Emerging Issues in Corporate Entrepreneurship

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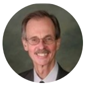
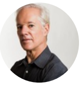


R. Duane Ireland
Texas A&M University



Steven W Floyd
University of Massachusetts A…

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Gregory G. Dess, R. Duane Ireland, Shaker A. Zahra, Steven W. Floyd, Jay J. Janney and Peter J. Lane

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Emerging Issues in Corporate Entrepreneurship

Gregory G. Dess*
School of Management, University of Texas at Dallas, Richardson, TX 75083-0688, USA

R. Duane Ireland
Department of Management Systems, Robins School of Business, University of Richmond, Richmond, VA 23173, USA

Shaker A. Zahra
Entrepreneurship Division, Babson College, Babson Park, MA 02157-0310, USA

Steven W. Floyd
School of Business Administration, The University of Connecticut, 368 Fairfield Road, Storrs, CT 06269, USA

Jay J. Janney
Department of Management and Marketing, School of Business Administration, University of Dayton, 300 College Park, Dayton, OH 95469-2271, USA

Peter J. Lane
Department of Management, College of Business, Arizona State University, P.O. Box 874006, Tempe, AZ 85287-4006, USA

Research on corporate entrepreneurship (CE) has grown rapidly over the past decade. In this article, we identify four major issues scholars can pursue to further our understanding about CE. The issues we explore include various forms of CE (e.g., sustained regeneration, domain redefinition) and their implications for organizational learning; the role of leadership and social exchange in the CE process; and, key research opportunities relevant to CE in an international context. To address the latter issue, we propose a typology that separates content from process-related studies and new ventures vs. established companies. We close with a reassessment of the outcomes in CE research, which becomes particularly salient with the increasing importance of social, human, and intellectual capital in creating competitive advantages and wealth in today's knowledge economy. Throughout the article, we use the organizational learning theory as a means of integrating our discussion and highlighting the potential contributions of CE to knowledge creation and effective exploitation.

* Corresponding author. Tel.: +1-972-883-2703; fax: +1-972-883-2799.
E-mail addresses: gdess@utdallas.edu (G.G. Dess), direland@richmond.edu (R.D. Ireland), sazahra@hotmail.com (S.A. Zahra), steven@sba.uconn.edu (S.W. Floyd), janney@notes.udayton.edu (J.J. Janney), peter.lane@asu.edu (P.J. Lane).

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Both scholars and practitioners remain interested in studying and better understanding corporate entrepreneurship (CE) (Ireland, Kuratko & Covin, 2002). CE has been viewed as the driver of new businesses within on-going enterprises as achieved through internal innovation, joint ventures or acquisitions; strategic renewal (Guth & Ginsberg, 1990; Hitt, Nixon, Hoskisson & Kockhar, 1999); product, process, and administrative innovations (Covin & Miles, 1999); diversification (Burgelman, 1991); and processes through which individuals' ideas are transformed into collective actions through the management of uncertainties (Chung & Gibbons, 1997). Sharma and Chrisman define CE as "... the process whereby 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" (1999: 18).

Given its importance to corporate vitality and wealth generation in today's global economy, CE has generated considerable attention in research. This paper identifies emerging issues in CE and suggests research questions for future research. Our analysis highlights the role of CE in inducing and cultivating organizational learning, which is a key source of new knowledge that could be used to develop organizational capabilities. Learning is at the heart of the strategic renewal process that enables the firm to adapt and respond to challenges in their new markets (Zahra, Nielsen & Bogner, 1999). Given the various types of CE (Covin & Miles, 1999), our discussion applies learning theory to show how CE in domestic and international operations creates new knowledge. This discussion also gives attention to the role of leadership in stimulating organizational learning within CE and harvesting new knowledge. Finally, recognizing the vital importance of learning for strategic renewal, we propose that future researchers should incorporate learning among the key outcomes of CE activities.

The organizational learning theory suggests that when companies are exposed to new and diverse stimuli, the stage is set for questioning existing assumptions and beliefs. This process also induces experimentation, which fosters learning by doing. Learning means the acquisition of information and knowledge that is new for a firm. This learning is important for the creation and exploitation of the knowledge necessary for product, process and organizational innovation. Therefore, throughout this article we highlight the importance of CE activities for promoting organizational learning and developing new knowledge that generates advantages.

Our analysis of CE covers four major issues. The first is how knowledge is created through four types of CE—sustained regeneration, organizational rejuvenation, strategic renewal, and domain redefinition. Mediated by two forms of organizational learning, these CE types lead to three forms of new knowledge that are then used differently within the firm.

Next, we identify the critical roles and social exchanges that comprise the CE process. This analysis shows how entrepreneurial roles and information exchanges across multiple levels of management promote the kinds of organizational learning required by the four types of CE. Based on this perspective, we define entrepreneurial leadership as establishing the conditions conducive to role performance and social exchange. These conditions include organization trust, consensus on dominant logic, and appropriate organizational controls.

Third, we address the dynamic interplay between CE and internationalization. We use a typology that separates content from CE process-related studies in new ventures vs. established companies. In addition to reviewing and synthesizing studies conducted in each cell, we highlight major findings from earlier research in each area, identify gaps, and suggest promising avenues for future CE research. The discussion draws attention to knowledge creation and exploitation as important objectives within CE.

Fourth, we address the outcome variables in CE research. We provide examples of how performance indicators must reflect the temporal nature of CE. In addition, we draw on such literatures as knowledge management, options theory, and entrepreneurial failure to discuss how the increasing importance of social, human, and intellectual capital necessitates new conceptualizations of performance. This discussion concludes by highlighting the importance of learning and knowledge creation as dependent variables in future CE research.

CE, Organizational Learning, and Knowledge

Deliberate and intentional in nature, CE is concerned with various forms of newness (e.g., organizational renewal, innovation, and establishing new ventures) and has its consequences for organizational survival, growth, and performance (Kazanjian, Drazin & Glynn, 2001). Increasingly, CE is found to affect firm performance (Zahra & Covin, 1995; Zahra & Nielsen, 2002). From a resource-based perspective, CE is a key means of accumulating, converting, and leveraging resources for competitive purposes (Floyd & Wooldridge, 1999) such as developing and using product, process, and administrative innovations to rejuvenate and redefine the firm and its markets or industries (Covin & Miles, 1999).

An intangible resource vital to 21st century organizations (Hitt & Ireland, 2002; Ireland & Hitt, 1999), *knowledge* can be created through effective CE (Kuratko, Ireland & Hornsby, 2001). In fact, Zahra et al. (1999: 169) argue that, "... formal and informal CE activities can enrich a company's performance by creating new knowledge that becomes a foundation for building new competencies or revitalizing existing ones." Embedded primarily within the firm's human capital (Lepak & Snell, 1999), knowledge is information that is laden with experience, judgment, intuition, and value (Nonaka & Takeuchi, 1995). Both explicit and tacit in nature, knowledge is mutable and can be thought of as true justified belief (von Grogh, Ichijo & Nonaka, 2000).

Given its centrality to forming competitive advantages that often are the path the firm travels to outperform its rivals (Coff, 2002; Grant, 1996), today's firms benefit by facilitating the development and management of knowledge stocks and flows between people and organizational units (Ireland, Hitt, Camp & Sexton, 2001). We argue that through effective CE, firms develop knowledge and use it as a continuous source of innovations to outperform competitors (Kazanjian et al., 2001). In this context, CE is a knowledge enabler as it forms and subsequently uses or applies knowledge (von Grogh et al., 2000)—knowledge that at its best, is valuable, new, unique, and competitively relevant (Zahra et al., 1999).

