Concepts,
Theory
and
Perspective

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Entrepreneurship

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Concepts, Theory and Perspective

With 17 Figures

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Entrepreneurship: Concepts, Theory and Perspective. Introduction

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The creation of a country's wealth and dynamism depends upon the competitiveness of its firms and this, in turn, relies fundamentally on the capabilities of its entrepreneurs and managers.

The essence of the modern firm lies in the specialization of functions. "The businessmen" that manage economic activity are, in the strictest sense, both managers and entrepreneurs, the latter in a double sense: the individual businessman (independent) and the "corporate entrepreneur" who, without participating significantly in terms of capital, controls the firm.

Studying business capabilities requires the differentiation between the functions of entrepreneur, manager and capitalist, although in many cases; the same person may perform all three (Table 1).

The individual entrepreneur detects or creates business opportunities that he or she then exploits through small and medium-sized firms, normally participating in funding the capital for that firm, carries out the role of arbitrator, or simply "sells the idea" of the business project. The "corporate entrepreneur" or the chief executive of large firms must also be considered. This figure is no longer limited to efficiently managing the firm's assets and coordinating and controlling its activities. He or she must anticipate, articulate and manage change. In other words, corporate entrepreneurs must reinvent the firm on a daily basis, creating new enterprise (*spin-offs*) and developing company networks. When discussing the figure of the corporate entrepreneur, one must also consider the key shareholders that take an active part in the firm, along with managers that share in making up the firm's basic competences.

However, the manager's function is first and foremost to supervise the process of combining resources, and efficiently manage the firm's business portfolio. They have a key function when, as is normally the case, firms do not operate efficiently (Leibenstein, 1979), and instead are a long way short of their production boundaries. A second but fundamental task of the manager is to build up a reputation and an atmosphere of trust that transforms a conflictive system (individuals with conflicting objectives) into a system of cooperation. Managers should create a climate of trust so that employees will not tend towards opportunist behaviour, even when it suits their short-term interests, as well as achieving a greater degree of efficiency by reducing supervision and agency costs.

Table 1. Entrepreneurs, managers and capitalists

	Entrepreneur	Capitalist	Manager
Characteristics	Discovers and exploits opportunities A creator who initiates and motivates the process of change	Capital owner: share-holders Controlling share-holder Passive shareholder	Administrates and manages resources An administrator
Behaviour	Accepts risks Uses intuition, is alert, explores new business Leadership, initiates new ways of acting Identifies business opportunities Creation of new firms	Risk averse Assesses alternatives Choice of venture assets	Risk averse "Rational" decision-maker Exploits business Creates and maintains competitive advantage Creates trust to enhance cooperation Supervision of the ad-ministrative process

Finally, the capitalist is the provider of the firm's funds, either in the form of a passive shareholder (in the case of small shareholders or institutional investors) or as a majority or active shareholder who, in many small and medium–sized firms, assumes both the entrepreneurial and managerial functions.

Entrepreneurship

The entrepreneurial function implies the discovery, assessment and exploitation of opportunities, in other words, new products, services or production processes; new strategies and organizational forms and new markets for products and inputs that did not previously exist (Shane and Venkataraman, 2000). The entrepreneurial opportunity is an unexpected and as yet unvalued economic opportunity.

Entrepreneurial opportunities exist because different agents have differing ideas on the relative value of resources or when resources are turned from inputs into outputs. The theory of the entrpreneur focuses on the heterogeneity of beliefs about the value of resources (Alvarez and Busenitz, 2001: 756).

Entrepreneurship – the entrepreneurial function, can be conceptualized as the discovery of opportunities and the subsequent creation of new economic activity, often via the creation of a new organization (Reynolds, 2005).

Due to the fact that there is no market for "opportunities" where the entrepreneur could sell the opportunity to others who will develop it, the entrepreneur must exploit them, meaning that he or she must develop his or her capabilities to obtain resources, as well as organize and exploit opportunities. The downside to the market of "ideas" or "opportunities" lies in the difficulty involved in protecting

ownership rights of ideas that are not associated with patents or copyrights. There is no legal protection of the different expectations held by entrepreneurs and investors on the economic value of ideas and business opportunities, and of the entrepreneur's need to withhold information that may affect the value of the project.

Entrepreneurship is often discussed under the title of the entrepreneurial factor, the entrepreneurial function, entrepreneurial initiative, and entrepreneurial behaviour and is even referred to as the entrepreneurial "spirit". The entrepreneurial factor is understood to be a new factor in production that is different to the classic ones of land, labor and capital, which must be explained via remuneration through income for the entrepreneur along with the shortage of people with entrepreneurial capabilities. Its consideration as an entrepreneurial function refers to the discovery and exploitation of opportunities or to the creation of enterprise. Entrepreneurial behaviour is seen as behaviour that manages to combine innovation, risk-taking and proactiveness (Miller, 1983). In other words, it combines the classic theories of Schumpeter's innovative entrepreneur (1934, 1942), the risk-taking entrepreneur that occupies a position of uncertainty as proposed by Knight (1921), and the entrepreneur with initiative and imagination who creates new opportunities. Reference to entrepreneurial initiative underlines the reasons for correctly anticipating market imperfections or the capacity to innovate in order to create a "new combination". Entrepreneurial initiative covers the concepts of creation, risk-taking, renewal or innovation inside or outside an existing organization. Lastly, the entrepreneurial spirit emphasizes exploration, search and innovation, as opposed to the exploitation of business opportunities pertaining to managers.

All this explains why entrepreneurship is described in different ways. The business process includes the identification and assessment of opportunities, the decision to exploit them oneself or sell them, efforts to obtain resources and the development of the strategy and organization of the new business project (Eckhardt and Shane, 2003). Entrepreneurship is "a process by which individuals – either on their own or within organizations – pursue opportunities" (Stevenson and Jarillo, 1990: 23). It has recently been claimed that if the managers and businessmen of many firms were to adopt entrepreneurial behaviour when developing their strategies, firms would be facing a much brighter future than current perceptions suggest (Lee and Peterson, 2000).

The entrepreneur's central activity is that of business creation, which can be studied at an individual and/or group level – analyzing psychological aspects and social variables of education, background or the family, either at an environmental level focusing on factors that enable business development, or by analyzing aspects of the economic, social and cultural environments.

The study of entrepreneurs as individuals requires the analysis of variables that explain their appearance, such as personal characteristics, the psychological profile (the need for achievement, the capacity to control, tolerance of ambiguity and a tendency to take risks) and non-psychological variables (education, experience, networks, family, etc.).

Additionally socio-cultural and institutional focuses underline the role of exclusion and social change as motivators of the entrepreneurial function in minority or marginalized groups. Studies on environmental variables emphasize culture or shared values in society, institutions linked to the legal framework, variables of the

economic environment (demand) and the financial one (venture capital and cost), along with the spatial environment (clusters and economies of agglomeration).

Therefore, there are three basic ideas that explain the appearance of entrepreneurial activity. The first focuses on the individual, in other words, entrepreneurial action is conceived as a human attribute, such as the willingness to face uncertainty (Kihlstrom and Laffont, 1979), accepting risks, the need for achievement (McClelland, 1961), which differentiate entrepreneurs from the rest of society. The second fundamental idea emphasizes economic, environmental factors that motivate and enable entrepreneurial activity, such as the size of markets, the dynamics of technological change (Tushman and Anderson, 1986), the structure of the market – normative and demographic, (Acs and Audretsch, 1990) or merely industrial dynamics. The third factor is linked to the functioning of institutions, culture and societal values. These three approaches are not exclusive (Eckhardt and Shane, 2003: 2), given that entrepreneurial activity is also a human activity and does not spontaneously occur solely due to the economic environment or technological, normative or demographic changes.

As previously mentioned, when referring to entrepreneurs, there is normally a differentiation between individual entrepreneurs or businessmen (independent) and corporate entrepreneurs or businessmen associated with the higher echelons of a firm's management. Different names have been used to describe the latter such as "corporate entrepreneurship", "corporate venturing", "intrapreneurship", "internal corporate entrepreneurship" and "strategic renewal".

Entrepreneurial management can be considered as being different to traditional ways of managing organizations. Many managers are looking to new ways of making their organizations more entrepreneurial in multiple ways, aspects, from a general strategic orientation to reward schemes (Brown, Davidsson and Wiklund, 2001). Barringer and Bluedorn (1999) emphasized a positive relationship between the intensity of corporate entrepreneurship and the intensity of the search for opportunities, strategic adaptation and value creation. As pointed out by Hitt et al. (2001: 488) "firms need to be simultaneously entrepreneurial and strategic".

Entrepreneurship is an essential element for economic progress as it manifests its fundamental importance in different ways: a) by identifying, assessing and exploiting business opportunities; b) by creating new firms and/or renewing existing ones by making them more dynamic; and c) by driving the economy forward – through innovation, competence, job creation and by generally improving the wellbeing of society.

Entrepreneurship affects all organizations regardless of size, or age, whether they are considered a private or public body, and independently of their objectives. Its importance for the economy is reflected in its visible growth as a subject of interest for the economic press and in academic literature. It is a matter of interest to academics, businessmen and governments the world over.

The study of entrepreneurship leads us to attempt to answer a series of questions such as: *What* happens when entrepreneurs act? *Why* do they act? and *How* do they act? (Stevenson and Jarillo, 1990). Why, when and how do opportunities for the creation of goods and services come into existence? Why, when and how do some people and not others discover and exploit these opportunities? And finally, why, when and how are different modes of action used to exploit entrepreneurial opportunities? (Shane and Venkataraman, 2000).

We have limited knowledge of the opinion of entrepreneurs, business opportunities, the people that pursue them, the skills used for organizing and exploiting opportunities and the most favourable environmental conditions for these activities. Moreover, studies are carried out at different levels; individual, firm, sector and geographical space. There is no basic theory for carrying out this type of study, resulting in approximations based on casuistry, anecdotes or fragmented reasoning (Eckhardt and Shane, 2003: 12). The black box of entrepreneurial function is yet to be opened (Fiet, 2001).

The problems involved in a study of "entrepreneurship" are linked to the need to delimit the field of study and rely on a conceptual structure that enables the explanation and prediction of empirical phenomena that are not explained by other fields of knowledge; it is necessary to generate a paradigm, to develop a set of testable hypotheses, to overcome the existing casuistry and description and look further into longitudinal and cross-sectional analysis.

