important for successful international entrepreneurship, including international joint ventures. In short, these authors argue that management of corporate entrepreneurship and of international endeavors is distinct from traditional management because these firms must continuously learn and unlearn (e.g. [Floyd & Woolridge, 1999](#); [McGrath, 2001](#)) under conditions of greater uncertainty and knowledge intensity ([Kanter, 1985](#)). New knowledge must be acquired and assimilated, often across functional, organizational, and national boundaries, leading to organizations with very loose, ever shifting boundaries (e.g. [Kanter, 1983](#)). Fostering organizational success in this type of context takes a more enlightened approach to management including decentralization of authority, participation in decision making, cooperation, avoidance of bureaucracy, and encouragement of risk taking and creativity ([Luchsinger & Bagby, 1987](#)). Therefore, understanding the unique HRM challenges in this context is important to enabling such organizations to capitalize on the opportunities of international corporate venturing.

The objective of this chapter is to focus on the area of international corporate entrepreneurship particularly as it relates to global human resource management. This involves defining international corporate entrepreneurship, reviewing the relevant research in the area and proposing an overall model of important international corporate entrepreneurship organizational antecedents, and then developing the relationship between international corporate entrepreneurship and global human resource management. The chapter will conclude with implications for human resource managers and other practitioners, academics, and government officials and identify areas for future research.

## **INTERNATIONAL CORPORATE ENTREPRENEURSHIP DEFINED**

Entrepreneurship is considered an individual or organizational level behavioral phenomenon, or a process of emergence ([Gartner, Bird & Starr, 1992](#)). Emergence-related behavioral intentions and behaviors, such as organization formation and innovation, differentiate entrepreneurship from non-entrepreneurship. Since organizations differ with regard to the levels of entrepreneurship, organizations can be viewed on the corporate entrepreneurship continuum that ranges from less to more entrepreneurial. The perspective of entrepreneurship as a continuum is evident in [Covin and Slevin's \(1989\)](#) distinction between conservative (risk averse, non-innovative, and reactive) firms and entrepreneurial (risk taking, innovative, and proactive) firms, and in [Brazeal and Herbert's \(1999\)](#) organizational entrepreneurship representation that ranges from the entrepreneurially challenged firm (with a non-existent commitment to entrepreneurship) to the entrepreneurial firm (with a

total commitment to entrepreneurship), as well as in other corporate entrepreneurship studies (Antoncic & Hisrich, 2001; Knight, 1997; Lumpkin, 1998; Lumpkin & Dess, 1998; Zahra, 1991, 1993).

Corporate entrepreneurship can be defined as entrepreneurial activities within an existing organization. In this definition, corporate entrepreneurship refers not only to the creation of new business ventures, but also to other innovative activities and orientations such as development of new products, services, technologies, administrative techniques, and/or strategies. Important elements in corporate entrepreneurship, both in terms of activities and orientations include: new ventures, new businesses, product/service innovativeness, process innovativeness, self-renewal, risk taking, proactiveness, and competitive aggressiveness (Antoncic & Hisrich, 2003).

McDougall and Oviatt (1997) defined the area of international entrepreneurship as new and innovative activities that have the goal of value creation and growth in business organizations across national borders. International entrepreneurship is a part of entrepreneurship research that has a domain that includes issues related to the formation, transformation and growth of firms (Antoncic & Hisrich, 2000). International entrepreneurship shares some commonalities with international business research when focusing on various internationalization issues such as exporting and other entry modes, economic development initiatives, venture financing, international new ventures, and cooperative alliances (McDougall & Oviatt, 1997).

By combining the definitions of corporate and international entrepreneurship a definition of international corporate entrepreneurship emerges: International corporate entrepreneurship is entrepreneurial activities and orientations within an existing organization focused on doing business across national borders. International corporate entrepreneurship involves formation of new ventures, entering new businesses, product/service and process innovativeness, self-renewal, risk taking, proactiveness and competitive aggressiveness at an international or global level. An organization can develop and advance international corporate entrepreneurship by focusing on some key organizational elements, which are presented bellow.

## **ORGANIZATIONAL ELEMENTS IMPORTANT FOR DEVELOPMENT OF INTERNATIONAL CORPORATE ENTREPRENEURSHIP**

In this section organizational factors that are important for the development of international corporate entrepreneurship activities are reviewed. Development of international corporate entrepreneurship activities is not only in the domain of top management, but also, since it involves activities and implementation related



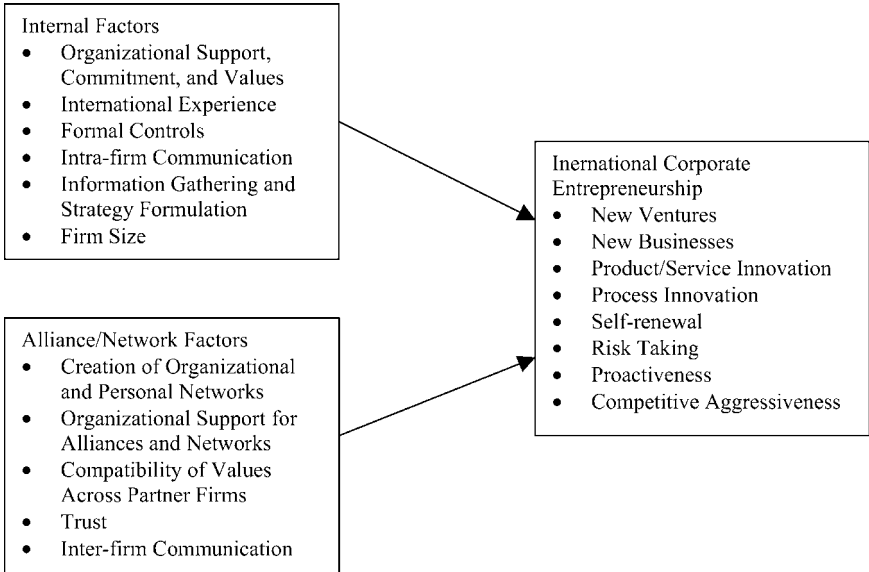


Fig. 1. International Corporate Entrepreneurship Model.

to all levels of the organization, it should be in the domain of all managers and employees. This makes human resource management of particular importance for the success of international corporate entrepreneurship endeavors. Organizational factors are divided into two groups which are important for the development of human resource approaches for fostering international corporate entrepreneurship. While the first group of factors are intra-organizational elements, the second group are inter-organizational elements. The differences between intra- and inter-firm elements have been proposed in corporate entrepreneurship research (e.g. [Antonicic, 2001](#)). Intra-firm elements are important for managing the process within the organization, whereas inter-firm elements are important for managing the process of the organization related to the relationships with other firms in terms of alliances or networks. A summary model including the international corporate entrepreneurship concept and its organizational antecedents is indicated in [Fig. 1](#).

### *Internal Elements*

Intra-organizational elements that are important for development of international corporate entrepreneurship are organizational support, commitment, and values, international experience, formal controls, intra-firm communication, information gathering and strategy formulation, and firm size.

### *Organizational Support, Commitment and Values*

Organizational support for entrepreneurship was found to be the most important element for the development of corporate entrepreneurship (Antoncic & Hisrich, 2001). Management involvement (Merrifield, 1993), as well as top management support, commitment, and style, and staffing and rewarding venture activities (MacMillan, 1986) were important for corporate entrepreneurship. Organizational support in terms of training individuals and trusting individuals within the firm to detect opportunities (Stevenson & Jarillo, 1990) was proposed to positively influence a firm's entrepreneurial behavior. Organizational support characteristics such as management support, work discretion, rewards, time availability, and loose intra-organizational boundaries (Hornsby et al., 1990) were seen as crucial organizational elements impacting corporate entrepreneurship.

Organizational values are also viewed as crucial drivers of corporate entrepreneurship. Guth and Ginsberg (1990) identified entrepreneurial behavior in organizations being critically dependent on the characteristics, values/beliefs, and visions of organizations' strategic leaders. Zahra (1991) found a positive relationship between corporate entrepreneurship and organizational values that are individual-centered (a focus on ways in which employees are treated in the organization), and organizational values that are competition-centered (a focus on approaches that organizational members should follow when trying to achieve organizational goals). Emotional and value commitment has been found to enhance innovativeness in organizations (Kanter, 1984). Organizational culture has been considered an important predictor of internationalization (Holzmuller & Kasper, 1991). International orientation, support and commitment can influence internationalization. Commitment to international operations was found to be positively related to export performance (Nakos, Brouthers & Brouthers, 1998; Walters & Samie, 1990). Management commitment to internationalization, attitudes, perceptions and expectations tend to be positively related to propensity to export (Aaby & Slater, 1989; Bijmolt & Zwart, 1994; Moini, 1998). In international operations it is also important to support training in foreign languages and international business skills. Both foreign language fluency of owner-managers (Aaby & Slater, 1989; Dichtl, Koeglmayr & Mueller, 1984; Holzmuller & Kasper, 1991; Moini, 1998; Nakos, Brouthers & Brouthers, 1998) and trained export personnel (Nakos, Brouthers & Brouthers, 1998) were found to be predictive of internationalization.

### *International Experience*

*International experience* can also influence internationalization. Nakos, Brouthers and Brouthers (1998) found a positive relationship between international experience of Greek SME's managers and export performance in terms of export

intensity and export sales profitability in comparison to domestic sales profitability. Bloodgood, Sapienza and Almeida (1997) found a positive relationship between international work experience of managers, but not international schooling, and the extent of internationalization at the time of the initial public offering of newer high-potential firms. Strong international experience of the entrepreneur can be viewed as an antecedent of an international start-up (Madsen & Servais, 1997) and SME internationalization in terms of internationalization time and intensity (Reuber & Fischer, 1997). Any delay in obtaining foreign sales was found to mediate the international experience-international intensity relationship of Canadian software SMEs (Reuber & Fischer, 1997). International experience can be seen as crucial for exporting success (Aaby & Slater, 1989; Katsikaes, 1994) and successful exporters tend to visit foreign markets more frequently than less successful ones (Moini, 1998). International experience may also influence internationalization mode choice since less experienced firms are more likely to select non-investment modes such as exporting (Agarwal & Ramaswami, 1992).

#### *Formal Controls*

Formal control refers to the employment of codified rules, goals, procedures, and regulations that specify desirable patterns of behavior (Das & Teng, 1998). MacMillan, Block and Narasimha (1984) and Zahra (1991) stressed the importance of excessive use of formal controls as an inhibitor of corporate entrepreneurship. In contrast, Kuratko et al. (1993) stressed the importance of control and evaluation for corporate entrepreneurship. Kanter (1989) also considered formal controls essential for corporate entrepreneurship project selection. The existence of modest formal controls to monitor entrepreneurial activities can be even more important in the international arena than in the national context.

#### *Intra-Firm Communication*

Intra-firm communication can either facilitate or inhibit corporate entrepreneurship. Open communication as a way of information sharing and empowerment was proffered as one critical element for innovation (Kanter, 1984; Pinchot, 1985). Communication in terms of its quality and amount was important for success of entrepreneurial initiation and implementation in large corporations (Peters & Waterman, 1982; Zahra, 1991). In addition to vertical communication, horizontal communication in network-like organizations is crucial for innovation and change (Bush & Frohman, 1991). Communication becomes even more important when international activities are involved, in part, due to the increased physical distance between the organizational units.

### *Information Gathering and Strategy Formulation*

Organizational activities of environmental scanning and formulation of strategies are also important for international corporate entrepreneurship development. Environmental scanning, the firm's activities aimed for detecting and forecasting changes in the external environment, particularly the industry environment is important especially for companies in hostile environments (Khandwalla, 1977). Scanning is important for entrepreneurial activities of an existing firm, especially for innovativeness and new business venturing, as it highlights industry trends and changes, as well as environmental opportunities and threats (Zahra, 1991). Product and market differentiation strategies have been found to be positively related to internationalization (Bloodgood, Sapienza & Almeida, 1997). Strategy formulation in terms of systematically exploring, analyzing, and planning for export can be crucial for successful exporting (Aaby & Slater, 1989; Bijmolt & Zwart, 1994). Successful exporters tend to systematically explore export possibilities than less successful ones (Moini, 1998). Internationalization mode selection is basically a strategic decision (Agarwal & Ramaswami, 1992) and corporate entrepreneurship activities are important elements in this strategy.