According to Zahra et al. (1999: 177), "CE activities can lead to three different types of new knowledge." CE's multidimensionality (Covin & Miles, 1999) complicates these relationships. Moreover, we believe that organizational learning mediates the relationships between different CE types and different kinds of knowledge. In turn, the different types of knowledge (i.e., technical, integrative, and exploitative) should be used differently for the organization to gain maximum competitive benefit from them.

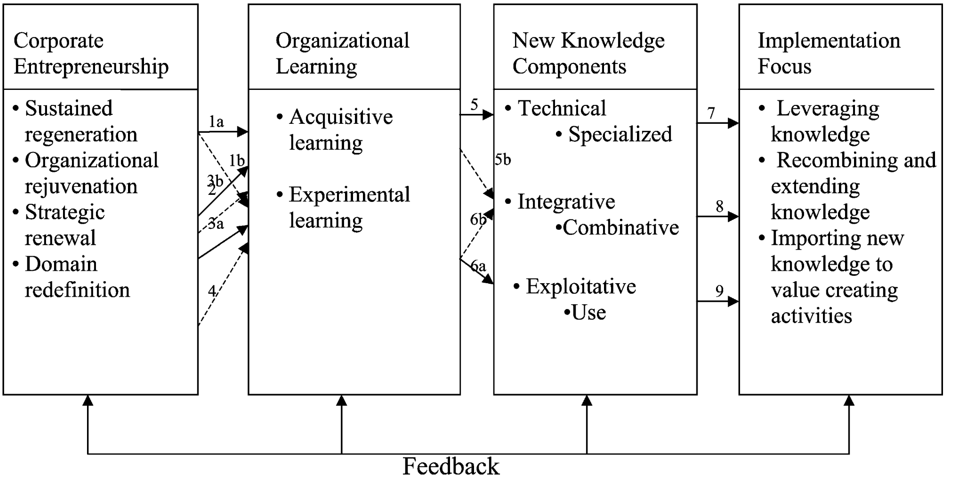

Figure 1. Relationships among CE strategy, organizational learning, knowledge and implementation.

We explore these issues through a series of proposed relationships (see Figure 1) that are drawn primarily from the entrepreneurship and strategic management literatures' theory and empirical results. As stated above, the general expectation of relationships among Figure 1's variables is established (Covin & Miles, 1999; Zahra et al., 1999). However, the relationships we propose between different types of CE and new knowledge, as moderated by two types of organizational learning, have not been specified. As such, the expectations depicted in Figure 1 are untested and represent fertile ground for entrepreneurship and strategic management researchers.

Forms of Corporate Entrepreneurship

Covin and Miles (1999) conceptualize four types of CE, with each one oriented to either rejuvenating or intentionally redefining the organization or establishing innovation. Structurally complex firms such as those engaging in product and/or market diversification may simultaneously use one of more or even all four CE forms in different parts of the company.

Concerned primarily with continuous innovations, *sustained regeneration* is the most frequently recognized CE form. Here, the firm develops cultures, processes, and structures to support and encourage a continuous stream of new product introductions in its current markets as well as entries with existing products into new markets (Covin & Miles, 1999). Firms are aware of product life cycles and often frame product strategies around the competitive expectations associated with them. Commonly viewed as competitors who understand an industry's accepted rules of engagement (Porter, 1980), firms involved with CE commit to the importance of learning and adapting while actively competing against rivals. Demonstrating an ability to introduce new products and enter new markets, Arm and Hammer uses sustained regeneration as it creatively works with baking soda, its core product. According to Covin and Miles (1999: 51): "... through the development and introduction of baking soda-based toothpaste and deodorizing products, Arm and Hammer has been able to capitalize on emerging product-market opportunities unseen or underappreciated by competitors in its core industry segment."

The firm's internal processes, structures, and capabilities are the targets of *oganizational rejuvenation*. Concerned primarily with improving the firm's ability to execute strategies, organizational rejuvenation often entails changes to value chain activities. Demonstrating process and administrative innovations rather than product innovations, organizational rejuvenation shows that firms can become more entrepreneurial through processes and structures as well as by introducing new product and/or entering new markets with existing products. In recent years, GE rejuvenated itself by developing and using what others sometimes viewed as radical administrative routines and operating policies to support them. For the most part, CE efforts oriented to organizational rejuvenation are framed around support activities (e.g., procurement and human resource management) rather than primary (e.g., inbound logistics and operations) activities (Porter, 1980). The most successful organizational rejuvenation efforts renew one or more major aspects of the firm's operations.

Strategic renewal finds the firm seeking to change how it competes. Thus, the nature of rivalry with competitors is altered as the firm concentrates on renewing the strategies it uses to successfully align itself with its external environment. With organizational rejuvenation, the organization itself is the focus of CE efforts. This is in stark contrast to strategic renewal's intention of positively mediating the "organization-environment interface" (Covin & Miles, 1999: 52). At its best, CE as strategic renewal allows the firm to more profitably exploit product-market opportunities. Often, this outcome is achieved when the firm repositions itself in ways that allow simultaneous exploitation of current competitive advantages and exploration for advantages that will lead to future success (Ireland, Hitt & Vaidyanath, 2002). Harley-Davidson's turnaround demonstrates the use of this CE form. Cisco Systems' current attempt to renew itself through internal growth rather than acquisitions highlights this firm's effort to at least partially alter how it competes, given changes in its competitive environment.

Through *domain redefinition*, the firm proactively seeks to create a new product market position that competitors haven't recognized or have underserved (Covin & Miles, 1999). The focus here is exploring for what is possible rather than exploiting what is currently available. The commitment to reenergize the firm by redefining its domain is also intended to establish first mover advantages. As the first firm to sell an offering in a new product category (Golder & Tellis, 1993), the company redefining its domain is proactive and demonstrates a strong entrepreneurial orientation (Lumpkin & Dess, 1996). Sony's introduction of the innovative Walkman illustrates first mover actions that created a new product arena.

Types of Organizational Learning

Organizational learning is a capability allowing firms to create knowledge as the source of improved performance (Hitt & Ireland, 2000). Thus, organizational learning mediates or facilitates the relationships between CE and the development of new types of knowledge.

Organizational learning occurs through several avenues including *action* (called learning by doing) (Lieberman, 1984) and *memory* (the constant repetition of an organization's activities) (Nelson & Winter, 1982). Two major types of learning—acquisitive and experimental—occur as organizations using one or more types of CE learn by doing and through memory, among other avenues (Zahra et al., 1999) (see Figure 1).

Acquisitive learning takes place when the firm gains access to and subsequently internalizes preexisting knowledge from its external environment. Acquisition knowledge is grounded in public knowledge—that is, knowledge that resides in the public domain (Matusik, 2002). Because of this, acquisitive knowledge is rarely the source of uniqueness firms require to form sustainable competitive advantages (Leonard-Barton, 1995). But, the absence of access to publicly available knowledge and learning places the firm at a competitive disadvantage relative to rivals (Zahra et al., 1999) and reduces its ability to use CE as the path to creating a new organization or to engage in strategic renewal or successful innovation.

Experimental learning occurs inside the firm and generates knowledge that is distinctive to it. Private knowledge, which includes items such as the firm's unique routines, processes, trade secrets, and documentation (Matusik, 2002), is the basis of experimental learning. Because it is the product of firm-specific knowledge that may be valuable, rare, and imperfectly imitable, competitive advantages evolving from experimental learning tend to be more sustainable than are those that are products of acquisitive learning. Thus, acquisitive learning represents a necessary but insufficient condition for competitive success as measured by the firm's ability to develop new knowledge. Moreover, the emphasis on innovation as a source of successful competition in the global economy, in turn, leads to a premium on experimental learning relative to acquisitive learning for firms engaging in CE (Zahra & Garvis, 2000).