Despite all this, a considerable body of literature has accumulated on the subject of entrepreneurship to the point where, just as has happened in other fields, a sizeable number of entrepreneurship-related studies have been published in journals in the areas of administration and management, while other journals that specifically specialize in topics related entrepreneurship have appeared. The role of the entrepreneur has been analyzed in special issues in journals such: *Strategic Management Journal* and *Journal of Management* (Audretsch et al. 2005), *Academy of Management Journal* and *Journal of International Marketing* (Coviello and Jones, 2004). Almost a hundred journals can be adjudged to have published work related to entrepreneurship (*Entrepreneurship Division* of the Academy of Management, in research carried out in the summer of 2006).

The differentiation of the field of entrepreneurship from other areas depends upon the object of the research, the methodologies and the problems researchers are attempting to resolve (Bruyat and Julien, 2000). Busenitz et al. (2003: 286) underline the importance of recognizing "*entrepreneurship* as a field of study within management", a field of knowledge that upholds the development of entrepreneurship. It is on these fundamental ideas that we base our reflections.

The study and teaching of entrepreneurship and the role played by professors dedicated to teaching and research on this topic are of growing importance, as reflected in the rapid growth in courses and chairships in entrepreneurship in the United Status in the last few years (Finkle, Kuratko and Goldsby, 2006). The University of Valencia has joined this trend through the creation of the first Chair of this kind among Spanish universities: the Bancaja Chair for Young Entrepreneurs, dedicated to the study, research and development of all aspects related to entrepreneurship.

The Book

The book consists of 15 chapters grouped into three sections. These are: Concepts, Theory and Perspective. Each chapter contains a published article that has played a relevant role in the scientific consolidation of the field of entrepreneurship, that

may do so in the future, or which presents some complementary element to the vision of the field of *entrepreneurship*. We are aware of the absence of some well-known, highly-regarded texts. This is due to the fact that, in the difficult task of reducing an original list of more than 100 references, we have opted for the complementarity of the contents, thus avoiding any superfluous inclusions. The final choice of articles inevitably reflects our own links with business management.

The first part of the book, Concepts, aims to provide a range of terminology and conceptual ideas. At the same time it provides an account of the historical evolution and theoretical location of the different approaches to *Entrepreneurship*. This first section consists of four chapters.

The first chapter, contributed by Professor Veciana, is the updated version of a study carried out in 1999. It presents, describes and classifies theories that have been used to give structure to and formalize the field of study. For such a classification, the author creates a matrix based on four theoretical approaches: economic, psychological, institutional and managerial – and three levels of analysis within *entrepreneurship*, micro, meso and macro. In the subsequent grid, twenty five theories on *entrepreneurship* are located. The comprehensive bibliography is an indication of the extensive and fruitful academic and research activity of one of Europe's pioneers in the study of *entrepreneurship*.

The second chapter contains the oldest of the texts that appear in this book, but it is one that has also had huge repercussions in the history of the field, in terms of citations. Carland et al. present *entrepreneurs* as being different from capitalists and from managers, and discuss the contribution of *entrepreneurship* to small businesses and to the economy as a whole. The authors underline the importance of the difference between entrepreneurial firms and new or small firms. They propose a criterion for identifying entrepreneurial firms, which consist of complying with at least one of the four conditions that, according to Schumpeter (1934), reflect entrepreneurial behaviour: the introduction of new products, the introduction of new modes of production, the opening up of new markets or an industrial reorganization.

The third chapter, provided by Sharma and Chrisman, addresses the problem of the differences that exist in the terminology used to describe *entrepreneurship*, with the idea of reducing the confusion that surrounds the field and reconciling differences between existing definitions. The authors provide a definition both for *entrepreneurship* and for the entrepreneur. For Sharma and Chrisman, entrepreneurship covers the occurrence of organizational creation or innovation that occurs inside or outside the existing organization, whilst entrepreneurs are individuals or groups of individuals that act independently, or as part of a corporate system, that create new organizations or instigate renewal or innovation within an existing one. The authors analyze *corporate entrepreneurship* and, following a discussion on internal and external firm creation, provide a classification of *internal firm* creation, with a particular focus on structural autonomy and the degree of the relationship with the lines of business of the firm that motivates such a creation.

In the fourth chapter, which concludes the first section, Aldrich and Fiol, point out the high levels of risk undertaken by firms that are created in emerging sectors. The text looks at certain procedures that can be employed in order for a

sector to obtain legitimacy at an institutional level. Several strategies are also presented that have been used by particular firms in newly emerging sectors.

The second section of the book, which includes chapters five to ten, deals with three important paradigms in the evolution of *entrepreneurship* and contributes two theoretical viewpoints that, despite having a more limited scope, have the advantage of strong links with other disciplines or bodies of knowledge.

Chapter five contains the work of Low and Macmillan, which appeared in 1988. The authors propose the definition of the field of *entrepreneurship* as "the creation of new enterprise" and from this standpoint, they suggest six requirements that research on *entrepreneurship* should comply with: purpose, theoretical perspective, focus, level of analysis, time frame and methodology. Having established these requirements, they assess previously published research in order to evaluate to what extent they comply and give guidelines for future research in the field.

In the sixth chapter, Stevenson and Jarillo begin by discussing the apparent conceptual conflict between *entrepreneurship* and corporate entrepreneurship. In order to surpass theoretical tradition that attempted to explain the causes of entrepreneurial behaviour, its economic and social outcomes or entrepreneurial activity in a way that can be considered too independent, they accept the concept of entrepreneurship as a process via which individuals – either on their own or within organizations – look for opportunities without taking into account the resources they have at their disposition at a given time. Using this definition, the subject may cease to be an individual and become an organization. From thereon in, they apply their conclusions to corporate entrepreneurship, laying down the characteristics of the entrepreneurial organization.

The seventh chapter corresponds to the study by Shane and Venkataraman, "The promise of entrepreneurship as a field of research". The authors consider the existence, nature and discovery of opportunities as the real core of *entrepreneurship* and provide some reasons as to why certain people recognize these opportunities while others do not. At the same time, they research ways of developing and making the most of opportunities according to the form they take. By considering opportunities to be the core of *entrepreneurship*, they are indicating a specific field of research and establish differences with the classical, psychological approach, the strategic approach and that of economic equilibrium.

The eighth chapter constitutes a look at cognitive theory applied to *entrepreneurship*. Therein, Krueger proposes a cognitive model, based on intentions, that processes the perception of opportunities and assesses their desirability and feasibility. The article constitutes a detailed discussion on the importance of a strategic orientation towards new opportunities, as well as its basic nature. Cognitive theory is currently the main link between *entrepreneurship* and the science of psychology.

In the ninth chapter, Alvarez and Busenitz propose a relationship between a resource-based theory and *entrepreneurship*. By doing so, they offer new perspectives that extend the boundaries of resource theory while using such theoretical trappings to address important questions concerning *entrepreneurship*. From the perspective of a resource-based theory, they assess "the recognition of opportunities and opportunity-seeking behaviour" as a resource, along with "the process of

combining and organizing resources". The article also includes a discussion on cognition and business competence, the recognition of opportunities, strategic complementarity and causal ambiguity with regard to the ex post limitations to the act of competing.

In the tenth chapter, Gartner uses the six key recommendations for specifying research into *entrepreneurship* discussed by Low and Macmillan (1988), (purpose, theoretical perspective, focus, level of analysis, time frame and methodology), in order to analyze the article written by Shane and Venkataraman (2000), "The promise of entrepreneurship as a field of research". In other words, the methodology proposed in chapter five is used to analyze the study in chapter seven, thus demonstrating the usefulness of the methodology proposed by Low and MacMillan and underlining the soundness of the ideas included in the study by Shane and Venkataraman. It is their recommendation that communities of academics should arise within the field of entrepreneurship that identify themselves with specific questions and research topics.

The third part of the book is made up of five chapters, of which the first three focus on presenting suggestions for future investigation in entrepreneurship, with the aim of achieving consolidation as a scientific field. This section also includes an international project on entrepreneurship and recommendations for analyzing and facilitating the publication of research on entrepreneurship.

In chapter eleven, Davidsson and Wiklund, basing their ideas on the results obtained by Low and MacMillan (1988), study the levels of analysis that have been identified in studies on entrepreneurship. They then go on to provide examples of progress for specific levels of analysis: for example, individual and team, firm, industry/ population, regional and national. The authors propose that progress in the future will depend on a closer relationship between the theories of entrepreneurship and levels of analysis.

Chapter twelve is a study created by a group of professors from the Entrepreneurship Division of the Academy of Management. They propose the existence of three areas that are central to research on entrepreneurship: opportunities, ways of organizing and putting into effect the exploitation of opportunities and the study of the environment. They suggest that the most fertile ground is to be found at the intersections of those areas. They locate both at the intersections and in the areas themselves a sample of 97 articles published in the main academic journals for this topic. In addition, they use the same sample to assess the degree of consolidation of the scientific field of entrepreneurship, as well as its level of scientific legitimacy and the flow of exchange with other fields. The conclusions drawn from this assessment are not particularly encouraging and, although significant advances are recognized, it can be ascertained from this article that any real consolidation is still lacking in comparison with the enormous popularity and interest that the subject of entrepreneurship attracts today.

Chapter thirteen written by Aldrich and Martinez, presents three tendencies observed in the last decade: a) a switch from the theoretical emphasis on the characteristics of entrepreneurs as individuals to the consequences of their actions, b) a deeper understanding of how entrepreneurs use knowledge, networks and resources to create

businesses, and c) a more sophisticated taxonomy of the environmental forces at different levels of analysis (population, community and society) that affect entrepreneurship. The authors believe that progress has been made with regard to knowledge of the "process" of entrepreneurship, but that a better characterization of the "entrepreneurial context" is still needed, along with an analysis of a resource-based interaction of process and context. Together with a more sophisticated assessment of strategy and the environment, the authors suggest that progress can be made by creating theoretically derived hypotheses, adding longitudinal information and applying modern statistical techniques.