### *Firm Size*

*Firm size* can influence international corporate entrepreneurship. Larger firms possess resources and present opportunities for the development of corporate entrepreneurship (Kanter, 1984; Pinchot, 1985). Larger firms may be more internationalized than smaller firms because they: (1) possess more financial and managerial resources; (2) have greater production capacity; (3) attain higher levels of economies of scale; and (4) are more likely to be associated with lower levels of perceived risk in exporting operations (Bonaccorsi, 1992). A higher extent of internationalization of larger relative to smaller SMEs was found for U.S. high-potential ventures (Bloodgood, Sapienza & Almeida, 1997) and for Pennsylvania (Culpan, 1989) and Wisconsin manufacturing firms (Moini, 1998). Nakos, Brouthers and Brouthers (1998) found that larger Greek SMEs had higher export performance than smaller firms. Exporting manufacturing firms tended to be larger than non-exporting firms in terms of workforce and sales volume (Keng & Juan, 1989). Larger firms, in contrast to smaller ones, enjoy more competitive advantages in export markets (Katsikaes, 1994). In addition, larger firms have a higher propensity to choose sole and joint venture internationalization modes (Agarwal & Ramaswami, 1992).

On the basis of the above arguments the following proposition is developed:

**Proposition 1.** International corporate entrepreneurship will be influenced by internal elements:

- (a) organizational support, commitment, and values;
- (b) international experience;
- (c) formal controls;
- (d) intra-firm communication;
- (e) information gathering and strategy formulation; and
- (f) firm size.

### *Alliance and Network-Related Organizational Elements*

Inter-organizational elements that are important for development of international corporate entrepreneurship are creation of organizational and personal networks, organizational support for alliances and networks, compatibility of values across partner firms, trust, and inter-firm communication.

#### *Creation of Organizational and Personal Networks*

Alliances and networks can be seen as an important element for international corporate entrepreneurship. Corporate entrepreneurship processes (Antoncic, 2001) and internationalization processes (Madsen & Servais, 1997) of a firm cannot be viewed in isolation and can be understood by analyzing the firm's inter-organizational relationships. Johanson and Mattsson (1988) found a firm's relationships in industrial networks was an important element in its internationalization process. Hara and Kanai (1994) found that international strategic alliances among small businesses were important for their success. Personal networks of founders from their previous involvement in international marketing were crucial in international new venture creation (Hansen & Witkowski, 1995). Focusing on the impact of network relationships on international market development and on marketing-related activities within international markets, Coviello and Munro (1995) found that internationalization efforts are shaped by the interests of other players in the network of relationships, and that relationships were established to compensate for limited marketing expertise and infrastructure.

#### *Organizational Support for Alliances and Networks*

Support and commitment of the organization and its management to alliances and networks can be very important for international corporate entrepreneurship. Commitment indicates willingness of partners to exert effort in the relationship (Mohr & Spekman, 1994; Porter et al., 1974). Commitment was found to be related to success of vertical partnerships (Mohr & Spekman, 1994). Yet, as in the firm, in networks some permeability of boundaries is needed for fostering innovation (Jones, Hesterly & Borgatti, 1997). Support can be expressed through the

commitment to inter-organizational relationships in the form of time and resources such as management time commitment, employee rewards and time availability for inter-firm collaboration. Also, as would be expected, foreign ownership impacts internationalization (Keng & Juana, 1989; Nakos, Brouthers & Brouthers, 1998).

### *Compatibility of Values Across Partner Firms*

Organizational values, norms and cultures sometimes become social control mechanisms that encourage desirable behavior (Das & Teng, 1998). Network connections (structure) facilitates the development of the common values, norms, beliefs shared across firms (Jones, Hesterly & Borgatti, 1997). Parkhe (1991) identified three organizational level dimensions of inter-firm diversity that represent sources of tension in strategic alliances and can consequently reduce alliance success. These are: (1) corporate culture (differences in ideologies and values that guide firms); (2) strategic direction (differences in strategic interests of alliance partners); and (3) management practices and organization (differences in management styles and organizational structures of alliance partners). He proposed three solutions or mechanisms to cope with these differences. The first is to encourage organizational learning to facilitate an intermediate (between the alliance partners) corporate culture. The second is to devise a flexible partnership structure. The third is to set up unitary management processes and structures in order to clarify lines of authority, increase communication, accelerate decision making in alliances and consequently improve alliance success. Congruence of values and management practices across firms can be beneficial for international corporate entrepreneurship.

### *Trust*

Trust is an important element in network governance (Hoang & Antoncic, 2003). Network governance is a more informal form of an inter-firm control mechanism (Jones, Hesterly & Borgatti, 1997). Trust refers to the belief in other partner's reliability in terms of fulfillment of an obligation in an exchange (Pruitt, 1981). According to Das and Teng, "just as control mechanisms are meant to enhance the probability of having the desired behavior, trust also is useful in enhancing the perceived probability of desired behavior" (1998, p. 494). In addition, Das and Teng (1998) proposed that the deployment of formal control mechanisms in strategic alliances would undermine the level of trust among alliance partners. Weaver and Dickson (1998) considered trust as a more appropriate assumption than opportunism in alliances among small and medium sized enterprises. Trust may be associated with the length of relationship in strategic alliances (Parkhe, 1993). Saxton argued that "a high level of mutual involvement acts as both a signaling and a monitoring mechanism by establishing and building trust and commitment" (1997, p. 446). Trust was found to be related to the success of vertical partnerships (Mohr &

Spekman, 1994). Trust can be also seen as essential for technological innovation that comes from inter-firm R&D collaboration (Hausler, Hohn & Lutz, 1994) and a crucial component of persisting networks of innovators (Saxenian, 1991). Mediated by resource exchange and combination, inter-unit trust was also found to have significant influence on product innovation of a multinational firm (Tsai & Ghoshal, 1998). Thus, inter-firm trust is an important element in international corporate entrepreneurship development.

### *Inter-Firm Communication*

Open and prompt communication is indispensable in inter-firm cooperation (Das & Teng, 1998). Information sharing is an important element in dyadic network exchanges (Uzzi, 1997) as well as in network connections (Jones, Hesterly & Borgatti, 1997). Mohr and Spekman (1994) found communication quality and participation as crucial elements for success of vertical partnerships between manufacturers and dealers in the personal computer industry. In a case of computer firms in Silicon Valley, face-to-face interaction was seen as the most efficient way to address unexpected complications in a supplier relationship (Saxenian, 1991). Frequency of communication was advocated as an important element for success of strategic alliances among biotechnology firms (Deeds & Hill, 1998). Midgley, Morrison and Roberts (1992) found that both pre-existing and innovation-specific communication network links are used in innovation diffusion. Frequency and quality of inter-firm communication will have positive impact on international corporate entrepreneurship development.

Thus, we propose:

**Proposition 2.** International corporate entrepreneurship will be influenced by inter-organizational elements:

- (a) creation of organizational and personal networks;
- (b) organizational support for alliances and networks;
- (c) compatibility of values across partner firms;
- (d) trust;
- (e) inter-firm communication.

## **HUMAN RESOURCE MANAGEMENT ISSUES**

One of the critical resources in any organizational endeavor involves the control and management of human assets (e.g. Gartner, 1988; Venkataraman, 1997) and corporate entrepreneurship is no different (Morris, 1998). Over the past three decades of scholars addressing the phenomenon of corporate entrepreneurship,

the human aspect has consistently been acknowledged as central to the success or failure of innovation and venturing activity (e.g. Block & MacMillan, 1993; Fry, 1987). Human Resource Management (HRM) scholars have also empirically demonstrated the importance of HRM practices on related outcomes such as innovativeness (e.g. Balkin, Markman & Gomez-Mejia, 2000) and innovation-oriented business strategies (e.g. Balkin & Gomez-Mejia, 1987; Jackson, Schuler & Rivero, 1989).

A general consensus exists on some organizational factors that promote corporate entrepreneurship (e.g. Hornsby et al., 1990; Jones et al., 1995; Kuratko, Montagno & Hornsby, 1990), including open communication, values that support the individual and promote corporate competitiveness, team-based organizational structures, individual discretion and autonomy, investments in human capital, and rewards that encourage individual contribution, creativity, and acceptance of risk (Hayton, 2003). Hayton (2003) provides a valuable review of the literature linking corporate entrepreneurship to HRM practices.

International expansion also relies upon effective HRM practices. Shenkar and Zeira (1987) argue that the high failure rate of international joint ventures may result from the difficulty and complexity of managing these organizations, without the necessary knowledge of effective HRM within them. As Geringer, Frayne and Milliman (2002, p. 5) argue, there are numerous examples of “the difficult changes that managers face in achieving the cross-cultural communication and HRM practices needed to make . . . [organizations] effective.” Perhaps our best and most recent data on international HRM comes from a recent longitudinal study, the “Best International Human Resource Management Practices Project,” which examined HR practices in 40 countries and regions around the world across a ten-year time frame (Von Glinow, 2002). A recent special issue of Human Resource Management was devoted to this study, and the most fascinating outcome was the suggestion that while some HR practices vary considerably across boundaries, others remain quite consistent around the globe. Some common HRM tenets, such as the value of training on teamwork or selecting employees based on their fit with the organization’s culture, may be applicable in most countries or “Universal,” while other practices may be “Regional,” transferable only to countries that share a similar cultural orientation, or even “Country-specific,” where the HR practice cannot be effectively replicated in other countries (Geringer, Frayne & Milliman, 2002). An understanding of which HRM practices fall into each of these categories was the purpose of the “Best Practices Study,” and early findings in the areas of compensation (Lowe et al., 2002) selection (Huo, Huang & Napier, 2002), performance appraisals, training and development, and strategic orientation (Bowen, Galang & Pillai, 2002) suggest these categories of practices do exist (Von Glinow, Drost & Teagarden, 2002).



When we bring these two factors together for international corporate entrepreneurship, HR likely takes on an even greater importance in managing the internal and external factors discussed above. Uncertainty and knowledge intensity of international corporate entrepreneurship is high (Kanter, 1985), and not only learning, but also un-learning and being adaptable to radical changes in thinking is essential (Floyd & Woolridge, 1999; McGrath, 2001). Kanter (1985) suggests that management of corporate entrepreneurship is driven by mutual adjustment rather than command, and we argue that this need for flexibility and consensus is even greater when corporate entrepreneurship is internationalized.

This suggests several aspects of an organization's human resources system that are essential to successful international corporate entrepreneurship. These include hiring the "right" people, emphasizing global training and knowledge transfer skills, ensuring an appropriate level of empowerment in job design, and developing moderate flexibility in technological and procedural systems including communications.

### *Hiring the "Right" People*

In many classifications of organizational problems, unavailability of necessary labor, skills, or prior experience resources are left out (Terpstra & Olson, 1993). Yet the limitation of managerial capability, especially as it relates to human resources, is more significant than ever before (Thakur, 1999). The internal and external factors discussed above as essential to successful international corporate entrepreneurship reflect a need for human assets with very specific skills, including vision, strategic thinking, trustworthiness and trustiness, and global experience. Vision, the ability to see what is not yet there (Garland, Garland & Stewart, 1996), has long been shown to be an important element of successful entrepreneurship. Entrepreneurial vision may go hand in hand with self-efficacy, allowing entrepreneurs to act with certainty in uncertain situations (Busenitz & Barney, 1997), rather than be timid in their decision making (Kahneman & Lovallo, 1993). Vision involves being able to project and manage multiple future time horizons (Bird & Jelinek, 1988) and results from intuitive holistic thinking (Boyd & Vozikis, 1994). In the case of global corporate entrepreneurship, this ability to project into the future involves managing multiple visions with multiple international alliance partners. This skill is closely aligned with strategic thinking and planning, which are also essential.

The ability to partner with multiple others also implies an essential skill combination of trustworthiness (so that others can trust you) and trustiness (where you are willing to place your trust in others), which is essential for both intra-firm and inter-firm partnerships and innovation (Stevenson & Jarillo, 1990),

as previously discussed. This is particularly important in the context of international joint ventures and alliances, where decisions are based on mutual agreement and negotiation (Kanter, 1983) and cross-functional and cross-national teams are utilized extensively to get work done (e.g. Hornsby et al., 1999; Kanter, 1985).

International experience can also have an important influence on internationalization (e.g. Bloodgood et al., 1997; Nakos et al., 1998), and should be used as one selection device in recruiting for companies wishing to promote international intrapreneurship. Hiring individuals with different international experiences brings knowledge of those experiences and cultures into the organization (March, 1991). Turnover in personnel, especially hiring employees with experiences different from organizational incumbents, may enhance organizational learning by introducing new information, routines, and competencies, as well as by forcing incumbents to re-examine and refresh their core assumptions about the business (March, 1991). In essence, firms striving to be internationally innovative need to hire new people into the organization periodically to encourage adaptation of the organization code and development of flexibility of other workers. This learning may also occur by hiring contingent workers into the firm, such as consultants, interns, or temporary professionals (Cardon, 2003), or even in raiding employees from competitors (Matusik & Hill, 1998).