As shown in Figure 1, we argue that the different CE types have different relationships with the two types of organizational learning. In turn, three types of new knowledge are products of the interactions among CE forms and the two organizational learning types.

New Knowledge and its Implementation

Traveling through the organization's ability to learn, CE leads to three types of new knowledge. *Technical* knowledge, concerned with insights about the properties of specific activities, is vital to sustained regeneration and results primarily from acquisitive learning. Specialized in nature, technical knowledge helps the firm refine current products and extend product lines, often through process innovations. From an efficiency perspective, technical knowledge is vital to the firm's efforts to create more value by how it completes primary and support activities in its value chain(s). However, this type of knowledge is rarely the foundation for sustainable competitive advantages.

Organizational learning also leads to *integrative* knowledge. Firm-specific and predominately tacit in nature, it is a product of how the firm has learned to creatively and uniquely combine its idiosyncratic resources and capabilities to create value. Grounded in memory, history, and organizational routines, employees creating integrative knowledge do so by recombining and extending the firm's resources and capabilities in manners that demonstrate Schumpeter's (1934) classic conceptualization of an entrepreneur (Zahra et al., 1999). Thus, integrative knowledge results primarily from the combined, relatively indirect effects of acquisitive and experimental learning (Figure 1's dotted lines show the proposed indirect effects).

Exploitative knowledge accumulates as the firm learns how to exploit its resources. Thus, exploitative knowledge expands as the firm learns how to creatively find unique, value-creating ways to exploit its technical and integrative knowledge sets. This learning type is oriented to finding new ways of commercializing the firm's goods or services that evolved from effective applications of its technical and integrative knowledge.

As shown in Figure 1, we believe that a different emphasis is required for the firm to gain maximum benefit from the new knowledge components resulting from its use of CE as mediated by organizational learning. When using technical knowledge, the implementation focus is on leveraging knowledge. In contrast, recombining and extending knowledge is the outcome sought when the firm applies its new integrative knowledge. Lastly, the firm concentrates on importing new technical and integrative knowledge into value-creating primary and support activities when trying to effectively use its new exploitative knowledge.

Research Questions

We believe that relationships shown in Figure 1 should be tested empirically. Testing these relationships would require different specifications among the variables, given the proposed direct and indirect effects.

Our view is that indirect relationships between variables are not as strong as are the direct relationships. For example, sustained regeneration's relationship with acquisitive learning is stronger than is its relationship with experimental learning.

Recall that this type of CE finds the firm trying to learn how to apply its valuable innovation-producing capabilities in ways that will result in new products being introduced into current markets or existing products being introduced into new markets. In both instances, externally-based acquisitive knowledge can be used to help improve the organization as it learns how to continue applying existing advantages in value-creating ways. However, we also argue that sustained regeneration has an indirect relationship with experimental learning in that new products are unlikely to be produced without effort being devoted to developing and then using valuable, idiosyncratic organizational knowledge.

Space limitations preclude discussion of all the relationships are proposed in Figure 1. We encourage scholars to consider the theoretical validity of what we've proposed. If deemed theoretically sound, empirical testing of those relationships could answer interesting research questions as well as contribute to the entrepreneurship and strategic management literatures.

Entrepreneurial Leadership in Corporations: The Roles of Controls, Consensus and Trust

Corporate entrepreneurship often fails because large organizations present hostile environments for creative ideas (Burgelman, 1983a; Sharma & Chrisman, 1999). Innovative proposals are frequently defeated by financial control systems and other formalities that are typical of large bureaucracies (Kanter, 1983). Creating collateral organizations, such as new venture divisions can isolate entrepreneurial processes from the parent organization (Burgelman, 1983b). However, the isolation also makes it less likely that their initiatives will harmonize with the needs of the core business, which, in turn, reduces the likelihood that new ventures receive the support and acceptance, necessary to become commercially viable (Sharma, 1999). Even when the CE process is established within the core of a firm, virtually all entrepreneurial initiatives face some degree of survival risk induced either by the structural or strategic context (Burgelman, 1983b). The firm needs to explore how its innovative and competitive capabilities can be redefined, renewed, or replaced while ensuring that the resulting changes in policies, priorities, and procedures will be accepted throughout the organization. Managers' acceptance of the new initiatives is of particular concern because they are the ones responsible for managing the shift from one set of operating routines to another. Indeed, the lack of such acceptance threatens the success of any organizational change effort (Kotter, 1995). Thus, a fundamental challenge in CE is managing the conflict between the new and the old and overcoming the inevitable tensions that such conflict produces for management.

Despite the potential importance of such conflict, prior research on CE leadership has paid little if any attention to the issue. One way to begin to focus on it is to build upon recent work on managers' strategic roles. Floyd and Lane (2000) suggest that strategic change involves a system of social exchanges between managerial roles. These roles form three sub-processes (competence deployment, competence modification, and competence definition). We believe that these processes drive the four types of CE identified above (Covin & Miles, 1999). (See the top rows of Table 1.)

Specifically, in *sustained regeneration* firms seek to create a steady stream of new product introductions and the entry of existing products into new markets. This requires a combination of competence deployment and competence modification. *Organizational rejuvenation* aims at improving the effectiveness of existing strategy by adjusting value chain activities, especially support activities. This requires deploying the firm's existing competence while modifying the organizational processes that enable such deployment. *Strategic renewal* goes beyond adjusting processes to fundamentally rethinking how the firm competes. This is the essence of competence definition. Finally, *domain redefinition* focuses on exploring possible new markets and products to create first-mover advantages. This is the most challenging of Covin and Miles (1999) types, as it typically requires both defining and deploying new competences.

Viewing CE as a system of roles and social exchanges provides a theoretical basis for *connecting* entrepreneurial activity to the organization's on-going agenda. Therefore, it suggests a way to examine how CE leadership may resolve conflicts between old and new priorities. More specifically, this perspective portrays the challenges of CE leadership as managing a social learning process involving roles and relationships among managers at the top, middle and operating levels of the organization. Thus, CE leadership depends not only on the skills and abilities of individuals but also on the quality of interactions within the management hierarchy—in particular, we will argue that it depends on the extent of shared understanding and the level of interpersonal trust in the organization. Researching the contingencies surrounding these attributes requires understanding the nature of the social exchanges in CE, the conflicts that disrupt them, and the resolution mechanisms at a leader's disposal.

CE Leadership as a System of Social Exchanges

The motivation for viewing CE as social exchange is the set of strategic roles shown in Table 1. The literature suggests that these roles are central to both CE and strategic renewal

Table 1
Social exchanges, managerial roles, and controls in corporate entrepreneurship

	Type of corporate entrepreneurship							
	Sustained regeneration		Organizational rejuvenation		Strategic renewal		Domain redefinition	
Effects on firm's competence	Deploy existing	Modify existing	Deploy existing	Modify existing	Deploy existing	Define new	Define new	Deploy new
Top management roles	Directing	Recognizing	Directing	Recognizing	Directing	Ratifying	Ratifying	Directing
Middle management roles	Implementing	Synthesizing and facilitating	Implementing	Synthesizing and facilitating	Implementing	Championing	Championing	Implementing
Operating management roles	Conforming	Adjusting	Conforming	Adjusting	Conforming	Experimenting	Experimenting	Conforming
Organizational controls needed	A mix of bureaucratic and clan controls	A mix of bureaucratic and clan controls	A mix of bureaucratic and clan controls	A mix of bureaucratic and clan controls	A mix of bureaucratic and market controls	A mix of bureaucratic and market controls	A mix of market and clan controls	A mix of market and clan controls

(Bartlett & Ghoshal, 1994; Hart, 1992; Nonaka, 1994). Performing in these roles involves processing information and taking action that facilitates organizational change, and it is the need for information to perform in these roles that gives rise to our focus on social exchange as a central feature of CE.