Chapter fourteen, provided by Morales and Roig, analyzes the influence of the main factors that appear in the relevant literature on the decision to start a new firm; identifying the perception of business opportunities, making use of the knowledge of other entrepreneurs and the perceptions held on the necessary skills as crucial elements of the process. They also analyze an aversion to risk-taking, especially when it affects the family's expectations for the future, as well as higher income and a higher level of academic studies as limiting factors to the likelihood of starting a new firm. The conclusions are drawn from the database published with the results of the GEM (Global Entrepreneurship Monitor), which contains information from 29 different countries.

Chapter fifteen contains the ideas developed by Ireland, Reutzel and Webb, editors of the Academy of Management Journal, on the evolution of research on entrepreneurship published in this prestigious journal, in clear competition with research in other areas of management. This study offers some expectations for research into entrepreneurship that the AMJ might publish in the future, at the same time as calling for greater attention to technical statistics, such as measurements of validation and the interpretation of facts and results.

The Relevance of These Articles to the Field of Entrepreneurship

The selection of articles included herein are, without doubt due to personal choice and are the sole responsibility of the editors, though attention has been paid to impact factors and citation indices, mainly the ISI/JCR and EBSCO. The impact of the journals, the authors and the articles on academic activity can be identified through measuring how widely they are used, thanks to the number of times they are cited in subsequent studies. For some time now, total numbers of citations have been considered an important yardstick for gauging the quality of an article, the relevance of the author's work, and the status of the journal where the articles appeared (Garfield, 1972, 1979; Chandy and Williams, 1994; Johnson and Podsakoff, 1994; Knight, Hult, and Bashaw, 2000).

However, with regard to this field in particular, we have found two relevant biases; on the one hand, citation indexes have led to a surfeit of articles with a larger financial component, giving priority to those of an informative nature to the detriment of those that are more theory-based. On the other hand, it is natural for older articles to have received more citations than recent publications and thus the

influence of more up-to-date studies cannot be demonstrated by using citation counts, although there are a few exceptions, such as the case of Shane and Venkataraman (2000).

Articles published between 1945 and 2005, in journals appearing in the ISI under the categories of "business", "management" or "economics" were chosen. If they appeared before 1991, they had to have received at least five citations according to the database of the Social Science Citation Index (SSCI), which provided an initial sample of 2,564 articles. In turn, these articles contained 102,331 citations pertaining to a total 61,336 different documents.

Table 2 lists articles from the initial sample published in academic journals and placed in order of decreasing number of citations received according to the database of the Social Science Citation Index. These are all ISI articles cited in ISI journals. It is, in our opinion, an endogeneus selection from an extremely limited sample and consequently is not representative of the population of documents that form the basis of research.

The fifty most frequently cited articles from the sample are shown, taken from the SSCI database between 1945 and 2005. In this listing, the time lapse between the publication of an article and the first citations can be clearly seen. Moreover, the older articles have had more exposure to new generations of authors and thus are more likely to receive a greater number of citations. This makes it appropriate to subdivide the citation according to when they were published.

Table 2. 50 Most frequently cited articles from the initial sample of the SSCI database

Order	Citations	Article
1	274	Uzzi, B. 1997. Social structure and competition in interfirm networks: the paradox of embeddedness. *Administrative Science Quarterly,* 42 (1): 35–67 Mar.
2	225	Petersen, M.A. & Rajan, R.G. 1994. The benefits of lending relationships – evidence from small business data. *Journal of Finance*, 49 (1): 3–37 Mar.
3	209	Deshpande, R., Farley, J.U. & Webster, F.E. 1993. Corporate culture, customer orientation, and innovativeness in japanese firms – a quadrad analysis. *Journal of Marketing,* 57 (1): 23–27 Jan.
4	206	Evans, D.S. & Jovanovic, B. 1989. An estimated model of entrepreneurial choice under liquidity constraints. *Journal of Political Economy,* 97 (4): 808–827 Aug.
5	185	Brickley, J.A. & Dark, F.H. 1987. The choice of organizational form – the case of franchising. *Journal of Financial Economics,* 18 (2): 401–420 Jun.
6	165	King, R.G. & Levine, R. 1993. Finance, entrepreneurship, and growth – theory and evidence. *Journal of Monetary Economics,* 32 (3): 513–542 Dec.
7	156	Treadway, A.B. 1969. Rational entrepreneurial behaviour and demand for investment. *Review of Economic Studies*, 36 (2): 227–239.
8	155	Nee, V. 1992. Organizational dynamics of market transition – hybrid forms, property-rights, and mixed economy in china. *Administrative Science Quarterly*, 37 (1): 1–27 Mar.
9	148	Miller, D. 1983. The correlates of entrepreneurship in 3 types of firms. *Management Science*, 29 (7): 770–791.

(*Continued*)

Order	Citations	Article
10	136	Miller, D. & Friesen, P.H. 1982. Innovation in conservative and entrepreneurial firms – 2 models of strategic momentum. *Strategic Management Journal*, 3 (1): 125.
11	135	Lafontaine, F. 1992. Agency theory and franchising – some empirical results. *Rand Journal of Economics*, 23 (2): 263283 sum.
12	133	Eisenhardt, K.M. & Schoonhoven, C.B. 1996. Resource-based view of strategic alliance formation: strategic and social effects in entrepreneurial firms. *Organization Science*, 7 (2): 136–150 Mar–Apr.
13	124	Aghion, P. & Bolton, P. 1992. An incomplete contracts approach to financial contracting. *Review of Economic Studies*, 59 (3): 473–494 Jul.
14	123	Banerjee, A.V. & Newman, A.F. 1993. Occupational choice and the process of development. *Journal of Political Economy*, 101 (2): 274–298 Apr.
15	122	Shane, S.A. & Venkataraman, S. 2000. The promise of entrepreneurship as a field of research. *Academy of Management Review*, 25 (1): 217–226 Jan.
16	116	Mintzberg, H. & Waters, J.A. 1982. Tracking strategy in an entrepreneurial firm. *Academy of Management Journal*, 25 (3): 465–499.
17	115	Baumol, W.J. 1990. Entrepreneurship – productive, unproductive, and destructive. *Journal of Political Economy*, 98 (5): 893–921 part 1 Oct.
18	114	Gartner, W.B. 1985. A conceptual-framework for describing the phenomenon of new venture creation. *Academy of Management Review*, 10 (4): 696–706.
19	114	Kihlstrom, R.E. & Laffont, J.J. 1979. General equilibrium entrepreneurial theory of firm formation based on risk aversion. *Journal of Political Economy*, 87 (4): 719–748.
20	112	Petersen, M.A. & Rajan, R.G. 1995. The effect of credit market competition on lending relationships. *Quarterly Journal of Economics*, 110 (2): 407–443 May.
21	110	Caves, R.E. & Murphy, W.F. 1976. Franchising – firms, markets, and intangible assets. *Southern Economic Journal*, 42 (4): 572–586.
22	109	Blanchflower, D.G. & Oswald, A.J. 1998. What makes an entrepreneur? *Journal of Labor Economics*, 16 (1): 26–60 Jan..
23	108	Burgelman, R.A. 1983. Corporate entrepreneurship and strategic management – insights from a process study. *Management Science*, 29 (12): 1349–1364.
24	101	Carland, J.W., Hoy F., Boulton, W.R., et al. 1984. Differentiating entrepreneurs from small business owners – a conceptualization. *Academy of Management Review,* 9 (2): 354–359.
25	101	Hart, O. & Moore, J. 1994. A theory of debt based on the inalienability of human-capital. *Quarterly Journal of Economics*, 109 (4): 841–879 Nov.
26	100	Brockhaus, R.H. 1980. Risk-taking propensity of entrepreneurs. *Academy of Management Journal*, 23 (3): 509–520.
27	99	Bates, T. 1990. Entrepreneur human-capital inputs and small business longevity. *Review of Economics and Statistics*, 72 (4): 551–559 Nov.

(*Continued*)

Order	Citations	Article
28	96	Holtzeakin, D., Joulfaian, D., & Rosen, H.S. 1994. Sticking it out – entrepreneurial survival and liquidity constraints. *Journal of Political Economy*, 102 (1): 53–75 Feb.
29	94	Norton, S.W. 1988. An empirical look at franchising as an organizational form. *Journal of Business*, 61 (2): 197–218 Apr.
30	91	Dewatripont, M. & Maskin, E. 1995. Credit and efficiency in centralized and decentralized economies. *Review of Economic Studies*, 62 (4): 541–555 Oct.
31	89	Millson, M.R., Raj, S.P. & Wilemon, D. 1992. A survey of major approaches for accelerating new product development. *Journal of Product Innovation Management,* 9 (1): 53–69 Mar
32	83	Stuart, T.E., Hoang, H. & Hybels, R.C. 1999. Interorganizational endorsements and the performance of entrepreneurial ventures. *Administrative Science Quarterly*, 44 (2): 315–349 Jun.
33	82	Fiol, C.M. 1994. Consensus, diversity, and learning in organizations. *Organization Science*, 5 (3): 403–420 Aug.
34	82	Gersick, C.J.G. 1994. Pacing strategic change – the case of a new venture. *Academy of Management Journal*, 37 (1): 9–45 Feb.
35	82	Sandberg, W.R. & Hofer, C.W. 1987. Improving new venture performance – the role of strategy, industry structure, and the entrepreneur. *Journal of Business Venturing*, 2 (1): 5–28 win.
36	82	Vandeven, A.H., Hudson, R. & Schroeder, D.M. 1984. Designing new business startups – entrepreneurial, organizational, and ecological considerations. *Journal of Management*, 10 (1): 87–107.
37	77	Oviatt, B.M. & McDougall, P.P. 1994. Toward a theory of international new ventures. *Journal of International Business Studies*, 25 (1): 45–64.
38	75	Busenitz, L.W. & Barney, J.B. 1997. Differences between entrepreneurs and managers in large organizations: biases and heuristics in strategic decision-making. *Journal of Business Venturing*, 12 (1): 9–30 Jan.
39	74	Holtzeakin, D., Joulfaian, D., & Rosen, H.S. 1994. Entrepreneurial decisions and liquidity constraints. Rand *Journal of Economics*, 25 (2): 334–347 sum.
40	73	Cooper, A.C., Woo, C.Y. & Dunkelberg, W.C. 1988. Entrepreneurs perceived chances for success. *Journal of Business Venturing*, 3 (2): 97–108 spr.
41	72	Begley, T.M. & Boyd, D.P. 1987. Psychological characteristics associated with performance in entrepreneurial firms and smaller businesses. *Journal of Business Venturing*, 2 (1): 79–93 win.
42	72	Peterson, R.A. & Berger, D.G. 1971. Entrepreneurship in organizations – evidence from popular music industry. *Administrative Science Quarterly*, 16 (1): 97–107.
43	70	Jacobson, R. 1992. The austrian school of strategy. *Academy of Management Review*, 17 (4): 782–807 Oct.
44	68	Stevenson, H.H. & Jarillo, J.C. 1990. A paradigm of entrepreneurship – entrepreneurial management. *Strategic Management Journal,* 11: 17–27 sp. iss. si sum.