### *Global Training and Knowledge Transfer*

Simply hiring individuals with the appropriate skills for international corporate entrepreneurship is not enough; additional global training and knowledge transfer skills must also be encouraged through global HR practices. At the most fundamental level, training must be provided in foreign languages and international business skills (e.g. Nakos et al., 1998). In addition, HR practices must also provide training to workers on the cultural norms and expectations related to foreign assignments, support for families as well as workers, responsible communication while away, and repatriation planning for expatriates. Scholars have clearly documented that the primary reason international assignments fail is due to the lack of adjustment on the part of spouses or families of workers sent to new countries (Losey, 1998). While these non-work aspects can prompt early departure from international assignments, this is not always the case. Internationally, organizational support includes much more than providing a rewarding job experience, it may also involve understanding what motivates individuals from different societies, complex immigration and compensation issues, or even providing emergency evacuation for medical or political emergencies. Providing realistic job previews of what to expect, careful screening, extending detailed orientations to families

and workers, and improved benefits packages can help mitigate international job assignment problems (Truss & Gratton, 1994). Therefore, in order to sustain international activities it becomes essential to provide training and support for workers as well as their families.

In addition to appropriate global training for workers taking on jobs internationally, it is also essential for firms to develop global networks of employees with strong teams that agree about reporting, reward, and control issues (Ryan, Wiechmann & Hemingway, 2003). Building global teams of representatives from many local areas can help introduce staff to their counterparts in other regions and build good relationships across the organization and facilitate the transfer of essential knowledge throughout the organization. This involves seeking the input of more people that normally would be considered within a single region, because inclusion in the process of decision making leads to greater acceptance of the outcome (Ryan et al., 2003). This facilitates internal communication and also enhances portability of workers internationally, as each employee has a global network of contacts and knowledge about other locations from participation in the network.

### *Empowerment of Workers*

Also essential to successful international intrapreneurship is the appropriate level of control and trust of workers, or of their empowerment (Kanter, 1977; Spreitzer, 1995; Thomas & Velthouse, 1990). Empowerment is about both delegating decision making and about encouraging risk taking, growth, and change among employees (Quinn & Spreitzer, 1997, pp. 37–38). When done correctly, empowerment leads to better performance of both workers and their organizations (Gist & Mitchell, 1992; Spreitzer, 1995). The balance is between the trust necessary to allow workers creativity and the control necessary for consistency and fairness across the organization. Recent work suggests that empowerment can come from careful job design as well as the intrinsic motivation of workers, and that empowerment must be goal-directed, whereby organizations empower workers in specific areas, such as customer service or building relationships, rather than empowering them universally across work situations (Misra et al., 2003).

One example of this concerns the formal HR systems in international organizations. There is an enormous tension between the need to integrate HR practices worldwide and the need to be locally responsive and to differentiate practices by local areas (Kanter, 1995; Schuler et al., 1993). For international organizations it is often quite difficult to develop truly “global” sets of HR practices, rather than a set of multi-national practices with greater variance across countries. However, strong corporate cultures can help tremendously in the development and implementation

of global staffing practices and tools, as workers worldwide have a shared understanding of what is important to their organization (Ryan et al., 2003). The level of corporate control vs. local or individual independence, the level of empowerment of workers throughout the organization, is a dilemma that is not yet resolved (Pfeffer & Veiga, 1999).

An additional challenge for organizations seeking international partnerships and alliances to facilitate corporate entrepreneurship is promoting the role of boundary spanning for all workers within the organization. Boundary spanning involves connecting and bridging from one organization to others it interacts with, through which the organization can learn about audience or partner beliefs, values, and actions (Levitt & March, 1988; Scott, 1992), and adjust to them. While some scholars promote the idea that there are designated boundary-spanners within organizations who are devoted to these bridging activities (e.g. Suchman, 1995), we instead suggest that this role should be required of all workers in an international intrapreneurial organization, so that all workers are flexible to new partnerships and alliances and are gathering and sharing information with other organizations, cultures, and countries to both get new creative ideas, and to locate potential new partnerships. Permeability of boundaries is necessary for fostering innovation (Jones, Hesterly & Borgatti, 1997). It is the function of HR to ensure that this role is part of the broad organizational culture, and also that it is explicitly part of new hire recruiting, training, and job expectation.

### *Moderately Flexible Systems*

Flexibility in partnering, structure, and corporate culture is also essential to organizational learning and inter-organizational success (Parkhe, 1991). Since alignment of structure, culture, and practices is important for partnerships, an organization's structure, culture, and practices should be flexible enough to allow for change to new alliances or network partnerships. Further, organizations should employ workers with knowledge in organizational development or change to facilitate this adaptation and flexibility. While these competencies can be obtained through outsourcing, we instead suggest that idiosyncratic knowledge of the organization is essential to maintain the organization's strategic vision and cultural focus at its core while it adapts aspects for alignment with new partners. In short, organizational experts are needed that understand the organizational culture and values to know which international venturing opportunities to pursue, to ensure alignment of culture and values to new partner organizations, and to maintain the appropriate balance between exploration of new opportunities and exploitation of critical organizational resources and knowledge (March, 1991).

This system flexibility also pertains to intra- and inter-firm communication, both essential components of international intrapreneurship. While technology is in general an effective tool for communication around the globe, it is important to note that in many countries modern modes of communication such as video conferencing and rapid e-mail exchanges are not available or not comfortable for all workers (Wiechmann et al., 2003). Wiechmann, Ryan and Hemingway (2000) argue that issues of connection quality, speed, and cost must be considered if international communication relies on technological means. Moreover, face-to-face communications are an important component of building trust, and letting workers and partners know you are available and interested in their work. It is not only the frequency of communication that matters, as technology may facilitate, but also the quality of the communication (Das & Teng, 1998) that significantly impacts its effectiveness. This suggests that flexibility in mode of communication, including in person and that facilitated by various technologies, is important.

## CONCLUSIONS AND IMPLICATIONS

In the past decade, organizations have been attempting to redefine themselves as international in scope. The pressure to internationalize is being felt in virtually every organization: non-profit and for-profit, public and private, large and small. This need to internationalize is accelerating, due to the self-interest of the organizations themselves as well as the impact of a variety of external events and forces. Who would have believed a decade ago that today seven-eighths of the markets of the world would be under some form of market economics? Even as late as August 1989, few would have predicted the rapid collapse of communism and the fall of the Berlin Wall, presenting astoundingly large new market opportunities. Who would have ever imagined a unified Europe with a common currency or a trading agreement between Canada, Mexico, and the U.S.?

These changes are well-recognized by organizations, who are investing trillions of dollars in a world economy that features emerging markets as the vehicles of future growth. About eighty-five percent of the world's population lives in developing countries, most of which are in dire need of major investment in infrastructure development and education. Just ask the potato farmers in the Chuvash Republic of Russia, who saw 26% of their potato crop rot because of the lack of adequate distribution and warehousing, whether there is a need for this investment in infrastructure. Or, ask the economics professor in the Czech Republic, who has to leave the university to find other employment in order to live due to the low university wages, whether massive investment is needed. The professor, like the myriad of

human resources in these developing countries, needs training and education in order to provide the manpower needed in the next century.

Small and large companies alike are finding it important to become more entrepreneurial (intrapreneurial) as well as determining early on the human resources needed and developing sources for recruiting these needed employees with particular attention being paid to employing people from diverse ethnic groups. This is becoming particularly difficult due to the labor shortages around the world. Perhaps this is nowhere more acute than in the United States where the number of Americans between the ages of 18 to 24 is expected to decrease from 30,220,000 in 1980 to 28,498,000 in 2005. The average age in the United States is expected to rise to over 37 by 2010 according to the U.S. Bureau of the Census.

Compounding this problem around the world is the decline in blue collar jobs which decline as economies develop. In the United States blue collar jobs decreased from 40% of the labor force at the end of World War II to 27% today. Throughout the world, jobs are requiring higher level skills and knowledge so that many workers, especially entry level ones, lack the education and skills to transfer from one job to another.

In this environment it is very hard to have truly global HR systems, due to differences in “educational systems, credentialing, available labor pools, works councils and unions, and equal employment-related legislation” (Wiechmann et al., 2003, p. 71), although a few companies are doing this successfully. In the case of global corporate entrepreneurship, where flexibility and adaptability of organizations to partnering firms is essential, highly formalized systems that are implemented universally across the organization will require regular significant changes, as new alliances and partnerships are formed around the world. Therefore systems should not be overly rigid or difficult to adapt, but instead should provide moderate flexibility and permeability to alliance partners.

To meet these problems, many intrapreneurial companies are changing the way they operate and are spending more on technology, using new methods to attract more employees, changing their work environment and culture to make them more attractive, and using different employee benefits and other incentives to retain valued employees. Some intrapreneurial companies are resorting to increasing automation and subcontracting to reduce the need for employees.

So where do the fields of international corporate entrepreneurship and global HR management go from here? By no means has this chapter raised or answered all the research questions. It is hoped that this chapter on the topic brings attention to the subject and illustrates its ever increasing importance in the dynamic market place of today and in the future. Ideally, more researchers will understand its importance and start developing and answering the many research questions waiting for exploration. And, some future thinking, globally-oriented

academic institutions will recognize the importance of international corporate entrepreneurship and global HR management and develop and offer courses in this area. And, maybe in the not too distant future some future-oriented author and publisher will actually publish a textbook and/or casebook on the subject which will further enlighten our understanding of this important subject area.

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# ACHIEVING “CRITICAL MESS” IN ENTREPRENEURSHIP SCHOLARSHIP<sup>☆</sup>

William B. Gartner

## INTRODUCTION

This chapter follows two previous chapters on the nature of entrepreneurship and entrepreneurship scholarship that have been presented in this book series (Davidsson, 2003; Venkataraman, 1997). Both of these chapters are key works in the field, and they both provide critical contributions to our understanding of what entrepreneurship is, as a focus of scholarship, and how entrepreneurship should be studied. My intention for this chapter, therefore, is to offer some thoughts that, I believe, are complementary to the insights offered by my colleagues. My approach to considering the questions of “What is entrepreneurship?” and “How might entrepreneurship be studied?” is to offer some thoughts about the “community of practice” (Latour, 1987, 1999; Sargent, 1997; Wenger, 1998) that currently exists in the academic field of entrepreneurship, and to propose some suggestions for how academics might practice different ways of entrepreneurship scholarship. (This will beg the question of whether a “community of practice” can remain a community, if the practice, itself, changes).

In one form, or another, I have been imbedded in explorations of the two questions of “What is entrepreneurship?” and “How should entrepreneurship be studied?” for my entire academic career (e.g. Gartner, 1985, 1988, 1989, 1990, 1993,

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<sup>☆</sup>The section of the paper “Entrepreneurship is . . .” is based on portions of “Entrepreneurship as organizing: Emergence, newness and transformation” by W. B. Gartner and C. G. Brush (2003). Academy of Management Entrepreneurship Division Paper Presentation, Seattle, August.

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2001). This chapter, then, is my “sense making” of where I currently believe the entrepreneurship field is, which in some respects, is a way of saying that the chapter is about some issues about entrepreneurship that I am currently concerned with. One’s perspective of the field of entrepreneurship is likely to be different depending on where one currently is positioned (Aldrich & Martinez, 2001; Busenitz et al., 2003; Davidsson, 2003; Davidsson, Low & Wright, 2001; Davidsson & Wiklund, 2001; Low, 2001; Ucbasaran, Westhead & Wright, 2001; Verstraete, 2003). I offer a complementary way that entrepreneurship scholarship can be understood, vis-à-vis these other perspectives, as well as a number of complementary ways, vis-à-vis more common methodologies and designs (Chandler & Lyon, 2001) that entrepreneurship scholarship might be undertaken.