In contrast to bounded rationality or political views, a social exchange perspective of CE (MacNeil, 1974; Rousseau, 1990) highlights its on-going, dynamic quality. Individual actions and decisions are thus seen in a relational context where "no segment of which—past, present, future—can sensibly be viewed independently from other segments" (MacNeil, 1974: 695). As organization members interact and exchange information, roles and role expectations develop which are embedded in relationships specific to the organizational context. These roles enable the organization to engage in many activities including CE.

CE's dependence on relational exchanges among managers has several implications for CE leadership. Leadership should be focused on the social context—both in terms of in-role performance and in architecting broader organizational arrangements. Taking on roles means depending on others to provide information and perform in complementary roles. The role of middle managers as champions, for example, depends on gaining information from experimentation at the operating level and ratification at the top. CE leadership means more than performing in one of the roles, however. It means shaping the internal organizational context in ways that foster effective exchanges between all the roles. This requires articulating a vision, gaining acceptance of the vision within the organization, and creating congruence between the vision and followers' self-interests (Pawar & Eastman, 1997).

Strategic Role Conflict and Exchange Opportunism in CE

Management entails a wide variety of behaviors, including but not limited to the entrepreneurial roles identified in Table 1. This variety of formal and informal behaviors and differences in the expectations of the people with whom a manager interacts—the role senders (Nandram & Klandermans, 1993)—is likely to result in conflicts about which role is appropriate at a given point in time. Adding to the potential for role conflicts are differences in managers' beliefs about the need for organizational change. Differences in managers' belief structures are due to educational background, experience, primary functional area, and position within the corporate hierarchy (Floyd & Lane, 2000; Weick, 1995). The plethora of managerial roles and differing managerial beliefs leads to dissensus over which roles to enact, and as a result, inconsistent role-sending behavior. For example, top management may see a need to fundamentally rethink how the firm competes (the need for strategic renewal) and thus expect operating-level managers to adopt the experimenting role. But if middle managers do not perceive the same need for fundamental change, if they believe, for example, that incremental improvements are of primary importance (the need for sustained regeneration), they will expect operating-level managers to adopt the conforming role. The conflict in the expectations of the two role senders would create tension and uncertainty at the operating level. This tension over which entrepreneurial role a manger should enact is termed *strategic role conflict* (Floyd & Lane, 2000).

Managers caught in role conflict are unlikely to enact entrepreneurial roles successfully, and this will disrupt the information exchanges needed for CE. Managers caught in role conflict may also experience considerable stress that can lead to organizationally dysfunctional coping behaviors such as avoidance, lying, or exit (Grover, 1993; Hirschman, 1970). These coping behaviors deprive the organization of timely access to needed information and therefore have the potential to disrupt CE even further.

Role dissensus also undermines predictability in relational exchanges and weakens interpersonal trust. Lower levels of trust, in turn, increase the risk of opportunism among managers—in the form of dishonesty, infidelity or shirking (Griesenger, 1990). Note that opportunism need not be real to be disruptive. Just the risk of opportunism can be enough to reduce the amount of information shared (Lane, Lyles & Salk, 1998). Well-intended but unexpected behavior may be misinterpreted as opportunistic (Ghoshal & Moran, 1996). When members of a relational exchange system begin to perceive that others are acting opportunistically, trust breaks down even further, and the cycle of misinformation therefore tends to become negatively self-reinforcing.

Differences in strategic role expectations can create uncertainty in all management situations. However, Jones and Butler (1992) suggest that such uncertainty is especially likely in CE. An additional source of uncertainty in CE is that the firm is by definition venturing into new areas for which managers have not yet developed a shared understanding (Weick, 1995). Jones and Butler suggest that this not only creates uncertainty in how opportunities are recognized but also in how the firm should develop structures and transactions to capitalize on them. The differences in managerial perceptions discussed earlier and the uncertainty in CE further elevate the risk of real or perceived managerial opportunism.

Developing CE Consensus and Trust through Organizational Controls

For effective exchanges to occur, an individual must be willing to "buy" what another party wishes to sell. For CE this means that there should be some overlap in managerial beliefs about the substance of strategic priorities and the need for strategic change—what we describe as consensus on the dominant logic. Lacking it, champions are likely to become frustrated by top managers who consistently reject their proposals, for example. Implementers are likely to be confused by directions that are out of sync with their own perceptions of strategy. In addition to the substance of entrepreneurial initiatives, consensus on the dominant logic includes shared understanding on the need for change, i.e., which types of exchanges (regeneration, rejuvenation, renewal, or redefinition) are needed. Lacking this, managers are likely to be working at cross-purposes—operating level managers experimenting when middle managers expect them to conform, for example. In short, consensus on the dominant logic increases the likelihood that managers will share a common set of expectations for role performance and that they will seek and receive the information necessary to perform in role.

A broad consensus on dominant logic also will have indirect benefits. Because consensus reduces uncertainty about expected managerial roles, it reduces both the opportunities for managers to act opportunistically and the chance that well-intended actions will be misconstrued. This sets in another self-reinforcing spiral, an increasingly positive one. The less that members of a relational exchange system perceive that others are acting opportunistically, the more that trust builds up between them, and the less concerned they are about opportunism in the future.

What is needed, therefore, is a mechanism by which leaders can help their organizations develop the consensus and trust needed to support CE. Jones and Butler (1992: 742–746) suggest the problems created by uncertainty in CE can be addressed by providing "an equitable distribution of rewards." However, they caution that effective reward systems may be difficult to develop for CE. They conclude that the ultimate solution may lay in the development of organizational controls that can help address the problems of uncertainty, but provide no insights into what the ideal set of controls might be (1992: 746–747). Floyd and Lane's (2000) prescriptions for minimizing strategic role conflict offer a more detailed answer. They suggest that aligning a firm's organizational controls with the type of environmental change that it faces can minimize strategic role conflict. The alignment creates consistency in behavioral expectations by signaling what cues are important, which behaviors are appropriate and what kind of result is valuable. This, in turn, reduces uncertainty about each role's importance and the kind of information that is valued by the firm.

Approaches to organizational control can be described as a choice between market devices, bureaucratic mechanisms and clan controls (Ouchi, 1980). These controls vary in the types of uncertainty that they can address, but they are not mutually exclusive and can be used in combination to nurture strategic consensus in a variety of contexts (Floyd & Lane, 2000). Market control uses passively observable data to evaluate opportunities and outcomes within the firm (Daft & Weick, 1984). They help address the potential for role conflict in competence definition by clarifying the objective criteria for evaluating new ideas and opportunities. Bureaucratic control entails the use of standardized behavior and performance assessments. Under bureaucracy managers methodically probe to determine how to resolve well-defined problems (Daft & Weick, 1984). These controls are appropriate for competence deployment. Clan control conveys information through traditions and assumes that members' commitment is driven by organizational identification and common culture. Rather than analyzing data or methodically searching for the one right answer, clans reduce uncertainty by creating a communality that reduces opportunism due to similarity of norms, beliefs, and priorities between members. The trust that develops through clan control may be essential if there is uncertainty about whether and how to modify an existing competence, what to keep, what to change, and how.