(*Continued*)

Order	Citations	Article
45	67	Cooper, R.G. & Kleinschmidt, E.J. 1995. Benchmarking the firms critical success factors in new product development. *Journal of Product Innovation Management*, 12 (5): 374-391 nov.
46	66	Kalleberg, A.L. & Leicht, K.T. 1991. Gender and organizational performance – determinants of small business survival and success. *Academy of Management Journal*, 34 (1): 136–161 Mar.
47	66	Straub, D., Limayem, M., & Karahannaevaristo, E. 1995. Measuring system usage – implications for is theory testing. *Management Science*, 41 (8): 1328–1342 Aug.
48	64	Baumol, W.J. 1968. Entrepreneurship in economic theory. *American Economic Review*, 58 (2): 64–71.
49	64	Rao, C.H.H. 1971. Uncertainty, entrepreneurship, and sharecropping in india. *Journal of Political Economy*, 79 (3): 578–595.
50	63	Black, B.S. & Gilson, R.J. 1998. Venture capital and the structure of capital markets: banks versus stock markets. *Journal of Financial Economics*, 47 (3): 243–277 Mar.

The disparity in the amount of citations received by the articles in Tables 2 and 3 clearly reflects the greater exposure time enjoyed by the articles from the second period. The time lapse between the appearance of an article and the receipt of citations is also relevant, especially if only citations in ISI journals are included in the count, where time scales for revision, acceptance and publication tend to be extensive. However, as a reflection of these differences, we decided to focus our attention on the more recent articles.

Table 3. 25 Most frequently cited articles from the period 2000–2005 from the SSCI database

Order	Citations	Articles published between 2000 and 2005
1	122	Shane, S.A. & Venkataraman, S. 2000. The promise of entrepreneurship as a field of research. *Academy of Management Review*, 25 (1): 217–226 Jan.
2	52	Shane, S.A. 2000. Prior knowledge and the discovery of entrepreneurial opportunities. *Organization Science*, 11 (4): 448–469 Jul–Aug.
3	45	Amit R. & Zott, C. 2001. Value creation in e-business. *Strategic Management Journal*, 22 (6–7): 493–520 Jun–Jul.
4	45	Autio, E., Sapienza, H.J. & Almeida, J.G. 2000. Effects of age at entry, knowledge intensity, and imitability on international growth. *Academy of Management Journal*, 43 (5): 909–924 Oct.
5	36	Heaton, J. & Lucas, D. 2000. Portfolio choice and asset prices: the importance of entrepreneurial risk. *Journal of Finance*, 55 (3): 1163–1198 Jun.
6	30	Hamilton, B.H. 2000. Does entrepreneurship pay? an empirical analysis of the returns to self-employment. *Journal of Political Economy*, 108 (3): 604–631 Jun.
7	29	McDougall, P.P. & Oviatt, B.M. 2000. International entrepreneurship: the intersection of two research paths. *Academy of Management Journal,* 43 (5): 902–906 Oct.

(*Continued*)

Order	Citations	Articles published between 2000 and 2005
8	27	Guillen, M.F. 2000. Business groups in emerging economies: a resource-based view. *Academy of Management Journal,* 43 (3): 362–380 Jun.
9	26	Petersen, M.A. & Rajan, R.G. 2002. Does distance still matter? the information revolution in small business lending. *Journal of Finance*, 57 (6): 2533–2570 Dec.
10	26	Miner, A.S., Bassoff, P. & Moorman, C. 2001. Organizational improvisation and learning: a field study. *Administrative Science Quarterly*, 46 (2): 304–337 Jun.
11	26	Chandy, R.K. & Tellis, G.J. 2000. The incumbent's curse? incumbency, size, and radical product innovation. *Journal of Marketing*, 64 (3): 1–17 Jul.
12	23	Lu, J.W. & Beamish, P.W. 2001. The internationalization and performance of smes. *Strategic Management Journal*, 22 (6–7): 565–586 Jun–Jul.
13	23	Stein, J.C. 2002. Information production and capital allocation: decentralized versus hierarchical firms. *Journal of Finance*, 57 (5): 1891–1921 Oct.
14	22	Ahuja, G. & Lampert, C.M. 2001. Entrepreneurship in the large corporation: a longitudinal study of how established firms create breakthrough inventions. *Strategic Management Journal,* 22 (6–7): 521–543 Jun–Jul.
15	21	Wallsten, S.J. 2000. The effects of government-industry r&d programs on private r&d: the case of the small business innovation research program. Rand Journal of Economics, 31 (1): 82–100 spr.
16	21	Etzkowitz, H., Webster A., Gebhardt C., et al. 2000. The future of the university and the university of the future: evolution of ivory tower to entrepreneurial paradigm. *Research Policy*, 29 (2): 313–330 Feb.
17	21	Simon, M., Houghton, S.M. & Aquino, K. 2000. Cognitive, biases, risk perception and venture formation: how individuals decide to start companies. *Journal of Business Venturing*, 15 (2): 113–134 Mar.
18	20	Friedman, E., Johnson, S., Kaufmann, D., et al. 2000. Dodging the grabbing hand: the determinants of unofficial activity in 69 countries. *Journal of Public Economics*, 76 (3): 459–493 Jun.
19	20	Casper, S. 2000. Institutional adaptiveness, technology policy, and the diffusion of new business models: the case of german biotechnology. *Organization Studies*, 21 (5): 887–914.
20	20	Hult, G.T.M. & Ketchen, D.J. 2001. Does market orientation matter?: a test of the relationship between positional advantage and performance. *Strategic Management Journal,* 22 (9): 899–906 Sep.
21	20	Shane, S.A. & Cable, D.M. 2002. Network ties, reputation, and the financing of new ventures. *Management Science*, 48 (3): 364–381 Mar.
22	19	Johnson, S., McMillan, J. & Woodruff, C. 2002. Courts and relational contracts. *Journal of Law Economics & Organization*, 18 (1): 221–277 Apr.
23	19	Rothaermel, F.T. 2001. Incumbent's advantage through exploiting complementary assets via interfirm cooperation. *Strategic Management Journal,* 22 (6–7): 687–699 Jun–Jul.

(*Continued*)

Order	Citations	Articles published between 2000 and 2005
24	19	Thursby, J.G. & Thursby, M.C. 2002. Who is selling the ivory tower? sources of growth in university licensing. *Management Science*, 48 (1): 90–104 Jan.
25	19	Berger, A.N., Klapper, L.F. & Udell, G.F. 2001. The ability of banks to lend to informationally opaque small businesses. *Journal of Banking & Finance*, 25 (12): 2127–2167 Dec.

In the following tables, we will see the citations, received by any type of document, out of the 61,336 quoted by the articles from our initial sample. In practice, this methodology incorporates published articles in journals that are not included in the ISI databases and also includes books and reference material. In fact, 27 of the 50 most frequently cited documents are indeed books, and articles published in journals that do not appear in the ISI can also be found, despite the fact that the initial sample is made up of ISI articles.

Table 4 very clearly shows the origin of the theoretical antecedents of the field of entrepreneurship.

Table 4. 50 Most frequently cited documents in the 200 most frequently cited articles in the SSCI

Order	Document	Citations
1	Schumpeter, J.A. 1934. The theory of economic development: an inquiry into profits, capital, credit, interest, and the business cycle. Harvard University Press, Cambridge, MA.	31
2	Porter, M.E. 1980 Competitive Strategy. The Free Press, New York.	25
3	McClelland, D.C. 1961 The Achieving Society. The Free Press, New York.	22
4	Penrose, E.T. 1959. The Theory of growth of the firm. John Wiley and Sons, New York.	17
5	Miller, D. 1983. The correlates of entrepreneurship in 3 types of firms. *Management Science*, 29 (7): 770–791.	17
6	Vesper, K.H. 1990. New venture strategies. Prentice-Hall, Englewood Cliffs, NJ.	17
7	Williamson, O.E. 1975 Markets and Hierarchies: Analysis and Antitrust Implications. The Free Press, New York.	15
8	Schumpeter, J.A. 1942. Capitalism, Socialism, and Democracy. Harper, New York.	15
9	Nunnally, J.C. 1978. Psychometric Theory. McGraw-Hill, New York.	15
10	Kirzner, I.M. 1973. Competition and Entrepreneurship. University of Chicago Press, Chicago.	15
11	Lawrence, P.R. & Lorsch, J. 1967. Organization and Environment: Managing Differentiation and Integration. Irwin, Homewood, IL.	15
12	Brockhaus, R.H. 1982. The Psycology of the entrepreneur, in Sexton & Smilor & Vesper "The Encyclopedia of Entrepreneurship" Prentice Hall, Englewood Cliffs, NJ.	14
13	Peters, T.J. & Waterman, R.H. 1982. In Search of Excellence. Harper & Row, New York.	13
14	Weick, K.E. 1969. The Social Psycology of Organizing. Addison-Wesley, Reading, Mass.	13

(*Continued*)