Before getting too far into either of the “is” or “how” questions, I want to offer an explanation for the title of the chapter: “Achieving ‘Critical Mess’ in Entrepreneurship Scholarship.” The idea of “critical mess” came about while Sue Birley and I were completing our overview of a special issue on qualitative research in the *Journal of Business Venturing* (2002). While selecting articles for inclusion in the special issue (and it should be noted that “selecting” is too mild a word for the two-year process of finding papers, cajoling authors to make significant revisions to their works, and then making some very difficult decisions to reject some excellent revised manuscripts) we found ourselves in the position of considering the value of qualitative research in a field that appears to be turning more and more towards quantitative studies as the standard for offering acceptable evidence about the nature of entrepreneurship. As serendipity would have it (Friedel, 2001; Gartner, Carter & Hills, 2003), I came across an article on book collecting in *The New Yorker* magazine that offered an analogy for the value of qualitative research efforts. Our meditation on this book-collecting article and qualitative research came out as this thought:

Finally, we offer an insight about the nature of qualitative research which might be considered as a parting trifle, but we believe contains some truth which bears consideration: the “critical mess theory.” In qualitative research there is typically an immersion into the muddled circumstances of an entrepreneurial phenomenon that is cluttered and confusing. Part of the difficulty of generating and reporting the findings of a qualitative research effort seems to stem from the experience of being in such an untidy reality. Qualitative researchers seem to get overwhelmed with too much information, rather than too little. Yet, it is in this experience of information overload that a certain knowledge and wisdom often occurs. One can often tell which researchers in our field have spent considerable time intensively involved with entrepreneurs. The knowledge and insights that stem from all of their research just seem to ring a bit truer and clearer. We borrow a label for this sensibility of immersion from a profile of Michael Zinman, a bibliophile and Michael Reese’s insights into Zinman’s strategy for collecting books:

You don’t start off with a theory about what you’re trying to do. You don’t begin by saying, ‘I’m trying to prove x.’ You build a big pile. Once you get a big enough pile together – the



critical mess – you’re able to draw conclusions about it. You see patterns . . . People who have the greatest intuitive feel for physical objects start from a relationship with the objects and then acquire the scholarship, instead of the other way around. The way to become a connoisseur is to work in the entire spectrum of what’s available – from utter crap to fabulous stuff. If you’re going to spend your time looking only at the best, you’re not going to have a critical eye” (Singer, 2001, p. 66).

Qualitative researchers are likely to be the connoisseurs of entrepreneurship scholarship only in that they are more likely to immerse themselves to a greater depth and in a wider variety of situations where entrepreneurship occurs. We encourage all entrepreneurship scholars to develop a critical eye in their efforts to explore entrepreneurship, and hope that more work will be undertaken to utilize qualitative methods for seeking such an understanding (Gartner & Birley, 2002, p. 394).

As a point of departure for this chapter, the idea of “critical mess” should invoke a picture of the pile of scholarship that entrepreneurship researchers have created and are currently generating. Imagine all of the journal articles, monographs, books, working papers, and all of the other paraphernalia (such as courses, cases, teaching notes, exercises, newspaper and magazine blurbs and interviews, etc.) that entrepreneurship academics generate that might be heaped together. Imagine as well, all of the other material on entrepreneurship that has been generated by government agencies, magazines, newspapers, television programs, biographers, non-fiction writers, fiction writers, and from entrepreneurs. That is the pile, the “critical mess.” I am very intrigued with thinking about “who” we [the “we” being academics both within the community of entrepreneurship scholars as well as those who are not (those in the “not” category are those academics who are “outside” of the entrepreneurship field, that is, our non-entrepreneurship academic colleagues, as well as all those individuals who have a keen interest in the products of entrepreneurship scholarship, such as policy makers, entrepreneurship service providers, and entrepreneurs)] consider to be contributors to this pile, as well as “what” we consider to be a contribution to the pile. The above example hints to my belief that the “critical mess” involves not only designated scholarly efforts, but also non-scholarly contributions, as well. I posit that the pile, the “critical mess,” is the primary source of our theory (or theories) about the nature of entrepreneurship. The “critical mess theory,” then, suggests that the development of theory is dependent on determining what the “critical mess,” is. What we use as our data, or “mess,” is what will serve as the context for our understanding of the phenomenon. I liken this observation to that of Weick’s arguments for the value of requisite variety (Weick, 1979), in that complex and complicated phenomena require complex and complicated ways of seeing. I believe, that in the context of the “critical mess,” the ways of seeing involve paying attention to more sources of information. I fear that many entrepreneurship scholars may be (and are) willing to create and utilize

a very small “critical mess” of materials that constitute the bases for their theories of entrepreneurship. What entrepreneurship scholars are willing to consider, as information about the phenomenon of entrepreneurship, will likely determine the scope and breadth of their ideas. I believe that a failure to engage in a more complicated view of entrepreneurship, that is, looking at a small mess of information, results in ideas about entrepreneurship that are less engaging (Weick, 1999). The remainder of this chapter, then, will offer some thoughts about the nature of what the pile of entrepreneurship scholarship is, as well as a plea for enlarging what we currently consider to be the relevant kinds of evidence that should be added to this pile in order to achieve a “critical mess” in entrepreneurship scholarship.

*Entrepreneurship is . . .*

Are you ready for another categorization of the entrepreneurship field? While there have been a number of different frameworks and categorizations of entrepreneurship scholarship (e.g. Acs & Audretsch, 2003; Aldrich & Martinez, 2001; Busenitz et al., 2003; Davidsson, 2003; Davidsson, Low & Wright, 2001; Davidsson & Wiklund, 2001; Low, 2001; Ucbasaran, Westhead & Wright, 2001 to name those published recently), I cannot help but offer another perspective on a way to sort through the entrepreneurship scholarship pile. Candy Brush and I have bandied about a way of categorizing entrepreneurship scholarship in presentations at various entrepreneurship doctoral consortiums (e.g. Babson Kauffman Entrepreneurship Research Conference and the Academy of Management Entrepreneurship Division Doctoral Consortium) since 1996, and as a paper presentation at the Academy of Management in 2003 (Gartner & Brush, 2003). I am sure that the paper, itself, will eventually be accepted for publication in a journal, but, until then, I would like to outline the gist of our ideas about what I consider to be a rather parsimonious way of making sense of the varieties of entrepreneurship scholarship.

Why not consider that those involved in the “community of practice” of entrepreneurship scholarship are involved in the study of “organizing?” And, why not consider that “organizing” might be broadly construed to involve the “generic category of assembly rules” (Weick, 1979, p. 235)? While I have been inclined to consider “organizing” to be very appropriate for understanding the organizing of organizations [e.g. (Gartner, 1985, 1988, 2001) and please note that the reason for this view is I believe that the community of scholars who have been more likely to label themselves as entrepreneurship scholars have tended to study organizations in one way or another, rather than other kinds of human activities], I would like to broaden the focus of organizing to involve the study of all organizing activities. The

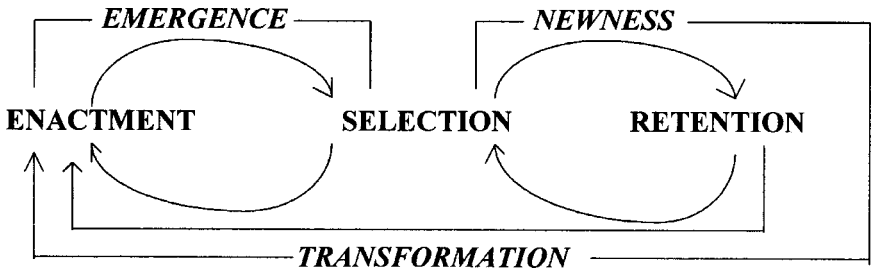


Fig. 1. Organizing Cycles: Emergence, Newness and Transformation. Source: Gartner and Brush (2003).

organizing of organizations would be but one way in which the process of organizing could occur, and, as such, organizing could occur at multiple levels of analysis: group, organization, population, community, environment (Aldrich & Martinez, 2003; Davidsson & Wiklund, 2001). Organizing involves the creation, establishment, and change of routines, structures and systems (Aldrich, 1999; Becker & Gordon, 1966; Nelson & Winter, 1982).

The process of organizing is not a singular event, but one that consists of a sequence of activities: enactment – selection – retention (Weick, 1979, pp. 119–146). We propose that the phenomenon of entrepreneurship is evident in cycles between the activities of enactment – selection – retention of this organizing framework. Entrepreneurship scholarship is most often found in between the three broad processes of organizing. A diagram of this process (Fig. 1) identifies *emergence*, *newness*, and *transformation* as labels for cycles of these pair-wise organizing activities. *Emergence* is a cycle of activities between enactment and selection, *newness* is a cycle of activities between selection and retention, and *transformation* is a cycle of activities between retention and enactment. This model has a subtle, but significant difference from the organizing model described by Weick (see 45, pp. 132–137) because it includes a feedback loop between enactment and selection. The labels (emergence, newness, and transformation) are not substitutes for Weick’s concepts (enactment, selection, and retention), but a specification of where entrepreneurial processes are likely to occur, and where entrepreneurship scholarship has focused its efforts. The processes of entrepreneurship are, therefore, transitional states between the three major processes of evolutionary change.

Since my knowledge of organizing is primarily embedded in the study of the organizing of organizations, nearly all of my examples will focus on organizations, so that the terminology used here will be about “organizational organizing,” “organizational emergence,” “organizational newness” and “organizational transformation” rather than organizing, in general. As I mentioned earlier, this is not

to imply that organizing doesn't occur elsewhere (e.g. individuals, groups, associations, industries, nations, economies, and environments) but that I feel more comfortable talking about what I know more about when looking at the pile of entrepreneurship scholarship. So this is an admission that what I am able to see in the "critical mess" of information about entrepreneurship is limited by my own rather narrow experiences as a scholar exploring organizational organizing. The field of entrepreneurship is bigger than the study of organizational organizing. Therefore, I see my challenge, as well as the challenge for most scholars in the field to entrepreneurship, as that of enlarging our scope of interest to include paying attention to more journals, more books, and more information about entrepreneurship from outside of the organization-oriented view of entrepreneurship which is the dominant focus of the field (Verstraete, 2003). I am sure that those readers interested in other forms of non-organization focused entrepreneurship will be able to find analogous examples. And, I welcome engaging in conversations with those individuals who are studying other kinds of organizing phenomena.

### *Emergence*

Organizational emergence involves those events and activities before an organization becomes an organization, that is, organizational emergence involves those factors that lead to, and influence the creation and development of the organization. In the study of organizations, the process of emergence has been labeled as: the *pre-organization* (Katz & Gartner, 1988), *gestation* (Reynolds & Miller, 1992; Whetten, 1987), and *start-up* (Carter, Gartner & Reynolds, 1996; Van de Ven, Angle & Poole, 1989; Vesper, 1990). Organizational emergence is the process of organization creation, which is an unfolding of organizing activities involving both enactment and selection (Gartner, Bird & Starr, 1992). As entrepreneurs undertake the tasks of organization creation, they also recognize and attempt to adapt to various selection mechanisms. For example, entrepreneurs must convince prospective investors of the viability of their ideas, which requires these entrepreneurs to understand the investor's criteria for investing in new opportunities (Mason & Harrison, 2003).

The process of emergence occurs before the organization exists. It is likely, therefore, that the process of emergence does not always result in an organization. The outcome of organizational emergence could be an organization, or a failed attempt at creating an organization, or something else (Carter, Gartner & Reynolds, 2004). Conversely, the existence of a new organization is, therefore, not equivalent to attempts at start-up, or the process of emergence. In particular, the problems of new organizations are not the same problems encountered in the process of becoming a new organization (Reynolds, 1994). Observers of ecological analyses of organizational foundings (Aldrich & Wiedenmayer, 1993;

Amburgey & Rao, 1996; Hannan & Carroll, 1992) have recognized this dichotomy between the process of starting a business (founding attempts), and the existence of new organizations (organization foundings).

Owing to the dearth of data on preorganizing processes, organizational ecologists rarely distinguish successful events from non-events in the founding process. Instead, ecological researchers concentrate their attention on the times between the appearance of operational start-ups – that is, successful new entities that begin to produce goods and services. A sample selection bias ensues because many emerging organizations fail before they start operations: some potential founders fail to incorporate, and newly incorporate entities may be unable to commence production (Aldrich, Rosen & Woodward, 1986; Amburgey & Rao, 1996, pp. 1272–1273; Hannan & Carroll, 1992).

A new organization is recognized when there is an appearance of an organizational start-up, such as at the time of incorporation. However, the study of new organizations fails to recognize attempts at emergence that did not result in an operational start-up (Katz & Gartner, 1988). A new organization is one possible outcome of the organizational emergence process, but this outcome is not the emergence process, itself.