Combining these insights on organization controls and consensus with the earlier discussion of the relationship between types of CE and change in the firm's competences suggests the alignment of controls and types of CE presented in the bottom rows of Table 1. Here, we propose that by correctly aligning controls with the type of CE, managers can reduce role dissensus and increase dominant logic consensus. If the controls and CE type are misaligned, either the existing strategy will be insufficiently reinforced or needed deviations from the existing strategy will be stifled.

Opportunities for Researching CE Leadership

We offer this model of CE leadership because we believe that it focuses on an important but under researched topic—managing conflicts in the CE process. The social exchange approach we take offers rich opportunities for future research because it acknowledges that managers at multiple levels play a role in CE and because it places interactions between managers at the heart of the CE process. The social exchange perspective also suggests that two new constructs, dominant logic consensus and strategic role conflict, should be examined by future CE leadership studies. Other streams of management research can provide guidance on operationalizing both constructs (see Dess & Priem, 1995; Shenkar & Zeira, 1992). Finally, the model implies that the efficiency of social exchanges may be an indicator of CE leadership effectiveness. This could be operationalized using measures of organizational trust (Rousseau, Sitkin, Burt & Camerer, 1998) or identification-based trust (Lewicki & Bunker, 1995).

While we feel that examining CE leadership though this lens has much promise, it is clearly not the only approach that can be taken to studying this topic. Indeed, our concept of CE leadership resonates with other leadership theories focused on transforming the intraorganizational social context to facilitate change. Pettigrew (1987), for example, describes leadership as a process wherein the leader delegitimates alternative views and seeks to legitimate desired views. Sashkin (1992) describes leadership as a process of instilling new values and organizational culture. Nadler and Tushman (1989) see it as envisioning, energizing, and empowering organizational members. Our view of CE leadership as special context for transformational leadership is perhaps most in line with Kotter's (2001) distinction between managers and leaders. Managers organize people to solve problems. Leaders prepare organizations for change and help them to cope with it.

Corporate Entrepreneurship and Internationalization

A growing body of research seeks to empirically document CE activities as firms internationalize their operations (Zahra & Garvis, 2000). Given that internationalization is a complex, challenging and costly process, the success of CE efforts can significantly influence firm performance. Companies can no longer simply export their domestic business practices to foreign markets and expect to reap the full benefits of internationalization. Success in global markets requires companies to be entrepreneurial in deciding when, how, and where to expand internationally. Internationalization, therefore, provides an important opportunity to study CE activities and their links to performance among new ventures and established companies alike.

As Figure 2 indicates, one way to organize this literature is to separate content from process-related studies in new ventures vs. established companies. Content studies usually focus on the types of strategies and their dimensions that firms use as they internationalize their operations. Process studies examine how a firm's internationalization strategies emerge and change over time. These studies usually assume that the process of internationalization influences a firm's success as well as the types of entrepreneurial activities it pursues. Below, we review key studies that have been conducted to date on each of the four cells in Figure 2.

New Venture Internationalization and Entrepreneurship

Recently, some researchers have begun to examine the different factors that spur successful internationalization by new ventures (i.e., companies eight years or younger). Research indicates that environmental, organizational and strategic factors combine to influence the extent, direction, speed and process of new ventures' internationalization (for a review, see

	New Ventures	**Established Companies**
Content	Cell 1 Sources: Dana, Entemad & Wright, 1999 Oviatt & McDougall, 1999 Zahra & George, 2002	Cell 3 Sources: Bartlett & Ghoshal, 1988 Zahra & Garvis, 2000 Zahra, Neubaum, & House, 2000
Process	Cell 2 Sources: Schollhammer, 1982	Cell 4 Sources: Birkinshaw, 1997; 1998 D'Cruz, 1986 Ghoshal & Bartlett, 1988; 1989; 1991

Figure 2. A 2 × 2 typology of corporate entrepreneurship research.

Zahra & George, 2002). This research also suggests that new ventures gain access to resources and knowledge, especially about technology, by internationalizing their operations (Zahra, Ireland & Hitt, 2000). New ventures also can improve their competitive and financial performance as they enter international markets. The organizational learning theory suggests that new ventures can gain new knowledge from its diverse internationalization efforts. This knowledge, in turn, can promote the development of new organizational skills and capabilities.

Entrepreneurial activities, especially those embodied in CE, pervade new ventures and established companies alike. Some new ventures are more willing to take risks, introduce more new products, and exhibit greater proactiveness than their rivals. Yet, some researchers tend to equate the creation of a new global business with entrepreneurship. While this practice is consistent with some research (Gartner, 1985), it does not capture those entrepreneurial activities that occur within a new firm after its creation. Thus, this research ignores the variety of post-internationalization entrepreneurial activities and their implications for organizational learning.

Cell 1 (content). This stream of research examines the content of new ventures' international activities and their potential effect on future performance. Research by Oviatt and McDougall is most representative of this stream of research (for a review, see Oviatt & McDougall, 1999). These researchers have cataloged the entrepreneurial activities that managers undertake to develop and grow global start-ups (Dana, Etemad & Wright, 1999) The results of this research have provided a foundation for the proposition that entrepreneurial activities that precede internationalization significantly influence the short-term success of global start-ups. These studies have also examined the survival, growth and profitability of international new ventures, even though these studies remain relatively few in number.

Despite the growing research interest in understanding the factors that influence the success of global start-ups, we could not locate any studies that have examined the entrepreneurial activities that start-ups undertake once they go international. Differences across different types of global start-ups in their CE activities are also ignored. It is also unclear if such differences, if they exist, vary across the stages of the firm's internationalization process. Thus, these studies have not captured the effect and type of organizational learning (Zahra et al., 1999), as discussed earlier, on future CE activities among global start-ups. Finally, studies that fall within Cell 1 have yet to link post-internationalization entrepreneurial activities to the survival of global start-ups. One probable reason for this gap is that the use of case studies and mail surveys has dominated this body of research, making it difficult to document entrepreneurial activities or learning from these efforts and link them directly to new venture performance.

Cell 2 (process). To date, only a few studies have tracked the evolution of the strategies global start-up firms use or the entrepreneurial activities they undertake over time. Most of these studies have investigated the process by which entrepreneurs assembled resources and put their organizations together in their bid to internationalize their operations. Collectively, these studies highlight the importance of the founder's vision, connections (as commonly manifested by social capital), and access to international networks.

However, researchers have not systematically examined the types of entrepreneurial activities and their intensity as the firm globalizes its operations. Further, the effect of the sequence of a firm's strategic actions to internationalize its operations has not been linked to entrepreneurial activities, learning or financial performance. Changes in the modes of entry and use of coordinative mechanisms to synchronize global strategies have not been connected to the firm's entrepreneurial activities, even though certain modes (e.g., acquisitions) might be conducive to particular CE efforts (Schollhammer, 1982). Thus, it is unclear how entrepreneurial activities influence the evolution, growth, or financial performance of global new ventures. Also, how companies learn and develop new knowledge through internationalization remains unknown. Finally, researchers have not examined how the process of internationalization varies across the four types of CE presented earlier (Covin & Miles, 1999).

Established Companies' Internationalization and Entrepreneurship

More research has been published on the entrepreneurial activities within established global companies than within new ventures. The bulk of this research is descriptive in focus and static in research design, as discussed next.