Order	Document	Citations
15	Burgelman, R.A. 1983. A Process Model of Internal Corporate Venturing in the Diversified Major Firm. *Administrative Science Quarterly,* 28 (2): 223–244.	13
16	Begley, T.M. & Boyd, D.P. 1987. Psychological characteristics associated with performance in entrepreneurial firms and smaller businesses. *Journal of Business Venturing*, 2 (1): 79–93.	13
17	Low, M.B.& MacMillan, I.C. 1988. Entrepreneurship: Past research and future challenges. *Journal of Management*, 14 (2): 139–161.	13
18	Stinchcombe, A.L. 1965. Social Structure and Organizations. In: J.G. March (ed) "Handbook of Organizations"	13
19	Chandler, A.D. 1962. Strategy and Structure: Chapters in the History of the Industrial Enterprise. MIT Press, Cambridge, Mass.	13
20	Collins, O.F. & Moore, D.G. 1964. The Enterprising Man. Michigan State University Press, Michigan.	13
21	Rubin, P.H. 1978. The Theory of the Firm and the Structure of the Franchise Contract. *Journal of Law and Economics*, 21(1): 223–233.	13
22	Hannan, M. T. & J. H. Freeman. 1984. Structural inertia and organizational change. *American Sociological Review* 49(2):149–64.	12
23	Nelson, R. & Winter, S. 1982. An Evolutionary Theory of Economic Change. Harvard University Press, Cambridge, MA.	12
24	Cyert, R.M. & March, J.G. 1963 A Behavioral Theory of the Firm. Prentice Hall, Englewood Cliffs, NJ.	12
25	Covin. J.G. & Slevin, D.P. 1989. Strategic Management of Small Firms in Hostile and Benign Environments. Strategic Management Journal, 10(1): 75–87.	12
26	Mathewson, G.F. & Winter, R.A. 1985. The Economics of Franchise Contracts Journal of Law and Economics, 28(3):503–526.	12
27	Drucker, P. 1985. Innovation and entrepreneurship: practice and principles. Heinemann, London.	12
28	Sandberg, W.R. & Hofer, C.W. 1987. Improving new venture performance – the role of strategy, industry structure, and the entrepreneur. *Journal of Business Venturing*, 2 (1): 5–28.	11
29	Kanter, R. M. 1983. The Change Masters: Corporate Entrepreneurs at Work. Simon & Schuster, New York.	11
30	Mintzberg, H. 1979. Structuring of organizations: a synthesis of the research. Prentice Hall, Englewood Cliffs, NJ.	11
31	Miller, D. & Friesen, P.H. 1982. Innovation in Conservative and Entrepreneurial Firms – 2 Models of Strategic Momentum. *Strategic Management Journal*, 3 (1): 1–25.	11
32	Hornaday, J.A. & Aboud, J. 1971. Characteristics of Successful Entrepreneurs. *Personnel Psycology*, 24(2): 141–153.	11
33	Knight, F.H. 1921. Risk, Uncertainty and Profit. Hougthon Mifflin, New York.	11
34	Diamond, D. 1984. Financial intermediation and delegated monitoring, *Review of Economic Studies,* 51, 393–414.	11
35	Burgelman, R.A. 1983. Corporate entrepreneurship and strategic management – insights from a process study. *Management Science*, 29 (12): 1349–1364.	11
36	Williamson, O.E. 1985. The Economic Institutions of Capitalism. The Free Press, New York.	11

(*Continued*)

Order	Document	Citations
37	Pfeffer, J. &; Salancik, G.R. 1978. The External Control of Organizations: A Resource Dependence Perspective. Harper and Row, New York.	10
38	Pinchot, G. 1985. Intrapreneuring. Harper and Row, New York.	10
39	Evans, D. & Leighton, L. 1989. Some empirical aspects of entrepreneurship. *American Economic Review*. 79(3): 519–535.	10
40	Porter, M.E. 1985. Competitive Advantage. The Free Press, New York.	10
41	Hannan, M.T. & Freeman, J. 1977. The Population Ecology of Organizations. *American Journal of Sociology*, 82: 929,964.	10
42	Smith, N.R. 1967. The Entrepreneur and his Firm. Michigan State University Press, Michigan.	10
43	Caves, R.E. & Murphy, W.F. 1976. Franchising – firms, markets, and intangible assets. *Southern Economic Journal*, 42 (4): 572–586.	10
44	Child, J. 1972. Organization Structure, Environment. and Performance: The Role of Strategic Choice, *Sociology*, 6: 1–22.	10
45	Aldrich, H.E. & Zimmer, C. 1986. Entrepreneurship through Social Networks. in Sexton D.; Smilor, R.W.(eds) The Art and Science of Entrepreneurship. Ballinger, New York.	10
46	Brickley, J.A. & Dark, F.H. 1987. The choice of organizational form - the case of franchising. *Journal of Financial Economics,* 18 (2): 401–420.	10
47	MacMillan,I.C. & Day,D. 1987.Corporate ventures into industrial markets: Dynamics of aggressive entry. *Journal of Business Venturing,* 2(1): 29–39.	10
48	Guth, W.D. & Ginsberg, A. 1990. Guest Editors' Introduction: Corporate Entrepreneurship. *Strategic Management Journal*, 11(5): 5–15	10
49	Burns, L.R. & Stalker, G.M.1961. The Management of Innovation. Oxford University Press, Oxford	10
50	Stiglitz, JE, & Weiss,A. 1981. Credit rationing in markets with imperfect information, *American Economic Review,* 71: 393–410.	10

Table 5. 25 Most frequently cited documents in the 100 most frequently cited ISI (2000–2005) articles in the SSCI

Order	Document	Citations
1	Schumpeter, J.A. 1934. The theory of economic development: an inquiry into profits, capital, credit, interest, and the business cycle. Harvard University Press, Cambridge, MA.	19
2	Barney, J.B. 1991. Firm resources and sustained competitive advantage. *Journal of Management*, 17(1): 99–120.	16
3	Venkataraman, S. 1997. The distinctive domain of entrepreneurship research: An editor's perspective, en: Katz, J. & Brockhaus (eds) "Advances in entrepreneurship, firm emergence, and growth, Vol. 3, p. 119–138, Greenwich, CT: JAI Press.	12
4	Schumpeter, J.A. 1942. Capitalism, Socialism, and Democracy. Harper, New York.	11
5	Burt, R.S. 1992. Structural Holes: The Social Structure of Competition. Harvard University Press, Cambridge, MA.	11

(*Continued*)

Order	Document	Citations
6	Busenitz, L.W. & Barney, J.B. 1997. Differences between entrepreneurs and managers in large organizations: Biases and heuristics in strategic decision-making. *Journal of Business Venturing*, 12(1): 9–30.	10
7	Nelson, R. & Winter, S. 1982. An Evolutionary Theory of Economic Change. Harvard University Press, Cambridge, MA.	10
8	Stinchcombe, A.L. 1965. Social Structure and Organizations. In: J.G. March (ed) "Handbook of Organizations"	10
9	Shane, S.A. & Venkataraman, S. 2000. The promise of entrepreneurship as a field of research. *Academy of Management Review*, 25(1): 217–226.	10
10	Gompers, P.A. & Lerner, J. 1999. The Venture Capital Cycle. MIT Press, Cambridge.	10
11	Lumpkin, GT, & Dess, GG 1996. Clarifying the entrepreneurial orientation construct and linking it to performance. *Academy of Management Review,* 21(1): 135–172.	10
12	Aldrich, H.E. & Zimmer, C. 1986. Entrepreneurship through Social Networks. in Sexton D.; Smilor, R.W.(eds) The Art and Science of Entrepreneurship. Ballinger, New York.	9
13	Evans, D. & Leighton, L. 1989. Some empirical aspects of entrepreneurship. *American Economic Review*. 79(3): 519–535.	9
14	Low, M.B. & MacMillan, I.C. 1988. Entrepreneurship: Past research and future challenges. *Journal of Management*, 14 (2): 139–161.	9
15	Gartner, W.B. 1988. Who is an entrepreneur? Is the Wrong Question . *American Journal of Small Business,* 12(4): 11–22	9
16	Aldrich, H.E. 1999. Organizations evolving. Sage, Thousand Oaks, CA.	9
17	Shaver, K.G. & Scott, L.R. 1991. Person, process, choice: the psychology of new venture creation. *Entrepreneurship Theory and Practice,* 16(2): 23–45.	8
18	Kirzner, I.M. 1973. Competition and Entrepreneurship. University of Chicago Press, Chicago.	8
19	Petersen, M.A. & Rajan, R.G. 1994. The benefits of lending relationships – evidence from small business data. *Journal of Finance*, 49 (1): 3–37.	8
20	Zucker, L.G., Darby M.R. & Brewer M.B. 1998. Intellectual Human Capital and the Birth of US Biotechnology Enterprises. *American Economic Review* 88(1): 290–306.	8
21	Cohen, W.M. & Levinthal, D.A. 1990. Absorptive-Capacity – A New Perspective on Learning and Innovation. *Administrative Science Quarterly,* 35(1): 128–152.	7
22	Arrow, K. J. 1962. "Economic Welfare and the Allocation of Resources for Invention." In The Rate and Direction of Inventive Activity: Economic and Social Factors, National Bureau of Economic Research. Princeton University Press, Princeton.	7
23	Jaffe, A.; Trajtenberg, M. & Henderson, R. 1993. Geographic localization of knowledge spillovers as evidence by patent citations. *Quaterley Journal of Economics,* 108(3): 577–598.	7
24	Penrose, E.T. 1959. The Theory of growth of the firm. John Wiley and Sons, New York.	7
25	Petersen, M.A. & Rajan, R.G. 1995. The Effect of Credit Market Competition On Lending Relationships. *Quarterly Journal of Economics*, 110 (2): 407–443.	7

Table 5 shows the evolution of the underlying arguments that lend weight to research and thus to new theories on entrepreneurship. Despite maintaining a nucleus of references that are of a more stable nature than one would expect, they substitute, slowly but surely, the psychological analysis of individuals for, on the one hand, a focus on groups and teams, and on the other, moves towards placing attention on opportunities as an economic cause and effect of disequilibrium and on income for businesses. A methodological change can also be described, along with the attempt to develop a theoretical basis for the study of the business function.

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Brown, T.E., Davidsson, P. and Wiklund, J. (2001). An operationalization of Stevenson´s conceptualization of *entrepreneurship* as opportunity-based firm behaviour. *Strategic Management Journal, 22*, 953–968.

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Coviello, N.E. and Jones, M.V. (2004). Methodological sigues in international *entrepreneurship* research. *Journal of Business Venturing*, *19*, 485–508.

Eckhardt, J.T. and Shane, S.A. (2003). Opportunities and entrepreneurship. *Journal of Management, 29*, 333–349.