### *Newness*

The circumstances of organizational *newness* involve the process of facing the pressures of selection and developing established routines. At a minimum, there is, already, something that has been organized, so in the case of the study of organizations, "newness" involves the study of new organizations. This phase of development is also referred to as: *founding* (Aldrich & Weidenmeyer, 1994), *growth and direction* (Miller & Friesen, 1984), *survival and success* (Churchill & Lewis, 1983), *survival* (Scott & Bruce, 1987), and *expansion* (Hanks et al., 1994). The challenges of newness are complex. New organizations face difficulties associated with their liability of newness (Aldrich & Wiedenmayer, 1993), and size (Aldrich & Auster, 1986) influencing perceived legitimacy in the eyes of external constituents (Aldrich & Fiol, 1994) that may affect a new venture's ability to obtain resources.

Having emerged through the transition from idea to existence, the new organization faces continuing selection problems as well as opportunities for substantial growth and success. These distinct sets of challenges reflect two contrasting viewpoints to studying new firms. The ecological approach, is, in some respects, a more pessimistic viewpoint on organizational survival, in that, implicit in the name, "the liabilities of newness," is significant evidence that newer and smaller firms have high rates of failure (Hannan & Carroll, 1992). Strategic approaches, which study the differential characteristics of a select number of more or less successful new organizations, appear to be more optimistic, in taking a perspective that appears

to reflect the optimism of these business owners (Cooper, Woo & Dunkelberg, 1988). From either perspective, much of this research has had a “disproportionate pre-occupation among contributors with issues of success and failure, survival and death, and the relative economic performance of firms” (Venkataraman, 1994, p. 3). So, in the simplest of terms, the study of organizational newness begins with organizations that already exist. These organizations are newer/younger than other organizations in the population of organizations, and it is the characteristic of being new/young, itself, that is their essential challenge.

### *Transformation*

Organizational transformation is the way that an organization changes its established routines through enactment. Organizational transformations are therefore, profound changes in an organization with revitalizing potential that may or may not be realized. Terms descriptive of organizational transformation are: *organizational change* – which is a change in the key patterns of the organizational system (Ledford et al., 1989); *transformative change* – which cuts through the mental and organizational barriers (Kanter, 1983); and *punctuated equilibrium* – which refers to a non-linear shift in strategies, structures and/or processes such that the current resource configuration is rapidly transformed (Gersick, 1988).

In organizational transformation, the challenge is to set a new direction, to abandon an orientation rooted in the present, and adopt a new orientation rooted in the future. Delegitimization and disengagement of a previous vision results in the need to identify new resources and develop new means to acquire and allocate these. The organization is faced with continual dilemmas of how to revise or destroy existing processes, policies and procedures to make it possible for new knowledge creation (Nonaka, 1994). Organizational transformation, then, begins with “survivors,” that is, organizations that have been in operation long enough for their routines to be retained and made habitual. By analogy, the process of transformation involves “dropping your tools” (Weick, 1996), that is, being able to let go of established ways of doing things in order to behave in a way that might be more appropriate for survival.

## **SORTING THROUGH THE “CRITICAL MESS”**

This framework isn’t intended as a way to exclude various types of entrepreneurial research rather, the framework helps clarify what kinds of entrepreneurship research are being conducted. In addition, the framework offers ways to expand our view of entrepreneurial phenomena as different kinds of processes. We believe that the field of entrepreneurship is more likely to build a distinct body of

knowledge (Davidsson, 2003; Venkataraman, 1997), if entrepreneurship scholars can link their specific contribution within the wider context of all entrepreneurship research. This framework may offer such a possibility. In addition, by viewing entrepreneurship scholarship as the study of different types of organizing, we offer a relatively simple way to categorize entrepreneurship research that crosses a variety of disciplinary perspectives and units of analysis. For example, we have found that articles in the *Journal of Business Venturing* could be categorized into the three categories of emergence, newness and transformation, in a proportion of 10, 60, and 30%, respectively, and that categorizations of other collections of entrepreneurship articles (e.g. Busenitz et al., 2003) results in similar percentages for each of the three categories. I’ve found this ability to categorize entrepreneurship journal articles relatively easy to do. The primary questions for sorting articles are: Does this article focus on the process of creating something (such as an organization, industry, or environment)? If so, then the article is about emergence. Does this article focus on the survival or growth of something new (such as new firms, new industries, new environments)? If so, then the article is about newness. Does this article focus on a change in an established way of doing things (in firms, industries, environments)? If so, then the article is transformation. If the article can’t be classified into one of these three categories, then, it is likely that the article is not about entrepreneurship.

At this point, the insight that I want to emphasize from this way of categorizing entrepreneurship scholarship is for entrepreneurship researchers to see that a very small proportion of the activity involved with publishing “entrepreneurship” journal articles involves the study of emergence. If you believe that we have been able to accurately classify entrepreneurship articles into the three categories of emergence, newness and transformation, then, we have shown that what entrepreneurship scholars’ practice, in terms of their scholarly output, is not, primarily, the study of the business startup process. The majority of entrepreneurship scholars appear to be studying the problems of newer and younger firms.

I think that such an insight is to be expected, and for many observers of the entrepreneurship field, may appear to be rather obvious. In a recent issue of the Academy of Management Newsletter, the president of the Academy commissioned a study to explore joint memberships among Academy of Management members (Pearce, 2003). Every Academy of Management Member has an opportunity to belong to a number of divisions within the Academy of Management, and nearly all members belong to more than one division. Figure 2 shows an analysis of the joint members among the various Academy of Management Divisions and Interest groups, where a line between two divisions represents a minimum of a 27% overlap in members. The “thicker” the line, the more overlap there is between two divisions, and the more lines between a division, the more connections there

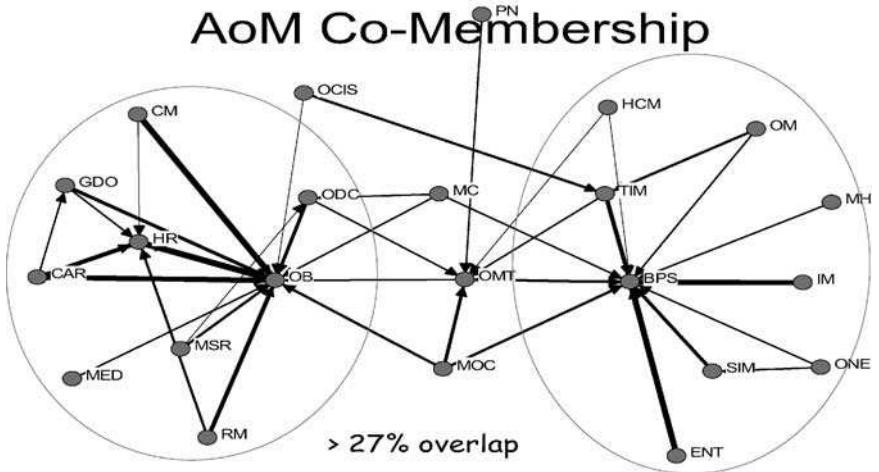


Fig. 2. Academy of Management Co-Membership. *Note:* Used with permission: (Pearce, 2003, p. 2).

are between that division and other divisions. Figure 2 shows that there are two major clusters within the Academy of Management, OB (Organization Behavior) and BPS (Business Policy and Strategy), and that the “bridges” between these two clusters are OMT (Organization and Management Theory), MOC (Managerial and Organization Cognition), and MC (Management Consulting). Apropos to the discussion of entrepreneurship, the Entrepreneurship Division (ENT) is only connected to BPS. Indeed, the majority of members of the Entrepreneurship Division are members of BPS. It is no wonder, then, that the majority of research in the field of entrepreneurship has been focused on a “disproportionate pre-occupation among contributors with issues of success and failure, survival and death, and the relative economic performance of firms” (Venkataraman, 1994, p. 3). The issues of success and failure, survival and death, and the relative economic performance of firms are issues that are the fundamental concerns of business policy and strategy.

The current practice of entrepreneurship scholarship, as reflected in the activities of the Academy of Management, is therefore, a subset of business strategy (Busenitz et al., 2003). Again, if the “critical mess” of my observations of members contributing to entrepreneurship were to be members of the American Economics Association, or some other membership group, the conclusions and insights might be different. And, if my content analysis of a journal were to be *Small Business Economics*, rather than the *Journal of Business Venturing*, I might see a different percentage of contributions to entrepreneurship scholarship, as well. So, the



insight presented here, may be more a reflection of my parochial interests and views, as a scholar primarily involved in the Academy of Management, rather than an accurate depiction of those scholars actually involved in entrepreneurship research. Some scholars have observed that North American-based entrepreneurship researchers have a rather limited way of paying attention to research that should be considered as part of the domain of entrepreneurship scholarship (Landstrom, 2001; Verstraete, 2003).

I have suggested that entrepreneurship scholars be willing to see that their contributions to the field of entrepreneurship are contributions to a smaller sub-set of the domain (Gartner, 2001). I have, in fact, argued that my efforts to explore organizational organizing should be seen as a contribution to a limited aspect of the entrepreneurship domain, overall, rather than an attempt to define domain of entrepreneurship as the study of organization creation, only (Gartner, 1993, 2001). I believe that when entrepreneurship researchers offer more specific definitions of their contributions to the entrepreneurship field (e.g. in the broad characteristics of the phenomenon – emergence, newness, and transformation; in the theory used; in the samples studied; and in the methods applied), it will become more apparent as to the connections among these contributions, and, it will be easier to build on each other’s work.

## **ADDING TO THE “CRITICAL MESS”**

I believe that the primary task facing scholars in the field of entrepreneurship is to generate more evidence about the phenomenon. I do not believe that efforts to build theory in entrepreneurship can progress until there is more information upon which new theory can be generated. The “critical mess theory” suggests that scholars sort through a lot of data in order to make sense of what makes sense as theory about the phenomenon: the collection of evidence is necessary before theory development may occur. And, in the entrepreneurship field, there simply isn’t enough evidence. This might seem surprising, but entrepreneurship scholars seem to have such a limited view of what would be “a relevant fact” that the field sorely needs more information about the phenomenon.

Based on my own experiences of studying organizational organizing, I will offer some speculations as to why I think there are not enough facts about the phenomenon of entrepreneurship. While it might be plausible that there are more facts available about other aspects of the phenomenon of entrepreneurship (e.g. more facts about newness and transformation, more kinds of evidence about other levels of entrepreneurial phenomena besides the individual and organization levels), my experience of the field, particularly as it pertains to the development of the Panel

Study of Entrepreneurial Dynamics (Gartner et al., 2004), reviewing for a variety of journals and conferences, meeting with policy makers and entrepreneurs, and attempting to read rather broadly in the field (though the reference list might not reflect this) would lead me to hazard to guess that other areas of the entrepreneurship field need more evidence as well.

There has been an ongoing bias in the entrepreneurship field towards assuming that increasing methodological sophistication is an important characteristic of a mature scholarly domain (Chandler & Lyon, 2001; Low & MacMillan, 1988; Wortman, 1987). For example, Chandler and Lyon (2001) end their overview of the entrepreneurship field with: “Hence, though progress has been made, Low and MacMillan’s (1988) admonition to move away from exploratory studies and towards causality remains relevant” (p. 112). The kinds of relevant facts that appear to be of more interest in the entrepreneurship field are those facts tied to some kind of theoretical construct, that is, “theoretical facts:” facts that offer some sense of “why” something occurred are to be preferred.

I suggest that the entrepreneurship field needs more descriptive research, rather than less. Descriptive facts as those facts that may, or may not, have an ability to answer “Why,” but these facts do provide more information about the phenomenon, itself. I believe one of the reasons that the field of entrepreneurship might not be a “mature” field is because we know so little about what entrepreneurship is, as a phenomenon. It surprises me how little we actually know, for example, about organizational emergence, though most universities have courses or programs that teach this topic of new venture creation. Most students want to know about the process of organization formation – how it occurs, the kinds of behaviors necessary for business startup, the ways in which these behaviors occur – and little evidence can actually be provided from scholarly research about what entrepreneurs actually do (Gartner & Carter, 2003). I do not believe the most effective way to understand the process of organization formation is to develop a theory about how and why this process occurs *before* attempting to actually observe how this process actually occurs.