Cell 3 (content). Content-related studies have explored the types of CE activities in MNCs. Ghoshal and Bartlett (1988) conducted one of the earliest studies, examining the range and content of entrepreneurial activities that occur in MNCs. These researchers proposed that such entrepreneurial activities are crucial for MNCs' successful performance, a factor that has encouraged other researchers to document the conditions under which CE influences company performance. For example, Zahra and Garvis (2000) theorized and empirically found that CE moderates the relationship between a firm's internationalization and its financial performance. Specifically, their findings show that established companies with higher levels of CE were able to achieve higher performance through international expansion than those firms with lower CE scores. The results also indicated that established companies that vigorously pursued CE were better positioned to leverage their international venturing activities in ways that improved their financial performance, thereby creating wealth for their owners. Similarly, a recent study found that international venturing by medium-sized US companies was positively related to a company's future performance (Zahra, Neubaum & Huse, 2000).

Despite the insights gained from recent studies examining content-related issues linking CE and internationalization, they remain few in number and limited in focus. These studies also lack clarity as to how firms actually leverage their skills in their international expansion to achieve higher financial performance. These studies have also failed to determine the length and duration of the period where higher CE was conducive to a stronger relationship between a firm's internationalization and its financial performance. Understanding the length of the period where CE improves a firm's financial performance can be useful in guiding strategy-making processes, especially in investing in different CE ventures. Finally, the learning implications of internationalization have not been analyzed in a systematic fashion.

Cell 4 (process). A related body of empirical research has explored the processes associated with CE in MNCs or established companies that are expanding internationally. Three themes dominate this body of research. The first centers on the role managers play in stimulating and fostering CE in the MNC's operations. Ghoshal and Bartlett (1994) aptly described the nature of these roles and the factors that shape their substance and content, proposing that these roles vary by managers' organizational level within the formal structure. While each role can enhance an MNC's overall entrepreneurial activities, serious conflicts might arise as different managers champion and support different initiatives at different levels within the MNC. Therefore, coordination is essential in order to gain the full benefits from these diverse managerial roles. The intuitive appeal of Ghoshal and Bartlett's (1994) conceptual scheme notwithstanding, there exists little empirical validation of their theoretically derived role descriptions and how to ensure effective coordination among these roles within an MNC. The implications of this coordination for CE and subsequent organizational learning are also not well understood in this stream of research.

A second theme in past CE research is how MNCs leverage their international operations in order to build and exploit a set of enduring competitive advantages. Some researchers have examined and evaluated the contributions of MNCs' subsidiaries to the creation and later diffusion of innovations within their parent organizations (Bartlett & Ghoshal, 1989; Birkinshaw, 1999; Birkinshaw & Hood, 1998; D'Cruz, 1986). Findings from this research have improved our understanding of the antecedents and effects of subsidiary entrepreneurship. Less is known, however, about the process by which CE activities actually unfold in subsidiaries or how they are connected later to the MNCs' competitive strategy or formal business definition. This gap in the literature is puzzling especially because early empirical work on CE has focused on these issues (e.g., Burgelman, 1983a, 1983b).

A third theme in prior research has investigated the potential effects of national cultures in shaping CE in established companies. While this research does not examine CE in MNCs *per se*, it has sought to clarify if and how national cultural variables influence CE efforts within established companies. Research by Morris, Davis and Allen (1994) is illustrative of this theme. It shows that certain organizational cultural variables (e.g., individualism) can significantly and positively influence CE in one country but can have the opposite (or no) effect in other countries. The results highlight the contingent nature of the relationship between organizational cultural variables and CE; this relationship depends on national culture. These findings are informative of the vital roles national cultural variables play in influencing CE activities and determining a firm's gains from them. Findings from this research stream can also guide managerial decision-making in different countries, determining the nature, direction, and pace of CE and its implications for entrepreneurial activities.

Despite the important insights gained from process-related research on CE and internationalization (Cell 4), the bulk of this research has been descriptive and lacks a strong theoretical foundation. The dominance of case studies is another source of concern because these analyses that have not yielded original theoretical insights. Finally, reviewing the empirical studies that have been published to date, it is hard to confidently distinguish them from mainstream international business research. Researchers who have pursued this research stream have emphasized the internationalization process rather than entrepreneurial issues.

Synthesis and Future Research Agenda

Clearly, the link between CE and internationalization is an emerging subject of great interest to entrepreneurship, international business, and strategy scholars. Opportunities for productive future research in this young but fast growing area are abundant. For scholars interested in content-related issues (Cells 1 and 3 in Figure 2), an important challenge is to examine and document the types of entrepreneurial activities in established companies, be it MNCs or otherwise. Researchers would benefit also from applying and refining existing classifications or typologies of CE activities (Morris, 1998; Schollhammer, 1982). They would benefit also from examining a firm's entrepreneurial orientation (Lumpkin & Dess, 1996) as well as its actual behavior. Using longitudinal research designs, future researchers can also provide a strong basis to identify different CE activities as they unfold over time. This research can also help fill several gaps in the literature on the effect of national and corporate cultures in promoting different types of CE and how they influence a firm's gains from pursuing different CE activities.

Focusing on process-related issues (Cells 2 and 4), we believe future research can also be informative in showing how firms develop effective structures and systems that spur CE in their international operations. Understanding these structures and systems is essential to tracking the processes by which CE activities come into existence within international operations in new ventures and established companies alike. These systems and structures also influence organizational learning. The various strategies CE champions employ to promote their initiatives within their companies' international operations is another issue worthy of future study. Research is necessary also to document how firms institutionalize their different CE efforts. Toward this end, future researchers need to examine how the processes used to institutionalize CE in a firm's international operations might contribute to organizational learning and acquiring new knowledge. CE institutionalization demands sensitivity to several organizational, political, and strategic issues. It also requires capturing, sharing and integrating the knowledge the firm might have gained in its international CE activities. The process by which the firm captures this knowledge can be useful in crystallizing and integrating the firm's learning. Following the learning theory, knowledge integration ensures that internationalization enhances the firm's learning (Zahra et al., 2000) and subsequent financial performance.

Future research should establish whether firms with different CE types (Miles & Snow, 1999) pursue different internationalization strategies that link these differences to organizational performance. Also, researchers should document the effect of CE types on organizational learning as a consequent of internationalization. To do so, researchers need to consider the various types of learning discussed earlier (Zahra et al., 1999), and study the effect of the intensity of CE activities and their types on the content, speed and depth of organizational learning (Zahra, Ireland & Hitt, 2000). Finally, given the potential dynamic interplay between CE and organizational learning, future empirical research should explore the effect of prior learning on changes in CE types and how these changes unfold over time.

Examining the issues above can significantly improve our understanding of potential relationships among CE, internationalization, and performance. In an environment where globalization is the norm, executives and scholars alike can gain rich insights into the dynamic interplay between the internationalization process and CE as a way of creating new competencies that enable firms to enhance firm performance. At the core of this dynamic interplay lies the firm's ability to create and gain new knowledge that can be combined or deployed to renew existing skills while creating and honing new ones (Zahra et al., 1999). The development and acquisition of skills promotes strategic renewal, a process that usually demands creativity. This dynamic renewal process is at the heart of entrepreneurship in both young and established companies.

Conclusion

The dynamic interplay between a firm's CE and internationalization represents an important research opportunity. Managers and researchers should give attention to the firm's entrepreneurial activities that shape these firms' product portfolios and differentiate them from the competition. While we are encouraged by the growing interest in these issues, this review shows that scholarship has not kept up with managerial practice, thereby missing a major opportunity to inform future theory building on the changing foundations of competitive advantages in global markets. The research issues outlined herein offer a roadmap for fruitful inquiry into the potentially rich contributions entrepreneurship can make to a company's successful internationalization and vice versa and the implications of these variables for organizational learning.