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Garfield, E. (1972). Citation analysis as a tool in journal evaluation. *Science, 178*, 471–479.

Garfield, E. (1979). Citation indexing-Its theory and application in science, technology, and humanities. New York: Wiley.

Hitt, M.A., Ireland, R.D., Camp, S.M. and Sexton, D.L. (2001). Guest editors´ introduction to the special issue strategic *entrepreneurship*: entrepreneurial strategies for wealth creation. *Strategic Management Journal*, *22*, 479–491.

Johnson, J.L. and Podsakoff, P.M. (1994). Journal influence in the field of management: An analysis using Salanciks index in a dependency network. *Academy of Management Journal, 37*, 1392–1408.

Kihlstrom, R.E. and Laffont, J.J. (1979). General equilibrium entrepreneurial theory of firm formation based on risk aversion. *Journal of Political Economy, 87*, 719–748.

Knight, F. (1921) *Risk, uncertainty and profit.* Boston, MA: Houghton Mifflin.

Lee, S.M. and Peterson, S.J. (2000). Culture, entrepreneurial orientation, and global competitiveness. *Journal of World Business, 35*, 401–416.

Leibenstein, H. (1979). Branch of economics is missing – Micro-Micro theory. *Journal of Economic Literature, 17*, 477–502.

Low, M.B. and Macmillan, I.C. (1988). Entrepreneurship: Past research and future challenges. *Journal of Management, 14*(2): 139–161.

McClelland, D.C. (1961). *The achieving society*. Princeton, NJ: Van Nostrand.

Miller, D. (1983). The correlates of *entrepreneurship* in three types of firms. *Management Science, 29,* 770–791.

Reynolds, P.D. (2005). Understanding business creation: Serendipity and scope in two decades of business creation studies. *Small Business Economics, 24*, 359–364.

Schumpeter, J.A. (1934). *The theory of economic development.* Cambridge: Harvard University Press.

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Shane, S.A. and Venkataraman, S. (2000). The promise of *entrepreneurship* as a field of research. *Academy of Management Review*, *25,* 217–226.

Stevenson, H.H. and Jarillo, J.C. (1990). A paradigm of *entrepreneurship* research: Entrepreneurial management. *Strategic Management Journal, 11,* 17–27.

Tushman, M.L. and Anderson, P. (1986). Technological discontinuities and organizational environments. *Administrative Science Quarterly, 31*, 439–465.

Part I

Concepts

Entrepreneurship as a Scientific Research Programme*

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Abstract

In this article *entrepreneurship as a scientific research programme* is developed and presented. In this relatively new field of study many different theories have emerged that try to explain the phenomenon of new enterprise or venture creation. After a brief treatment of the antecedents and historic development of entrepreneurship, the author discusses and suggests what should be the distinctive domain of entrepreneurship research. He then develops and presents the different paradigms or theoretical approaches that have emerged in this field. An attempt is made to classify the diverse theories based on the various theoretical approaches to the study of entrepreneurship. The aim of this paper is not only to delimit this broad field of study but also to offer a guide for future empirical research and theoretical developments.

Objective

The aim of this article is to develop *entrepreneurship as a scientific research programme.* This is a relatively new field of study which, however, goes back to the writings of some classical economists in the 18th and 19th centuries. Anyhow, to understand the present "state of the art" we deem it advisable to give an overview of its origins and evolution.

Therefore, we will start with a brief treatment of the antecedents and historic development, in which we distinguish 4 stages. These will help us to better understand both its gradual development and present state as well as its future development possibilities.

For reasons of space limitation, the three first stages will be treated very briefly, focussing more on the fourth or present stage.

We will then treat entrepreneurship research as a distinctive domain, one of the most controversial but highly important questions for academic legitimation, thereby suggesting what should be the distinctive domain of this field of study.

The central part of this article deals with the development of the different paradigms or theoretical approaches that have emerged in the field of entrepreneurship. Under the four theoretical approaches we will present the different theories that try to explain entrepreneurship from very different perspectives.

The article ends with some final considerations.

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Stages

First Stage: Defining the Entrepreneur

This stage, which starts with Cantillon's work, goes from 1775 until the end of the 19th century.

Its main features are:

1. The authors working in this field try to define **who an entrepreneur is** and **what he does, that is, what the function that he performs in the economic process is, the so called "entrepreneurial function"**.

The main economists who write on the subject are: Cantillon, Say, von Thünen, Mill, Hermann, von Mangoldt, Clark and Marshall to mention only the most outstanding.

Notice that in this list neither Adam Smith nor David Ricardo are mentioned, since for them the **entrepreneur** does not exist; they only know the capitalist.

For reasons that we will mention later, these economists never came to an agreement on the definition of the entrepreneur nor on the entrepreneurial function.

In the last decades much has been written to analyse and reproduce what the above mentioned economists wrote on the entrepreneur, without achieving clarity.

Some writings worth mentioning are:

- Zieschang, H.O. (1936): "Wandlung des Unternehmerbegriffs in the Wirtschaftstheorie", Doctoral dissertation, Universität Köln.
- Turin, G. (1948): "Der Begriff des Unternehmens", Doctoral Dissertation, Universität Zurich.
- Redlich, F. (1964): "The Unternehmer", Wirtschafts- und sozialgeschichliche Studien.
- Sanchez Gil (1969): "The nature and evolution of the entrepreneurial function"
- In Spain there have been several doctoral dissertations that have treated the subject as the central topic or obliquely (1).
- Hébert and Link (1982): "The entrepreneur".

As an example, we will quote Hébert & Link who have synthesized in twelve points, the ideas of the above mentioned economists on the entrepreneur's definition and function, i.e.:

1. The entrepreneur is the person who assumes the risk associated with uncertainty.
2. The entrepreneur is a supplier of financial capital.
3. The entrepreneur is an innovator.
4. The entrepreneur is a decision maker.
5. The entrepreneur is an industrial leader.
6. The entrepreneur is a manager or superintendent.

7. The entrepreneur is an organizer or coordinator of economic resources.
8. The entrepreneur is a proprietor of an enterprise.
9. The entrepreneur is an employer of factors of production.
10. The entrepreneur is a contractor.
11. The entrepreneur is an arbitrageur.
12. The entrepreneur is the person who allocates resources to alternative uses.

2. The lack of consensus on the entrepreneur's definition and function lies in the fact that the above mentioned authors, and the present ones who attempt to elaborate a definition of the entrepreneur still live in the framework of the **essentialist definitions** that try to identify through intuition "the" or "the most **essential**" characteristics of an object; and obviously each author considers differently what are **essential characteristics or** features. We will revert to this question later on.
3. In general, it can be affirmed that the main interest of the economists of this first stage was to define the entrepreneur and his function, to be able to explain the **entrepreneur's profit**, a kind of rent different from the three production factors (land, labour and capital), a fact that has been completely overlooked by the present scholars writing on the subject.

Second Stage: Historical Studies

From the twenties of the 20th century onwards, undoubtedly under Max Weber's influence, historical studies proliferate on enterprises, entrepreneurs and the entrepreneurial function, most of which were published under the title Harvard Studies in Business History and in the Journal of Business and Economic History.

The interest in the study of the entrepreneur as a factor of economic development from an historical perspective reached its highest point in 1958 with the foundation of the Research Center in Entrepreneurial History at Harvard University which under the leadership of Arthur H. Cole formed a group of historians, sociologists, and economists interested in entrepreneurship. In this group, besides Cole, worked Thomas C. Choran, Fritz Redlich, Alfred Chandler and Hugh Aikten.

Earlier, Cole (1942) had already indicated the main lines of what a scientific research programme on entrepreneurship from an historical perspective should be. According to this author, it should include:

- Biographies of entrepreneurs and the history of their enterprises.
- Analysis of different types of entrepreneurs.
- Studies of the leading entrepreneurs in each industrial sector.
- Studies of the entrepreneurial functions.
- Studies of the entrepreneurial functions in a certain epoch, for instance the entrepreneurial function in the decade of 1830–1840.

The main publication of the Research Center in Entrepreneurial History was the journal Explorations in Entrepreneurial History. Although other very interesting publications appeared outside this journal. One paradigmatic publication of the Harvard historical approach in this epoch is the study by Cochran of the effect of

cultural differences on the entrepreneurial behaviour in which he compared the United States with three Latin American countries (Mexico, Puerto Rico y Argentina).

Third stage: The Beginning of the Scientific Research Programme in the Field of Business Administration

In our opinion a scientific research programme does not begin with a publication by an author proposing a new approach or a new theory. It emerges when the following three circumstances jointly occur:

1st: A group of researchers, generally a small group, begin to take interest in a new field of study or a new approach.
2nd: This new group of researchers feels the need to exchange information on and discuss the results of their research, and decide to organize a conference or congress.
3rd: A new specialized journal is edited in which the results of the research in the new field and the papers presented in the conferences are published.

Therefore, we feel that we can trace the beginning of the third stage of the present research programme to 1949 and the end of this stage in 1979. In this period, this new scientific research programme is formed in its two initial lines of research: a) the study of small and medium sized enterprises, and b) the study of the entrepreneur and new firm formation.

The main milestones in this third stage are, in our opinion, the following:

Topic: Small and Medium-Sized Enterprises (SMEs)

1948: 1st. Biennial conference "Rencontres de St. Gall".
1956: 1st. Conference at the Colorado University, organized by the "National Council for Small Business", the predecessor of the ICSB (1977).
1963: Edition of the Journal of the Small Business Management.
1971: Publication of the "Bolton Report" (U.K.).
1975: Publication of the American Journal of Small Business.

Topic: Entrepreneur and New Venture Creation

1961: Publication of McClelland's book "The Achieving Society".
1964: Publication of Collins and Moore's book "The Enterprising Man".
1970: Organization of the first scientific congress on entrepreneurship at the University of Purdue (USA): 12 participants.
1974: Creation of the "Entrepreneurship" division in the Academy of Management, USA.
1975: Organization of the "International Symposium of Entrepreneurship and Enterprise Development", in Cincinnati: 230 participants from all over the world (2).

Fourth Stage: Consolidation and Explosion

The consolidation and explosion of this scientific research programme in its present configuration began in:
– 1979 with the publication of Birch's report "The Job Generation Process", which reported that in the 1969–1976 period 50% of the new jobs in the United States were created by new firms.