Theory does not necessarily provide the kinds of details that portray the details of the phenomenon. Theoretical facts seem to provide a plausible explanation of a way to make sense of aspects of entrepreneurship, yet, these theoretical facts often seem to leave out so much of what, on face validity, would be sufficient for understanding the process. I think that a good example of a strong theoretically based article that could have benefited from a “critical mess” approach is Amit, Glosten and Muller’s (1990) development of a theory about the relationships between entrepreneurs and venture capitalists based on principal-agent theory (Holmstrom, 1979). In this article, based on a set of assumptions about the kinds of information entrepreneurs have about their skills and abilities, and are willing to share with

venture capitalists (assumptions of information asymmetry between entrepreneurs and venture capitalists), they proposed that the less skillful entrepreneurs are more likely to be the ones who will offer and make deals with venture capitalists. Venture capitalists are assumed to have less information than entrepreneurs, so that venture capitalists are more likely to take the poorer deals, which will likely have the higher risks of failure, and therefore, venture capitalists should ask for higher rates of return on the deals they do invest in. While this is a plausible logic for why venture capitalists would ask for higher rates of return for their involvement in the development of new ventures, there could be more plausible explanations of venture capitalist behavior. Information asymmetry among entrepreneurs and venture capitalists may actually work in the opposite direction. Venture capitalists are likely to see a variety of proposals from entrepreneurs, while entrepreneurs are likely to be only aware of their own, specific deal. Venture capitalists are therefore in the position of having more information about: the specific strategies of all possible entrants, the reputation of nascent entrepreneurs involved in these new ventures, and the relevant connections among all of the “players,” e.g. investors, suppliers, customers, employees, advisors, that might likely be involved (Kunze, 1990). Adverse selection may indeed work against the entrepreneurs, in that venture capitalists advise entrepreneurs to not “shop around” their deals, which puts the entrepreneurs in a position of having less knowledge of all of the venture capitalists that might be willing to invest.

The need for higher rates of return for venture capitalists may be less an outcome of their inability to invest in deals with the more skillful entrepreneurs, and more a population problem of attempting to pick a winner when more and more investors are willing to enter the race with possible winners. As Sahlman and Stevenson (1985) discovered in their history of the Winchester disk-drive industry, venture capitalists invested in over 100 companies, though the estimated demand indicated that no more than two or three companies would be necessary to meet demand. Each venture capitalist knew that only a few disk-drive companies would succeed, so, at an individual level, it made sense to assume that an investment in one company might be the investment in the right company. The problem with venture capitalists investing in the disk-drive industry did not seem to be their inability to identify the more or less skilled entrepreneurs, but more of failing to recognize the folly of creating overcapacity by investing in too many deals.

It should be noted that I selected examples for evidence about the phenomenon of venture capital that occurred during, or before, the Amit et al. (1990) article appeared. There was ample evidence from the field, in books, articles, and in the popular press, about how the venture capital industry operated that could have led these authors to consider alternative theories for the outcomes they saw, or modifications of their ideas.

I believe the theoretical development makes sense for our field in situations where there is an abundance of information (the critical mess) that can then be better understood by identifying the more critical elements that are better able to explain the phenomenon. Theory, in this sense, helps to sort through a very rich and complex understanding of the phenomenon, rather than acting as a lens that narrows our vision and experience of what is actually occurring.

## CONCLUSIONS

I think the reason that more scholars are engaged in generating information that is labeled as entrepreneurship scholarship, is because the topic area of entrepreneurship (however you want to define it) is interesting and important. As both Venkataraman (1997) and Davidsson (2003) have so aptly demonstrated, much of a society's ability to create wealth and well-being occurs through entrepreneurial activity. An activity with such an important outcome should not be ignored. My concern has been in regards to how scholars should pay attention to this area.

I hope that scholars might find the organizing framework (Gartner & Brush, 2003) useful for sorting through the variety of research efforts that are undertaken in the entrepreneurship area. I think the majority of scholarship currently undertaken in the entrepreneurship area concerns the problems and issues confronting new/growing firms, rather than the creation of new firms. The majority of the entrepreneurship field, as it is currently practiced, is a subset of the concerns of business policy and strategy. I hope that more scholars will consider research activities that explore emergence, and particularly the topic of organizational emergence.

I believe that generating more description about the phenomenon of entrepreneurship (however you want to define it) is the foundation for building the entrepreneurship field. I don't think the competitive advantage of entrepreneurship, as an emerging field of scholarship, will come about, initially, because of the development of new theory. I think entrepreneurship will have a competitive advantage vis-à-vis other scholarly domains when it creates new evidence. I would like more efforts to be put on generating "descriptive" evidence, rather than "theoretical" evidence. We need more facts about entrepreneurial phenomenon, rather than theoretical speculation. I believe that those scholars who are willing to immerse themselves in a "critical mess" of information about entrepreneurship are those scholars who are more likely to make important and lasting contributions to the field. I think the "theories that matter" (Weick, 1999) in the field of entrepreneurship will be derived from those individuals who have really developed a critical eye about the phenomenon. I believe this critical eye will occur when there is a

willingness to look at a wider variety of sources of information: autobiographies, newspaper and magazine articles, personal interviews, etc. And, as scholars, we should be reading more of each other's work. I humbly admit my ignorance of the entrepreneurship scholarship appearing in European journals and conferences.

I think that one of the reasons that the entrepreneurship field has been so slow to emerge, as a recognizable scholarly domain, has been the failure, collectively, of scholars in the field to read and cite each other's work. I find a certain ahistorical quality to many entrepreneurship journal articles: articles that tend to ignore previous efforts to grapple with similar issues and problems. While much of the prior research in entrepreneurship might not meet current methodological and theoretical "standards" for quality scholarship, I find prior work in the field to offer information and insights that are invaluable and important. I think the entrepreneurship field needs to begin with what currently exists as entrepreneurship scholarship, rather than tossing all of it out. My caution to young scholars entering the entrepreneurship field with new approaches and ideas is that in the not too distant future your new ideas and approaches will also be outdated. A scholarly domain grows when researchers build on prior work, all of the "good" and the "bad" research efforts. Achieving critical mess occurs when we see value in, and use, all of our efforts to understand the phenomenon.

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# CAN SIGNAL DETECTION THEORY BE USEFUL IN THE STUDY OF ENTREPRENEURSHIP?

C. M. Gaglio

## INTRODUCTION

The study of entrepreneurship in the twentieth century can be characterized as the import era: psychological trait theories (Brockhaus & Horowitz, 1986; McClelland, 1965; Powell & Bimmerle, 1980); psychological cognition theories (Busenitz, 1999; Katz, 1992); strategy theories (McDougall & Robinson, 1990; Sandberg, 1992); finance theories (Brophy & Shulman, 1992; McMahon & Stanger, 1995); marketing theories (Hills, 1981); population ecology theories (Aldrich, 1990); sociological network theories (Aldrich & Zimmer, 1986; Birley, 1985) and creativity theories (Long & McMullen, 1984) among others were imported to shape the development of entrepreneurship as an academic discipline. Thus far, the results of this prodigious effort are ambiguous at best; findings warrant continued effort in each stream but have to produce consequential insights into the nature, process, and dynamics of entrepreneurship. Why this may be so will be considered later. However, such a track record should prompt considerable reluctance to heed McMullen and Shepherd's (2003) suggestion to import yet another theory – signal detection – rather than approach the study of entrepreneurship directly. Based on their exposition, such reluctance would be well founded except for the rather exciting fact that the framework has the potential for consequential insights if applied in another way. The purpose of this

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commentary is to critically evaluate the authors' conceptualization and outline the alternative.

## **SIGNAL DETECTION THEORY AND ENTREPRENEURSHIP**

McMullen and Shepherd assert that importing signal detection theory is necessary in order to fully explain the decision (i.e. judgment plus belief plus motivation) to introduce never before seen or experienced (i.e. uncertainty) products, services, or processes (i.e. opportunity). The decision is predicated on an evaluation (i.e. judgment) that action (i.e. to introduce or not) will be both feasible and desirable (relative to some unspecified criterion).

Specifically, the authors find three irreconcilable problems in the existing literature. First, the literature essentially ignores the judgment and decision making associated with opportunity evaluation. The authors offer two possible reasons for this outcome: most modern scholars do not understand how to correctly interpret the economic theories about the entrepreneur (p. 142), but more importantly, the economic theories focus solely on the function of the entrepreneur, which is to achieve profit by creating novelty or bearing uncertainty (p. 148). Rather than proscribe or describe the algorithms that would precede enactment of this function, that is, account for the judgment and decision making or evaluation that precedes action, these economists chose to account for the functional behavior by invoking personality traits, thereby giving rise to the second problem plaguing the literature (pp. 143–147): confounding the role of the entrepreneur in the economic system (systems level of analysis) with the person who chooses to engage in the role (individual level of analysis) such that the possibility of entrepreneurial behavior by firms (p. 147) or in non-business settings (p. 146) is precluded. The third serious problem the authors have with the existing literature is that all explanations of entrepreneurial opportunity identification, shaping, evaluation and exploitation assume the existence of an objective reality rather than a socially constructed one.

The authors claim that using signal detection theory to explain entrepreneurial decision making resolves all these problems as well as synthesizes Schumpeter's interest in novelty, Knight's concerns about uncertainty-bearing, and Kirzner's explanation of arbitrage in a way that produces a testable theory amenable to rigorous empirical experimentation. Furthermore, application of this conceptual framework would also account for motivation. Critical evaluation of these claims requires consideration of the following: are the authors correct in their assessment of the existing literature; does the posed solution more completely address the

identified problems; does the application of the solution create bigger problems; and, assuming appropriately positive responses to the foregoing, how important is this?

### *Assessment of Literature*

The authors' critique of the existing literature hinges on two key points: (1) that evaluation of taking action is the crucial entrepreneurial moment; and (2) that at the systems level of analysis, none has been able to work through the problems of judgment and decision making involved in that evaluation. If simple page counts were appropriate evidence, then the authors are correct in saying that a systems-level account of opportunity evaluation has received scant attention in the entrepreneurship literature.

Unfortunately, a close reading of the literature indicates why Schumpeter (1934) and Kirzner (1979) give the topic an apparent short shrift. These economists acknowledge the practical importance of taking action and hence, the practical importance of the decision to take action (i.e. taking action is *logically necessary* for entrepreneurship to exist) but as they claim that an entrepreneur's decision to act conforms in form and process to the judgment and decision making of any other market actor's (e.g. consumer, employee, manager, etc.) decision to take action; there is no need for a special "entrepreneurial" explanation. In all instances, every kind of market actor exercises good business judgment in order to maximize the profit potential from committed resources. In traditional economic terms, this judgment is defined as self-interest (Smith, 1776) or rational (Hogarth & Reder, 1987); the decision-making process is frequently referred to as the "mini-max principle," (Jevons, 1970; Robbins, 1962), and usually framed in terms of expected utility (Fishburn, 1981, 1982; Quiggin, 1995). So while the economists do see taking action as logically necessary and essential for entrepreneurship to occur, taking action is not the crucial entrepreneurial moment (i.e. *logically sufficient*). Consequently, it is not especially surprising that they do not discuss opportunity evaluation at length. Schumpeter, Knight and Kirzner are concerned with delineating and justifying the need for the entrepreneurial role in the economic system.

My primary concern regarding the authors' interpretation is that they seem to minimize this purpose. This becomes particularly problematic when evaluating Kirzner's theory of entrepreneurial alertness; his claims only make sense in the context of differentiating the entrepreneur from other market actors. He asserts that there are behaviors (alertness) that do not conform to the mini-max principle. This is why alertness is costless or without search; if it were otherwise,

it would conform to the mini-max principle (although his definition of costless is decidedly unusual).

It is possible that these economists are wrong and that the judgment and decision-making processes involved in entrepreneurial opportunity evaluation are unique and therefore both logically necessary and sufficient. However, the authors do not make this argument. Now, admittedly, it appears that the entire discipline is sidestepping this issue by concentrating its efforts on individual-level phenomena; sidestepping an issue does not resolve it. Indeed, the problem of differentiation and justification becomes even more salient in view of the evidence about opportunity evaluation at the individual level.

Anyone with a passing familiarity with the recent literature in opportunity recognition discerns a focus on the individual level of analysis where evaluating the startup decision has been over-emphasized (Ardichvili, Cardozo & Ray, 2003; Hills & Shrader, 1998; Long & McMullen, 1984; Singh, Hills & Lumpkin, 1998; Timmons et al., 1987). Relative to the issue of evaluation, this body of work offers two insights: first, “evaluation” appears to occur continuously throughout the opportunity identification and shaping stages not just at the action stage and secondly, entrepreneurs do indeed appear use the same decision-making processes and criteria when evaluating the decision to act. In fact, it is most interesting that Shepherd’s own work (Douglas & Shepherd, 2000; Levesque, Shepherd & Douglas, 2002), rather convincingly demonstrates that the decision to start a venture (taking action) is best explained in terms of utility theory as previous work had suggested (Campbell, 1992; Eisenhauer, 1995; Forlani & Mullin, 2000; Minniti & Bygrave, 1999).