Corporate Entrepreneurship and Performance: Reassessing the Dependent Variable

CE in today's global and information economy has important implications for the development of both descriptive and normative theory. As such, the inclusion of outcome constructs and measures that are both reliable and valid is essential for building a coherent body of research that has relevance for both academics and practitioners. Developing normative theory of CE and the development of auxiliary measurement theory cannot be divorced from one another. As noted by Blalock (1982), if a poor fit is observed (in, for example, CE constructs and performance), we are unable to ascertain if the fault lies with the substantive theory, the auxiliary measurement theory, or both. Thus, in addition to the need for reliable and valid measures of CE constructs, the same rigorous criteria must be applied to performance indicators.

In this section, we begin by discussing the need to include multiple measures of the economic and financial outcomes of CE initiatives. Then, we address the value of incorporating a stakeholder perspective, i.e., moving beyond the narrow use of economic and financial indicators. Drawing on Kaplan and Norton's (1992) concept of the "balanced scorecard," we propose that the use of stakeholder analysis need not implicitly involve tradeoffs among the various stakeholders, but rather that symbiotic relationships may exist and that stakeholder groups can be satisfied in an interdependent manner. In the closing section, we focus on the need to emphasize additional forms of capital—human, social, intellectual—in assessing the outcomes of CE endeavors. We posit that concepts such as real options and learning platforms can provide useful insights on the potential benefits of CE initiatives that may not be evident in the short-term. One of the most important consequences of CE is learning that enables the firm to develop new knowledge that renews its skills and capabilities. Consequently, we believe that learning should be considered an outcome of CE.

Economic and Financial Measures

CE research must include multiple measures of economic outcomes such as profitability and sales growth to capture the inherent tradeoffs between efficiency and effectiveness, respectively (Hofer & Schendel, 1978). Furthermore, the desired outcomes of CE initiatives such as investment in R&D, new product development, or re-tooling a production facility with expensive (and risky) new technology may not be realized for several accounting periods. For example, in the biotechnology industry, it can take approximately seven years to go from the initial new drug application to bringing a new product to market—typically at costs in excess of US$ 100 million (Folta, Amburgey & Janney, 1997). Zahra and Covin (1995) and others have argued that the economic benefits of CE efforts may not be readily apparent in the short run, but take several years to come to fruition. In conducting research on the relationship between CE initiatives and performance (especially activities involving the expenditures of significant financial and nonfinancial resources), researchers must make judicial use of lag effects to incorporate the temporal nature of their subject of inquiry.

CE research can also benefit from the inclusion of more sophisticated measures of financial performance. Economic value added (EVA) and market value added (MVA) provide additional insights because they recognize the cost of capital and the inherent riskiness of a firm's operations (Lehn & Makhija, 1996). MVA, for example, provides an indicator of the stock market's estimate of the net present value of a firm's past and future investment projects; it would likely provide a measure of future returns for CE endeavors. Such indicators are not, of course, without controversy. Gary Hamel criticized EVA as a performance indicator because it only measures returns in excess of a firm's cost of capital. Instead, Hamel suggests a measure that he believes better captures the dynamics of corporate performance, i.e., "a company's current share of total market capitalization of its relevant competitive domain with its share a decade ago" (Hamel, 1997: 75). This perspective suggests that on-going CE activities aimed at keeping the organization on the cutting edge in terms of proactively seeking new opportunities may make a more lasting contribution to value creation than an occasional attempt to innovate, introduce or adopt entrepreneurial ideas. Clearly, research can benefit from the inclusion of both accounting and market measures of financial performance.

Incorporating Stakeholder Perspectives

Conceptualizing and operationalizing the performance of the "effectiveness" construct is, of course, a highly problematic issue in many research domains. However, it presents particular challenges in the domain of CE. When firms undertake CE initiatives, how can one tell if it augmented (or detracted from) the organization's effectiveness? As Atkinson, Waterhouse and Wells (1997), Freeman and McVea (2001) and others have noted, the modern organization is a complex nexus of contracts, both explicit and implicit, that specifies relationships and involves bargaining among multiple stakeholder groups. Atkinson et al. (1997) identified two groups of stakeholders: *environmental* stakeholders who define the firm's external environment (customers, owners, and the community-at-large) and *process* stakeholders (employees and suppliers) who work "within the environment defined by the external stakeholders to plan, design, implement, and operate the processes that make and deliver the company's products to its customers" (1997: 27). Recognizing the inherent conflicts among an organization's external and internal stakeholders, Hall (1987) has proposed a "contradiction model" of organization effectiveness in which firms face conflicts among multiple and conflicting environmental constraints, multiple and conflicting goals, and multiple and conflicting time frames.

To provide integration of the many diverse issues that firms face in assessing their effectiveness, Kaplan and Norton (1992) have developed the "balanced scorecard" concept. It includes a set of measures that provide managers with a quick but comprehensive view of their business. It complements the financial indicators that reflect the results of actions already taken with indicators of operational measures of customer satisfaction, internal processes, and the organization's innovation and improvement activities. The latter are considered operational measures that can drive future performance.

Such a concept has important implications for assessing the outcomes of CE initiatives. Although CE often revolves around innovation and new venture creation, the balanced scorecard approach provides a reminder that these activities must satisfy several criteria that are weighted differently by different stakeholders.

An underlying tenet of the balanced scorecard approach is the salience of multiple forms of capital to an organization. Clearly, managers should be concerned about enhancing their firm's stock of financial resources. However, in today's knowledge economy, human, social, and customer capital take on an increasing importance. For example, both scholars (e.g., Coff, 1997; Nahapiet & Ghoshal, 1998) as well as writers in the popular press (e.g., Edvinsson & Malone, 1997; Munk, 1998; Stewart, 1997) have argued that human capital is the critical, scarce resource and the key to value creation in the information age. Furthermore, Porter (1985) has articulated the need for organizations to view their firm as part of an expanded value chain consisting of themselves, suppliers, customers, and alliance partners. Such a perspective reinforces the importance of the role of social capital both within organizations as well as between a focal organization and external stakeholders (Dyer & Singh, 1998). A shortcoming of the balanced scorecard is ignoring the learning outcomes of the various CE types, discussed earlier in this paper. This learning requires multiple types of capital, as discussed next.

Recognizing the Increasing Role of Multiple Forms of Capital in Today's Economy

We argue that many of the performance constructs developed in the strategic management literature were originally created within the context of existing firms as well as at a time when physical, financial, and labor resources were a firm's key resources for attaining advantages. And, although many of the measures originally used in the CE literature may remain viable for new ventures, such measures may become less applicable for firms that rely primarily on human, social, and intellectual capital to create advantages. Therefore, future CE researchers should give greater attention to knowledge-based resources and learning outcomes.

Human capital focuses primarily on capabilities, knowledge, skills, and experience, all of which are embodied in and inseparable from the individual. *Intellectual capital* refers "to the knowledge and knowing capabilities of a social collectivity, such as an organization, intellectual community, or professional practice" (Nahapiet & Ghoshal, 1998: 245). *Social capital* is "broadly defined as an asset that inheres in social relations and networks" (Leana & Van Buren, 1998: 538). We believe that as the level of human, social, and intellectual capital inherent in a new venture increases, different perspectives on the outcomes of CE become more important. Such intangible resources or "invisible assets" (Itami & Roehl, 1987) are especially salient in newer firms in emerging industries. Assembling, deploying and leveraging these diverse types of capital create opportunities for knowledge creation and exploitation within CE activities.