The discussion of the report in the U.S. Congress aroused great interest both in the political arena and in academia. Based on these revealing data the politicians of all ideologies "discover" the entrepreneur and the need to foster new enterprise formation. Scientific research in this field also receives a remarkable impulse.
Other important milestones in this stage are:

1981: Organization of the first "BABSON" conference on empirical research with the following edition of the famous "proceedings" titled "Frontiers of Entrepreneurship Research", published by Babson College
1985: Publication of the "Journal of Small Business Venturing".
1988: Publication of "Family Business Review".
1988: Publication of the journal "Entrepreneurship: Theory and Practice", formerly "American Journal of Small Business".
1989: Creation of the "EUROPEAN DOCTORAL PROGRAMME IN ENTREPRENEURSHIP AND SMALL BUSINESS MANAGEMENT" under the leadership of the Universitat Autònoma de Barcelona, a unique programme world-wide which is now organized jointly by the Universitat Autònoma de Barcelona and Växjö University and supported by14 European Universities within ECSB.
1989: Publication of the journal "Entrepreneurship and Regional Development"
1989: Publication of the journal "Small Business Economics".

Since 1989 the number of new journals in this field has increased considerably (3).

The Scope of the Scientific Research Programme: Some Methodological Questions

The focus and research domain of this new scientific research programme as well as its demarcation are recurrent issues in our field. Anyhow, despite the many authors that have treated this subject (Stevenson & Jarillo, 1990; Amit et al. 1993; Harrison & Leitch, 1996; Venkataraman, 1997; Shane & Venkataraman, 2000; Bruyat & Julian, 2000; Low, 2001; Aldrich & Martinez, 2001; Ucbasaran et al. 2001: Busenitz et al. 2003; Ireland et al. 2005) no satisfactory conclusion has been reached in our opinion. Therefore, in order to understand the importance of this issue and our proposal on the research domain we will start by briefly highlighting the main problems facing our discipline that we already treated elsewhere (Veciana, 2000), but which are still prevailing. They include:

1. Lack of respect or lack of academic legitimization.
2. The sterile debate on the definition of "entrepreneurship" (4).
3. Entrepreneurship research as a distinctive research domain.

Lack of Respect or Lack of Academic Legitimization

We agree with Low & MacMillan (1988) and Low (2001) that entrepreneurship as an academic field "receives much attention but little respect" (Low, 2001:18), despite the explosion of entrepreneurship courses and centres in the USA in the last years (Kuratko, 2005). However, we disagree with Low that the cause "lies in the nature of the phenomenon" (2001:18). We think that the causes lay in the two following problems.

The Sterile Debate on the Definition of Entrepreneurship

Again we coincide with Low's diagnosis ("My pet peeve about our field is the disproportionate unproductive time we spend trying to define entrepreneurship" (2001:18) but not with his reasoning ("If the issues are so many, and the range of disciplines so broad, how can we ever expect to come together as a field and produce a community of scholars with a coherent literature?, p. 19).

The problem with the definitions has deeper roots. In Western culture the habit of defining concepts is deep-rooted because there prevails the naive belief that concepts acquire their meaning by way of a *definition.*

As Hempel writes: "The injunction 'define your terms!' has the ring of a sound scientific maxim; indeed, it may seem that ideally, every term used in a scientific theory or in a given branch of science should be precisely defined. But that is logically impossible" (Hempel, 1966, p. 87).

This concern for, and usual practice in defining concepts goes back to the Greek philosophers Socrates, Plato and Aristotle, an approach that in the philosophy of science has been named *methodological essentialism*.

"It was natural, says Aristotle, that Socrates should search for the essence", i.e. for the virtue or rationale of a thing and of the real, the unchanging or essential meaning of the terms. "In this connection he became the first to raise the problem of universal definitions" (Metaphysics, 1078 b23 and b19).

A description of the essence of a thing the above mentioned philosophers called a "definition". Plato and many of his followers held the view that it is the task of pure knowledge or "science" to discover and describe the true nature of things, i.e. their hidden reality or essence (Popper, 1971, p. 31).

Essentialist definitions based on Plato's Theory of Forms or Ideas, also called real definitions, attempt to capture and express the essence of whatever one is trying to define. Therefore, when researchers today try to define "entrepreneurship", "strategy", etc. they are interested in and attempt to define or describe the "essence" of the concept, that is, the most *essential or important* characteristics or attributes of the defining concept.

However, as Sedlack/Stanley correctly maintain "scientists do not deal with real, essentialist definitions in their conceptual language" (1992, p. 28). They do

not do so because defining a concept ("entrepreneurship", "strategy", etc.) in essentialist terms is not only a fruitless endeavour but, what is more important, today in philosophy of science it is considered to be of no use.

It is a fruitless endeavour because writers trying to elaborate an essentialist definition will never come to an agreement on it.

Let us take a look at the authors in the field of entrepreneurship. They all have in common the fact that they are searching to get to "the heart" of entrepreneurship (Stevenson & Gumpert, 1985), "the force" of entrepreneurship (Bays, 1988) or "the spirit" of entrepreneurship (Abdnor, 1988), and try to capture its very distinctive features and its essence in a qualitative way (Steyaert, 1995).

Some authors focus their definition on such topics as the entrepreneurial firm (Carland, Hoy, Boulton & Carland, 1984), the entrepreneurial event (Gartner, 1985; Bird, 1989), entrepreneurial activities (Gartner, 1988; Bird, 1989), the entrepreneurial process (Gartner, 1985), the entrepreneurial phenomenon (Brockhaus, 1987) or the entrepreneurial behaviour (Bird, 1989).

For instance, Gartner (1990) found eight themes in the way scholars talk about entrepreneurship: the entrepreneurs, innovation, organization creation, creating value, profit or non-profit, growth, uniqueness, and owner-manager.

Kilby expressed the deplorable situation in an admirable way when he compared defining the entrepreneur to "hunting a Heffalump", the fiction animal from the Winnie-The-Pooh stories: the entrepreneur, like the Heffalump, has been hunted by many entrepreneurial researchers "using various trapping devices, but no one so far has succeeded in capturing him. All who claim to have caught sight of him report that he is enormous, but they disagree on his particularities" (1970, p. 1).

The funny thing is that most writers after having reviewed, discussed, criticized, and rejected the many definitions that have been proposed in the literature, cannot refrain from proposing a new one. For instance, Steyaert, after having reviewed and criticized in several pages (30–34) the definitions in existence, writes: "We shall try to 'capture' the core difference of entrepreneurship by stressing creativity as its essence" (Steyaert, 1995, p. 34).

From the viewpoint of philosophy of science, essentialist definitions are of no use. The leading authors in this field agree on this:

- "The development of thought since Aristotle could, I think, (affirms Popper, 1971, p. 9) be summed up by saying that every discipline, as long as it used the Aristotelian method of definition, has remained arrested in a state of empty verbiage and barren scholasticism, and that the degree to which the various sciences have been able to make any progress depended on the degree to which they have been able to get rid of this essentialist method".
- "We may now deal with some important misunderstandings concerning the nature and function of definition in science. The first is the belief that no inquiry should begin unless its object is defined" (Bunge, 2002:136–37).
- "Definitions must be rejected as a fundamental procedure for establishing meaning" (Chalmers, 1986, p. 78).

– "The concepts can only be precisely defined in the language of some theory and will be as precise as the theoretical or conceptual framework that they utilize is precise" (Chalmers 1986, p. 29).

This means that "in scientific inquiry, concept formation and theory formation must go hand in hand" (Hempel, 1966, p. 97). But Brazeal & Herbert (1999) still recently "argue for a more consistent definition of the process and the event of creativity, innovation, and change, in order to encourage consistent terminology among those contributing to the field" in their article "The Genesis of entrepreneurship".

Therefore, in scientific research, theory construction and especially the demarcation of its domain is the first step, not definitions (5).

Entrepreneurship Research as a Distinctive Domain

There seems to be consensus in academia that for entrepreneurship to acquire academic legitimacy it needs to carve out a distinctive domain. "It needs to have a conceptual framework that explains and predicts a set of empirical phenomena not explained by other fields" (Venkataraman, 1997, and Shane & Ventakaraman, 2000) As Shane and Venkatarman (2000:217) write "Researchers in other fields ask why entrepreneurship research is necessary if it does not explain and predict empirical phenomena beyond what is known from work in other fields" and add that perhaps the largest obstacle in creating a conceptual framework for the entrepreneurship field has been its definition (2000: 218). On the contrary, we believe that precisely the sterile debate of the definition of entrepreneurship has not at all contributed to the progress in this field, but to its discredit, as mentioned above.

To understand this problem and try to point out a way to its solution, it is perhaps advisable to look into the philosophy of science to see what the leading authors have written on science and theory formation.

Popper sees science as a set of hypotheses that are tentatively proposed with the aim of accurately describing or accounting for the behaviour of some aspect of the world or universe. Therefore, theories are construed as speculative and tentative conjectures or guesses freely created by the human intellect in an attempt to overcome problems encountered by previous theories and to give an adequate account of the behaviour of some aspects of the world or universe. But the tentative conjectures or hypothesis must be falsifiable. A hypothesis is falsifiable if there exists a logically possible observation statement or set of observation statements that are inconsistent with it, that is, which, if established as true, would falsify the hypothesis (Popper, 1981).

Lakatos explains theories as organized structures in his "Methodology of Scientific Research Programmes" (1974).

A Lakatosian research programme is a structure that provides guidance for future research in both a positive and a negative way. The central concept in a Lakatosian research programme or theory is its "hard core". The hard core of a scientific research programme is the main characteristic of a programme. It takes the form of some basic assumptions underlying the programme or some very

general theoretical hypotheses that form the basis from which the programme is to develop. This hard core must not be rejected or modified.

According to Kuhn the disorganized and diverse activity that precedes the formulation of a science eventually becomes structured and directed when a single *paradigm* becomes adhered to by the scientific community. A paradigm is made up of the general theoretical assumptions and laws and techniques and their applications that the members of a particular scientific community adopt. A mature science is governed by a single paradigm. The paradigm sets the standards for legitimate work within the science it governs. It co-ordinates and directs the "puzzle-solving" activity of the groups of normal scientists that work within it. The existence of a paradigm capable of supporting the normal science tradition is the characteristic that distinguishes science from non-science, according to Kuhn (1970).