If, generally speaking, everyone tends to evaluate his or her personal economic decisions in terms of expected utility, these decisions aggregate at the systems-level to the mini-max principle – that is, any market actor, regardless of market role, will engage in role appropriate behaviors that are designed to produce the maximum amount of gain (profit, share, prestige, etc.) for the least amount of resource investment. If expected utility theory can effectively and elegantly explain the judgment and decision making associated with evaluating an action at the individual level and this theory is represented by the mini-max principle at the systems level, then it would appear that the founding fathers are essentially correct – opportunity evaluation, as the authors have defined it, is neither ignored nor inadequately explained at the systems level of analysis. At this stage in the opportunity process, the problems of personality-role confound and ontology are essentially irrelevant as the link between the individual and systems levels of analysis are rather direct and consistent with mainstream economic theory. Furthermore, the issue of motivation is fully and consistently accounted for at both the individual and systems level (i.e. maximum gain). Since

it would appear that these problems need not be solved, it is not clear why signal detection theory is needed or what it adds as an explanation of entrepreneurial opportunity evaluation.

In fact, it is not clear why one needs the concept of entrepreneurship in the first place unless the pivotal entrepreneurial moment occurs earlier in the opportunity identification, shaping, evaluation, and implementation process. This was the conclusion of the economists who attempted to define the field. As noted earlier, it is also one of the insights generated by the recent empirical work in opportunity recognition. And, if I am be permitted to harken back to my dissertation research (Gaglio, 1997), the experiment indicated that while subjects clearly differed in their opinions regarding whether a feasible and desirable opportunity existed, the data analysis revealed that the divergence actually emerged earlier, in the opportunity shaping phase where they considered what was or could be possible. This seemed to be the crucial entrepreneurial judgment for these subjects. It seems plausible that moving the author's application of signal detection theory to this phase of the opportunity process could explain this divergence at the systems level of analysis while cognitive behaviors such as counterfactual thinking and mental simulations could explain it at the individual level. More importantly, the application of signal detection theory to this phase would punch a hole in the proverbial black box of opportunity identification and in doing so, perhaps provide the first compelling argument in support of role differentiation that has eluded the discipline since its beginning.

## **ALTERNATIVE APPLICATION OF SIGNAL DETECTION THEORY**

### *Finding the Holy Grail*

The authors suggest that an opportunity be conceptualized as a signal emitted in the marketplace. Naturally, there is no need to explain anything unless signals are not the only emissions; there are numerous other elements that are collectively labeled noise. Presumably, the job of any market actor, entrepreneur or not, is to correctly perceive and interpret signals and noise in order to decide the optimal allocation of positional resources in a way that realizes the maximum possible gain. Historically, the economists who influenced the development of entrepreneurship argue that the entrepreneur (be it a person, team, or firm) seeks maximum gain by introducing and legitimizing innovation (change) into the marketplace rather than by increasing efficiency (the route used by other market actors). Introducing or legitimating innovation entails identifying and developing the commercial viability

and potential of new knowledge be it products, services, or processes and to bear the uncertainty of the outcome associated with such complete novelty.

A plausible systems-level reason for this role behavior is that, if successful when introducing innovation, the market actor establish a monopoly position, the ultimate possible gain in any economic system, even if for a limited time. This further suggests that timing and speed are very important factors and hence, we arrive at the pivotal point for which signal detection theory would seem most apt: how to explain the crucial decision for all market actors – is this moment at which action (committing or allocating time, money, effort, etc.) is required? In the conceptual framework the authors have laid out, this is a decision about whether or not a signal has been detected (or created?). The decision point is termed the criterion, which the authors claim, is influenced by signal strength, uncertainty and motivation.

The arguable contribution of signal detection theory is the ability to generate measures of signal strength and uncertainty and thus generate mathematical curves mapping theoretical criterion points vs. signal (opportunity) detection timing and accuracy. The authors use such curves (relative operating characteristic curve – Fig. 5) to differentiate Schumpeter's definition of an entrepreneur from Kirzner's, and so forth. I propose that the better use of this theory and method is to map criterion points for the range of market roles. It should be possible to test whether market actor decisions vary by role by examining the variance in the spread around the distribution plus noise means (Fig. 2). Verification of reliable differences across market roles would be the first step for a valid empirical measure of entrepreneurship. Assuming reliable differences across roles were found, the next logical question is whether the pattern in variation supports the traditional conception of the entrepreneurial role. A particularly intriguing aspect of using signal detection theory is that this experiment could be double-blind with a random sampling of market role occupants whose role labels would be unknown to the experimenter. Finding reliable pattern variation would be a groundbreaking contribution to the discipline. The authors may find [Fiet's \(1996\)](#) work on informational economics, which speculates about entrepreneurial information investment – signaling differences a useful starting point.

It is also possible that the signal detection framework may be extended to the macro level and offer a viable alternative explanation to the population ecology explanation ([Aldrich, 1990](#)) of emerging industries which states that, in time of radical innovation and discontinuity, firms offering new products and services confront issues regarding their legitimacy in making claims on societal resources. When enough firms survive long enough to reach critical mass, legitimacy is attained and an industry is born – which is evident by comparing the relative rates for firm births and deaths. It may be possible to apply a signal detection

framework to investor, supplier and customer decisions in order to identify the point of critical mass for an emerging industry and then later the point of mainstream acceptance. This kind of work would quantify and extend Low and Abrahamson (1997) speculations regarding movements (emerging industries), bandwagons (growth industries), and clones (mature industries). Certainly, there is enough publicly available data regarding the creation of the high-tech industry that it should be possible to recast the story in signal detection terms and develop predictions regarding biotech or whatever industry may emerge on the horizon, or in the case of the recording industry, be completely restructured.

### *Alterations Needed*

In order to forge these territories, several important changes need to be made to the conceptual framework presented by the authors. First, the definition of “signal” or opportunity may need to be redefined so it is not limited to the opportunity evaluation phase. Rather than define “signal” as the opportunity to take action, perhaps a signal may be information (perceived or created) that an intersection *may* exist between an idea’s feasibility and its economic utility or perhaps that an idea is worth continued shaping in order create its feasibility and utility.

Also, the authors need to more accurately define noise because to define it simply as “everything else” creates a tautology. Furthermore, the definition of signal strength needs more clarification. Currently, signal strength is defined as quantity of information. This suggests that a signal will have the same strength if one piece of information is repeated fifty times or if that piece comes from fifty channels. At one point, the authors seem to imply signal strength refers to multiple channels (p. 153) but then they consistently use the word “volume” so the concept is not as clear as is needed for theoretical development. The issue of multiple channels has been raised by the information search studies (Kaish & Gilad, 1991; Shane, 2000) and these findings should be integrated here. It is also crucial that the concept of decision criterion or marker be compared and contrasted to a utility weight because, in the current formulation, one can argue that a utility weight is a criterion. If so, then expected utility or utility maximizing theory would still offer a more efficient and elegant explanation.

## **MAKING PROGRESS**

If serious consideration is given to shifting analysis to the earlier phases of the opportunity process, signal detection theory has the potential to become the

first really important development in entrepreneurship theory since the founding fathers. Realistically, however, a single theoretical article cannot accomplish this feat, nor can a single empirical article. Mining the potential of this theory will take sustained effort and a lot of heavy lifting in terms of measure validation studies and so forth. The discipline's track record for undertaking such endeavors indicates marked room for improvement. Early in their chapter, the authors refer to their colleagues as "entrepreneurship enthusiasts" (p. 142); it is a point well taken. None of our pet theories can reach the critical mass necessary to make an important scientific contribution unless they receive sustained, continuous effort. Let us all hope that these authors and their graduate students are not enthusiasts but rather enthusiastic about developing this theory. The editors of this series have taken the first step by creating a forum for commentary and dialogue; now they need to provide a forum for empirical replication studies and all the other less glamorous but substantive work necessary to make theories as important as they are promising.

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# SIGNAL DETECTION THEORY AND THE ENTREPRENEUR: CLARIFICATION, EXTENSION, AND FUTURE

Jeffery S. McMullen and Dean A. Shepherd

## INTRODUCTION

Gaglio's work on opportunity recognition (Gaglio, 1997; Gaglio & Katz, 2001) represents an important contribution to the literature and has generated considerable scholarly attention. Therefore, it is with great pleasure that we respond to her commentary on our recent chapter (McMullen & Shepherd, 2003). Central to Gaglio's commentary is a discussion about the appropriateness of our critique of the literature and a proposed alternate use for signal detection theory in building entrepreneurship theory. Responding to this commentary provides us the opportunity to better articulate our main arguments and to build on Gaglio's ideas for an alternative application of signal detection theory.

## CRITIQUE OF THE LITERATURE

Gaglio suggests that our original "critique of the existing literature hinges on two key points: (1) that evaluation of taking action is the crucial entrepreneurial moment; and (2) that at the systems level of analysis, no one has been able to work through the problems of judgment and decision making involved in

that evaluation.” We believe that a discussion around these two points will help us clarify the important issues of the earlier chapter (McMullen & Shepherd, 2003), interpret and build upon an alternate application of signal detection theory, and hopefully contribute to this important dialogue among entrepreneurship scholars.

*The Mini-Max Principle: Theoretical Litmus Test or Managerial Tool?*

We argue that the theory we are importing into entrepreneurship is different from those imported in the past. Signal detection theory is a metatheoretical framework capable of analyzing decisions and the components that comprise them. Thus, its introduction to entrepreneurship is an effort to encompass and extend rather than to replace and start over. Before advancing a new position, we thought it beneficial to introduce Signal Detection Theory to the entrepreneurship literature by showing how it is able to reconcile seemingly irreconcilable theories of the entrepreneur while providing a flexible framework capable of improving future entrepreneurship theory and empirical testing. By explaining how the metatheory can reconcile existing entrepreneurship theory, we hoped to convey that SDT was not merely another suggestion to “import yet another theory . . . rather than approach the study of entrepreneurship directly” (Gaglio, 2004). Rather, we sought to show that the framework was capable of encompassing existing theory such that these theories could be extended practically, conceptually, and methodologically, thereby enabling the creation of distinctly entrepreneurship theory.

In particular, the framework allowed us to explore assumptions of economic theory that are more or less conducive to extending the theory of the entrepreneur. One such assumption is the consistent treatment of the entrepreneur as an agent whose activity within the system is responsible for that system’s performance. By pointing out that the firm could supplant the economy as the referent system, we illuminated a new conceptual approach to entrepreneurship that lent itself to empirical examination.

As with many analogies, this simple observation – that in these particular entrepreneurship theories, the firm is a system like the economy – allowed for insight that was somewhat obscured using a purely economic approach to entrepreneurship theory. For example, within the corporate entrepreneurship literature, the firm is often discussed as an agent in itself (e.g. Covin, 1991; Lumpkin & Dess, 1996). This means that entrepreneurs within the system of the firm share a potential force (i.e. firm motives) capable of intentionally influencing their beliefs and desires regarding entrepreneurial action. This is significantly different from the classic

entrepreneurship theories of economics in which the system of the economy is discussed in an objective and mechanical manner and seen more as an outcome of autonomous and often atomistic individuals seeking utility through entrepreneurial action only when the “shoe fits.”

The firm perspective effectively transforms the mini-max principle from an assumption dictating the functioning of the system (as is the case in the economic theories) to a variable or managerial tool to be manipulated in an effort to encourage or discourage entrepreneurial action. For many researchers, such an achievement would be considered an end in itself and delivery on the promise conveyed by the chapter’s title. Thus, our alleged neglect of the mini-max principle as theoretical litmus test (primarily an economic psychology concern) does not negate the usefulness of a framework that allows a system to discover the conditions most conducive to encouraging entrepreneurial action in its members (primarily a firm policy or economic policy concern). This is because policy is often not overly concerned with “why” entrepreneurial action emerges, only that it does to a greater or lesser extent given certain environmental conditions.

Why and whether this entrepreneurial action consists of something more than expected utility (and its mini-max principle) has traditionally been a theoretical question for economists and a theoretical/empirical one for psychologists. One of the better known attempts to fuse the two is [McClelland’s \(1961\)](#) work. Like the economic theory which inspired him (Schumpeter’s in particular), McClelland proposes a theory that fits well within the metatheoretical framework we have proposed, but it is only one of many that could. In addition, it is a stellar example of a theory that could be refined using the SDT framework proposed by our chapter and in so doing, address some of the concerns of its critics.