In addition to the increasing importance of human, intellectual, and social capital in our discussion of CE, we draw upon the real options literature (Bowman & Hurry, 1993; McDonald & Siegel, 1986; Myers, 1977). A real option is an investment in which the purchaser obtains the right, but not the obligation, to acquire (or divest) an investment at a later date, at contracted terms (McGrath, 1999). The literature suggests that firms can derive an economic value by investing incrementally and delaying a full investment commitment until more information about the decision is known (Dixit & Pindyck, 1994). If the investment decision fares poorly, losses are capped at the amount of the initial investment; at the same time the firm retains the full "upside potential" of the investment decision. This insight encourages firms to place many "small bets" on promising opportunities, pouring funds then into the most promising opportunities. Real options create flexibility for firms; freed from having to extricate themselves from much larger commitments, firms can shift funds from a given opportunity to a more promising one. Using this logic, companies also see far downside risks associated with CE activities. Consequently, they are more willing to experiment, learn and develop new knowledge.

We suggest that real options theory can shed some new light on the outcomes of CE initiatives. For example, as firms make platform investments in order to establish a new technology or early foothold in new markets, they maintain the ability to expand rapidly if conditions warrant. These investments also can enhance the learning consequences of CE.

At the same time, firms embedded in wider networks tend to use the informal relations to facilitate innovation (Starr & MacMillan, 1990), while they enjoy a more accurate assessment of environmental conditions. Therefore, they are able to proactively pursue opportunities more quickly than firms outside of their network. Future CE research should enhance our understanding of how firms employ such intangible forms of capital to create and exploit new opportunities. Additionally, platforms for learning (Grenadier & Weiss, 1997) can moderate the relationship between CE initiatives and company performance. For example, endeavors at innovative product market development—even if unsuccessful at one point in time—may provide substantial economic benefits at a later time if it enables the firm to recombine resources effectively (Kogut & Zander, 1992). Following learning theory, this process can improve learning and knowledge creation within CE activities. Clearly, future CE research could benefit from using longitudinal time lagged variables.

The operationalization of performance constructs in CE research could be revised to recognize the emergence of the importance of intangible assets in the economy. The inclusion of indicators to reflect a new venture's level of intellectual capital should require much more fine-grained measures than those proposed by Edvinsson and Malone (1997) in their path-breaking book, *Intellectual Capital*. Rather than rely on measures such as "new channel development investment," "education unique to noncompany-based employees," and "employee competence and development investment" (1997: 245), we would propose including indicators of "the knowledge and knowing capabilities" (Nahapiet & Ghoshal, 1998) that enable an organization to exploit emerging opportunities. This knowledge should be assessed within a firm's competitive context as a means of providing sustainable competitive advantages, a proposition that is consistent with learning theory. This would require the perspective of both an organization's present product-market-technology and its anticipated endeavors. The question could be posed: How do such intangible resources provide leverage for future entrepreneurial endeavors? The firm's social capital—a viable outcome as well as antecedent to CE endeavors—could be assessed, broadly speaking, by its network of relationships that have the potential for providing it with valuable tangible and intangible resources (Adler & Kwon, 2002).

CE research could build on prior network research that has investigated such substantive issues as alliance networks, executive friendship ties, and corporate director interlocks (e.g., Geletkanycz & Hambrick, 1997; Gulati, 1995; Westphal & Zajac, 1997). Such network ties—both strong and weak—would serve to mitigate the extent of risk taking that is inherent in CE initiatives. For example, firms in deeply embedded networks may better benefit from their strategic initiatives via superior access to financial and knowledge resources. This enables firms to combine resources in a more effective and efficient manner as well as enhance their potential for developing superior learning platforms to exploit future product-market opportunities. Thus, not only would the potential downside or risk taking associated with CE efforts be mitigated, but also the positive economic benefits of proactive and innovative behaviors would be released. Following the learning theory, such outcomes might include rapid, deep and broad learning of new technologies and skills. Such research would benefit from the application of "fine-grained" methodologies (Harrigan, 1983) that would enable one to identify unfolding, emergent processes. This research would help to further improve our understanding of the role of organizational learning as a consequence of the various CE types firms might pursue.

Conclusion

In this paper, we have identified four promising research avenues in CE. While other issues are worthy of analysis, we believe the four issues we examined have important implications for organizational learning and the creation of new knowledge. Collectively, these issues help us open the "black box" that pervades the literature on the relationship between CE and performance. These issues also help us to recognize the importance of CE for knowledge creation and exploitation as well as learning. We welcome dialogue, debate, and critique with the goal of enhancing research in an area that holds such promise for rich descriptive and normative theory.

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Gregory G. Dess is the Andrew Cecil Endowed Chair in Management at the University of Texas at Dallas. He has published numerous articles in leading academic and practitioner-oriented journals in strategic management, organization theory, knowledge management, and related topics. He currently serves on the editorial board of *Strategic Management Journal*, *Journal of Business Venturing*, *Journal of Business Research*, and *Organizational Dynamics*. Greg was one of the charter members of the Academy of Management Journals' Hall of Fame and he received his Ph.D. from the University of Washington.

R. Duane Ireland holds the W. David Robbins Chair in Strategic Management in the Robins School of Business, University of Richmond. His research is concerned with strategic alliances, strategic entrepreneurship, and corporate entrepreneurship. In addition to the *Journal of Management*, Duane's articles have appeared in the *Academy of Management Journal*, *Academy of Management Review*, *Academy of Management Executive*, *Strategic Management Journal*, *Administrative Science Quarterly*, *Decision Sciences*, *Human Relations*, *Journal of Management Studies*, and *British Journal of Management*, among others. He has written several textbooks and edited scholarly books. His work has received awards for best papers from the *Academy of Management Journal* (2000) and *Academy of Management Executive* (1999). Duane has received awards for excellence in terms of teaching and service.

Shaker A. Zahra is Paul T. Babson Distinguished Professor in Entrepreneurship in Babson College. His research covers corporate, international, and technological entrepreneurship. Shaker's articles have appeared in the *Academy of Management Journal*, *Academy of Management Review*, *Academy of Management Executive*, *Strategic Management Journal*, *Journal of Management*, *Journal of Business Venturing*, *Journal of Management Studies*, *Entrepreneurship: Theory and Practice*, *Decision Sciences*, *Information Systems Research*, among others. His research has received several awards including best papers in the *Academy of Management Journal*, *Journal of Management*, and *Entrepreneurship: Theory and Practice*. His teaching and service have also received awards of excellence.

Steven W. Floyd is the Cizik Chair in Strategic Management, Technology and Manufacturing, and an Associate Professor in Strategic Management at the School of Business, University of Connecticut. His recent research focuses on the role of social context in the development of strategic initiatives, the contributions of middle-level management to corporate entrepreneurship and strategy-making and the organizational processes associated with strategic renewal. Articles on these and other topics have been published in the *Academy of Management Review*, *Academy of Management Journal*, *Strategic Management Journal*, *Journal of Management*, *Entrepreneurship: Theory and Practice*, and *Journal of Management Studies*.

Jay J. Janney is an Assistant Professor of Management at the University of Dayton. His research interests include the integration of strategic management and entrepreneurship, real options, and the resource-based view of the firm. His work has appeared in *Business Horizons*, *Journal of Business Ethics*, and *Journal of Business Venturing* (in press), among others. Jay earned his Ph.D. from the University of Kentucky, and previously served on the faculty of Purdue University.

Peter J. Lane is an Associate Professor of Management at Arizona State University's College of Business. His research on corporate strategy, strategic processes, and interfirm collaboration has been published in the *Academy of Management Review*, *Academy of Management Executive*, *Strategic Management Journal*, and *Human Relations*. His current research focuses on socio-cognitive influence on strategy innovation both within and across organizations.