Thus, it was not our intention to imply that “at the systems level of analysis, none has been able to work through the problems of judgment and decision making involved in that evaluation” ([Gaglio, 2004](#)). In fact, one work in particular (i.e. [Stevenson & Jarillo, 1990](#)) approaches entrepreneurship in a manner that is highly consistent with the one that we are advocating. Our intention was to provide a framework capable of recognizing that entrepreneurship requires individual action that influences and is influenced by the system in which it occurs. Whereas the entrepreneur influences the system through novel behaviors of various system impacting forms (i.e. new products, services, processes, firms, etc.), the entrepreneur’s perceived ability and desire to engage in these novel behaviors are fostered or suppressed through the system’s influence. This influence is realized in the formation and conviction of beliefs and desires integral to the individual’s evaluation of whether the exploitation of a signal constitutes a feasible and desirable endeavor (i.e. an opportunity).

*The Mini-Max Principle: Does Absence of the  
Term Necessarily Imply Neglect of the Concept?*

We could not agree more with many of Gaglio's comments and felt frequently that what we said in the chapter was highly consistent with her suggested definitions. Thus, it seems that we agree on many points even though we did not frame them in terms of the mini-max principle. This is great news as it highlights a shared vision of the framework's potential value for future entrepreneurship research.

For example, regardless of Kirzner's motivation for arguing that alertness is costless and therefore different from the mini-max principle, the components of the construct are the same. It is still primarily a knowledge-based construct that neglects the motivational component by assuming it away as costless. In other words, Kirzner's entrepreneur differs from other market actors because he or she has a relatively narrow distribution around the signal. This narrowness, according to Kirzner, is due to "the ability to notice without search opportunities that have been hitherto overlooked" (1979, p. 148), i.e. entrepreneurial alertness.

Like Demsetz (1982), however, one is left to wonder whether this ability is nothing more than luck, an explanation that Kirzner vehemently denies. Perhaps then entrepreneurial alertness is merely judgment; High (1982) makes such an argument. Judgment is often motivated for or against a particular outcome of one's own framing. One way to eliminate the cost of evaluating whether to take action is by having the prospective entrepreneur pay that cost through previous actions. This is better known as experience or expertise. However, this argument begins to look a lot like Hayek's concept of "local knowledge" and brings us right back to entrepreneurial alertness as a knowledge-based construct. This, according to Kirzner (1973) is also unsatisfactory.

Thus, it seems that, in his later work, Kirzner prefers to discuss entrepreneurial alertness as some gift of intuition regarding profit potential, but one that is not enduring like a trait. Again, one must ask what is costless intuition if it is not grounded in past experience and cumulative knowledge. Is there really anything to the costlessness of Kirzner's alertness or is it just smoke and mirrors? Some unsympathetic economists have favored the latter. We take a different position as outlined in the chapter (pp. 143–146, 154). Thus, regardless of which understanding of entrepreneurial alertness is employed, we can argue that entrepreneurial alertness can be discussed primarily, if not exclusively, in terms of SDT's belief/uncertainty construct.

If uniqueness in relation to the mini-max principle is the motive for one's research, we refer to the chapter's discussion of Smith and DiGregorio's (2002) application of bisociation (Koestler, 1964) to entrepreneurship. This same process

(though not called bisociation) is also recognized by Kirzner (1999) as common ground between his entrepreneur and Schumpeter's. Thus, it seems that bisociation is a concept, like counterfactual thinking or mental simulation that could be highly beneficial in achieving differentiation from the mini-max principle, if that is the researcher's goal. However, what we find to be even more provocative is the possibility that a distinctly entrepreneurial thought process could involve an interaction between knowledge explanations (included in the belief/uncertainty construct) and motivational explanations (housed within the desire construct). Thus, theories such as regulatory focus theory (Higgins, 1997) which frequently examine the nexus of the two seem particularly promising.

### *Clarification of Definitions and Concepts*

We argue that the evaluation of whether to act is a continuous process not a discrete event. In fact, we see the decision to act entrepreneurially as closer to the continuous postmodern episodes of sensemaking than discrete positivistic events arising from interruptions in the relatively stable flow of life (Weick, 1995, p. 85). This is why we discuss the decision to act entrepreneurially as the decision to pursue a "course of action" (p. 149). Therefore, we couldn't agree more with Gaglio's position on this point. However, this may become clearer if we further distinguish the concept of signal from that of opportunity.

A signal is not synonymous with opportunity. We do not suggest that an opportunity be conceptualized as a signal emitted in the marketplace, nor do we define "signal" as the opportunity to take action, and we do not equate the decision to act with the decision to "start a new venture."<sup>1</sup> We understand that there is the possibility to equate signal with opportunity, but we consciously chose *not* to equate a signal with an opportunity (and this is why we devoted so much attention to discussing the philosophical nature of the signal) (see Note 3 on p. 178). Instead, we built on the work of Jim Fiet, who defines a signal as "current information that changes one's belief about the value of a future state" (Fiet, 1996) (see p. 174 of the chapter). Within the sentence in which this definition appears, we also described what form a signal might take outside of the abstract world of theory (i.e. a new technology). This subtle but important distinction of signal from opportunity is integral to a number of issues addressed below.

A by-product of the distinction between signal and opportunity is that signals can be said to exist objectively while opportunities are considered to be more subjectively determined phenomena. Whereas social realists would tend to equate stimulus (i.e. signal) with opportunity, social constructivists prefer discussing action as arising from a process of sensemaking in which a situation is categorized

and then interpreted. However, many in both camps would agree that a new technology is a signal – even though social constructivists would probably prefer Fiet’s definition to read, “. . . current [data] that changes one’s belief about the value of a future state.” If we had it to do over, this is a change we would make to the definition of “signal.” Thus, it is our contention that the data (i.e. the signal) is objective, but that it has no intrinsic value other than that given to it by its interpreter (i.e. the prospective entrepreneur). It is possible that once a belief is formed, then the data could be classified as information, but we argue that this would still not be an opportunity. This classification is reserved for signals that the actor deems feasible *and* desirable.<sup>2</sup>

The point is that by making a distinction between signal and opportunity, the decision to act entrepreneurially automatically becomes a discussion of process. Assessments of feasibility and desirability are dynamic occurrences in perpetual development producing micro actions within a hierarchy of entrepreneurial action. Although it is tempting to think of the process as linear, Greve (2001) points out that “action” often encompasses a hierarchy of meaning which is developed in route. Thus, while we argue that some signals are objective (e.g. Shane’s new technologies, 2000), we are careful never make this argument for opportunity. Instead, we require the actor to evaluate the signal as both feasible and desirable before it can be said to achieve opportunity status. Anyone who has taught a course on feasibility or business plans would likely concede that feasibility and desirability assessments are processes used to decide whether a signal or idea constitutes an opportunity for that team.

If a signal is objective data, then we should be able to measure its strength. How is this to be done? This is a great question. Please let us know if you have an answer. Seriously, the answer, as is too often the case, is: it depends. Like the volume of a sound which can come from numerous speakers or one giant speaker, so can the strength of a signal. This is why we used the term volume in the chapter. For example, the creation of web-browsers transformed the internet from a tool that was primarily accessed only by technology enthusiasts to a tool that was readily accessible by the masses. Data regarding the impact of this technological advancement began to flow from all sectors of the market; this would be analogous to multiple speakers. However, on occasion, data also comes from gatekeepers, such as reluctant endorsements by Bill Gates. This would be analogous to one large speaker. Thus, it seems that both multiple channels and idiosyncratically significant individual channels play a role in the strength of a signal. Ultimately, however, it seems that the strength of a signal is contextually determined. For example, the internet was arguably a much bigger signal for the music industry than for the drycleaning industry.



The final concept in need of clarification is that of noise. To define noise as “everything else” is similar to the approach used in statistical testing. What we mean by this is that the framework introduced in the chapter is concerned with a signal just like a statistical test is concerned with whether a particular phenomenon is or is not occurring. Owing to the complexity of the social world (observable in social sciences modest Pearson’s  $R^2$ ), few if any theories seek to define all possible explanations for what obscures scientific observation of a particular phenomenon. Thus, the typical approach is positive in belief but negative in verification. In other words, we as scientists frequently approach a phenomenon that we believe to exist but with the institutional bias that it does not until overwhelming evidence to the contrary.<sup>3</sup> A signal is a positive concept in this spirit, undermined by uncertainty, which as the “un” indicates is an inherently negative concept.

What constitutes this uncertainty, is a question addressed not by the metatheoretical framework introduced by the chapter but by the theory with which one chooses to infuse it. This is one of the strengths of the framework. In essence, one could pit two theories against each other merely by substituting them into the framework provided by SDT. After all, SDT provides the framework, not the explanation for why more or less uncertainty is present. This explains what we meant when we said the framework has the potential to enable creation of distinctly entrepreneurship theory.

### *Some Final Thoughts*

Mini-max, as employed by economists, is built on a social realist foundation in which value is objectively defined as intrinsic to the object (i.e. opportunities exist independent of the individuals who exploit them). That is, the mini-max of economics assumes that everyone is evaluating the same reality. In contrast, mini-max as employed by our chapter assumes that everyone uses the same process, but not necessarily the same data, and definitely not the same information. Information is data infused with meaning. Whether this meaning is objectively or subjectively determined is arguably a philosophical assumption not an empirical fact. Thus, do we have a problem with the literature’s contemplation of opportunity as an objective phenomenon rather than a socially constructed one? Not at all, we merely recognize that economic theories are built on a realist foundation and that this is common across these economic theories of the entrepreneur.

This raises the question of whether there can even be an issue of uniqueness in reference to mini-max. If one does not share social realist sympathies, then this critique is meaningless. However, if one does share this ontological assumption

and wishes to overcome the theoretical litmus test posed by the mini-max principle through cognitive explanations of why the entrepreneurial role is necessary, then it would seem imperative to be as clear as possible regarding what constitutes the entrepreneurial role.

The theories of the entrepreneur discussed in our chapter argue that the entrepreneurial role occurs while the individual is engaged in the activity. Thus, the entrepreneurial role is not a position, such as small business owner, founder, or manager of a high-growth firm. Our point is that there is a continuous threat that a transformation will occur from the concept of entrepreneur as agent to entrepreneur as position every time one tries to operationalize these theories and take them from abstract idea to empirical reality. We agree that there is much room for improvement in developing the framework introduced by our chapter and that there is substantial work to be done in developing ways to measure various aspects of it, but traditionally, this has not been what has plagued the theory of the entrepreneur. Instead, history has shown that the theory of the entrepreneur has frequently suffered from a shift in the intended sample. Instead of defining the entrepreneur as dynamic change agent, many early attempts to extend Schumpeter's work defined the entrepreneur as a position. Arguably, it is this approach more than any other that has prevented full fruition of the theory of the entrepreneur and the emergence of distinctly entrepreneurship theory.

### *Conclusion*

Gaglio ends her critique concluding: "If serious consideration is given to shifting analysis to the earlier phases of the opportunity process, signal detection theory has the potential to become the first really important development in entrepreneurship theory since the founding fathers" (p. 10). We are humbled by such a comment. We agree that a contribution can be made by focusing analysis on the earlier phases of the opportunity process, but that such research needs to be completed by theory and testing of the entire process leading an entrepreneur to act. For example, looking only at the belief without considering the connection between that belief and behavior could potentially prevent some fruitful findings (see the Psychology of Action literature for examples; e.g. [Gollwitzer & Bargh, 1996](#)).

Our hope is that through our chapter, Gaglio's critique, and our response we have been able to communicate the potential of the metatheoretical framework offered by Signal Detection Theory. We thank Gaglio for her previous work on this topic, and, in particular her commentary on our previous chapter. We hope that our responses above have clarified our original model, expressed our enthusiasm regarding her alternate application of SDT, and hopefully contributed to the

dialogue in a way that encourages others to build and test entrepreneurship theory. We believe that the framework offers the possibility to examine mental processes unique to entrepreneurial action while retaining an understanding that this action always takes place in a context. Moreover, we believe that SDT offers a somewhat unique opportunity to extend rather than replace existing entrepreneurship theory. Thus, whether interested in determining how to make an individual or a system more entrepreneurial, we encourage researchers to consider SDT in their future endeavors.

## NOTES

1. Although the framework could easily encompass this decision, the decision to act entrepreneurially as discussed in the chapter is much bigger than this one piece of the entrepreneurial decision process.

2. We realize that this makes an “opportunity” similar, if not identical, to a goal intention, (Gollwitzer & Brandstatter, 1997). This is something we are currently exploring in greater depth. In addition, we do not argue that this is the only definition of opportunity. Depending upon the researcher’s level of analysis, the definition of opportunity may be conceived and operationalized in a much more objective sense (see McMullen & Corbett, 2004 for further discussion of this point).

3. See William James’ essay “The Will to Believe” for an eloquent articulation of this argument.

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