Although there are differences in the approaches of these three leading authors in the field of philosophy of science, there is a common thread in relation to the beginning of or the construction of a theory, the central concept in a theory and what guides and governs science and research: a set of hypotheses (Popper), a "hard core" or basic assumptions (Lakatos) or a paradigm or general theoretical assumptions (Kuhn). Observe that none of them even mention the question of definitions.

Therefore, to overcome the problem of the lack of a theory of entrepreneurship or a theoretical framework for entrepreneurship research we must start by developing a set of falsifiable hypothesis, a "hard core" or a solid paradigm. A solid "hard core" is the starting point, the first step and a guarantee so as to foster, guide and govern fruitful research. In the natural science Newtonian mechanics, wave optics and classical electromagnetism all constituted paradigms and qualify as science (Chalmers, 1986, p. 91).

In the field of entrepreneurship and also in the broader field of business administration we also have good evidence that a solid "hard core" fosters and guides fruitful research. Let me just mention three examples: a) population ecology of organizations regarding births and deaths of firms (Hannan & Freeman, 1977); b) transaction cost economics (Williamson, 1975); and more recently the resource-based approach (Wernefelt, 1984). They all have stimulated much research to test their initial basic assumptions in their respective fields.

But to set up a "hard core", a clear idea of the field that the basic assumptions refer to, is necessary; that is, it is necessary to demarcate the domain of entrepreneurship and its object of inquiry.

In order to claim that entrepreneurship research as a field of study is different from other disciplines (management, marketing, finance, etc.) it should focus on, explain and predict a set of empirical phenomena not explained and predicted by other disciplines already in existence.

If we look at some recent proposals regarding entrepreneurship research as a scholarly field we find the main focus is the "pursuit of opportunities" (Stevenson & Jarillo, 1990:23), the "existence, discovery, and exploitation of opportunities" (Shane & Venkataraman, 2000, p. 219) or "the process of identifying, valuing and capturing opportunity" (Low, 2001:21).

We do not question that the discovery of opportunities is a central concept in entrepreneurship, but since management in general, business strategy and marketing in particular also deal with the discovery and exploitation of opportunities (think of the SWOT analysis for the formulation of the strategy that starts with the identification of **opportunities** and threats in the market). We do not think however, that this is a useful theme to demarcate the domain of entrepreneurship and distinguish it from other disciplines. The criticism by researchers in other fields questioning entrepreneurship as a distinctive and independent field of study has, therefore, some justification.

The same reasoning applies to those who propose "innovation", "creativity", "creating value", etc. instead of "opportunities" as the distinctive central concept of entrepreneurship.

Vesper called such situation the "snippets problem" (6).

What is or can be a distinctive domain of entrepreneurship research?

If we look at our fellow disciplines in the broad field of economics and business administration (theory of the firm, management, business strategy, marketing, finance, etc.) from a global perspective and try to insert and justify this new field of study, our argument is the following: the configuration and development of the field of business administration took place mainly in the fifties and sixties. In the postwar period, the big companies and multinationals appear in the economic scene. Due to this phenomenon and to the popularizing of Galbraith's thesis (1967) announcing the superiority of the big corporation, the era of the technostructure and the disappearance of the entrepreneur (7), research and teaching focused on the big corporation.

This focus on the large companies also mean that some fundamental elements of the economy were ignored, i.e.: a) the creation of new enterprises, b) the Small and Medium sized Enterprises (SMEs), and c) the family firms, that is the type of firms prior to the large firm, as shown in Fig. 2. This situation in academia has persisted up to now in the Schools of Business in the public universities in Spain as in most countries. It is as if in the School of Medicine there were no courses and specialties in Obstetrics, Gynaecology and Paediatrics.

Therefore, it seems obvious to us that if we want to claim and justify the existence of entrepreneurship research as a distinctive field of research that is understood and accepted as such by researchers in other fields, its distinctive domain should in our opinion be the three areas that are not the object of study by other disciplines in the field of business administration, as shown in Fig. 1, i.e.:

The **entrepreneurial function and creation of new firms** that may refer and be studied at different levels, as we will see later on.

Another sub-programme which is the continuation of the above one, is **management, growth, development, and problems of Small and Medium-sized Enterprises (SMEs)**.

The third sub-programme, which has emerged more recently, deals with **family firms**, their characteristics and specific problems (8).

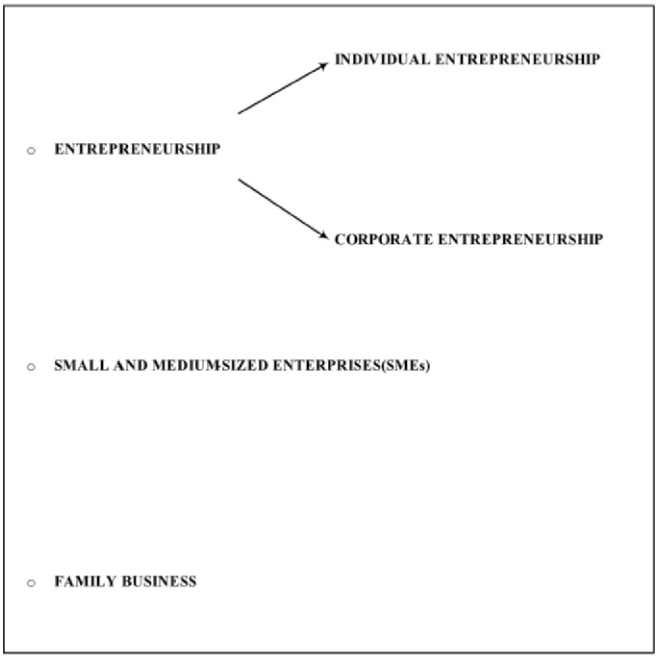
Regardless of the name that we may want to give to this new field of study, it is obvious that these above mentioned three sub-programmes are not covered by the disciplines that exist today in the public universities in Spain in the field of

Business Administration, and especially the first two play a decisive role in the entrepreneurial economy and society (9).

In the remainder of this article we will limit ourselves to and focus only on the first sub-programme, i.e. **the entrepreneur, entrepreneurial function and new firm formation**.

Theoretical Approaches to the Study of Entrepreneurship

This field of study is very broad. There is not one theory of entrepreneurship but many. If we analyse with some rigour the evolution and present state of the art of this scientific research programme we can identify a series of entrepreneurship theories that reflect very different theoretical approaches or paradigms. We can also distinguish three levels of analysis.



Source: Veciana (1998)

Fig. 1. Three closely related fields of study

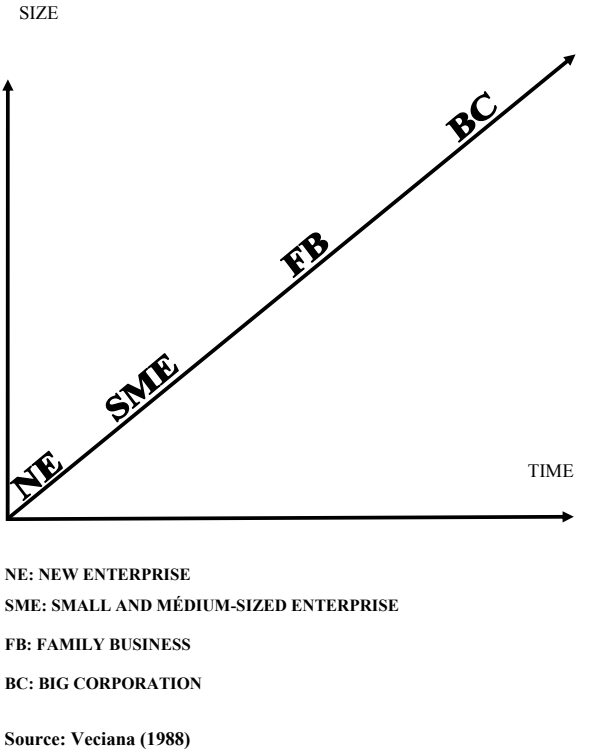


Fig. 2. Types of firms

In Fig. 3 we have synthesized the four main theoretical approaches and the three levels of analysis.

This effort to classify the different theories has the following reasons:

- First, it aims at offering an overview of this young but broad field of knowledge.
- To show that there are not only two approaches (traits approach and "opportunity" approach, as affirmed by some authors (Venkataraman, 1997 and Shane & Venkataraman, 2000).
- To clearly demarcate the different theoretical approaches as a contribution to the methodological debates on this field of study.
- To facilitate for the students in this field a guide that allows them to deepen in their study or in a specific theory.
- To supply the students that become interested in this field for the first time with information on the different theoretical frameworks that may help them in the design of empirical research.

APPROACHES / LEVEL OF ANALYSIS	ECONOMIC APPROACH	PSYCHOLOGICAL APPROACH	SOCIO-CULTURAL APPROACH	MANAGERIAL APPROACH
MICRO (Individual level)	• Entrepreneurial function as fourth factor of production. • Theory of the entrepreneurial profit. • Theory of occupational choice under uncertainty.	• Traits theory • Psychodynamic theory	• Margination theory • Role theory • Network theory	• Leibenstein's x-efficiency theory. • Behavioral theory of the entrepreneur. • Modes of new enterprise creation. • Modes to become an entrepreneur.
MESO (Corporate level)	• Transaction cost theory		• Network theory • Incubator's theory • Evolutionary theory	• Modes of new enterprise success and failure. • Corporate Entrepreneurship
MACRO (Global-country level)	• Schumpeter's theory of economic development. • Theory of the endogenous regional development.	• Kirzner's entrepreneur theory.	• Weber's theory of economic development. • Theory of social change • Population ecology theory • Institutional theory	

Source: Veciana (1995–1999)

Fig. 3. Theoretical approaches to the study of entrepreneurship

– According to our teaching experience on entrepreneurship at the doctoral level, even those students who have been working in this field for a while lack an overall view that helps them to place the different theories, authors and research in the appropriate approach and level.

Before starting to comment the different approaches and levels, two remarks. First, this Fig. 3 does not claim to be exhaustive, nor does it integrate all possible existing theories. It aims at presenting and classifying the most important ones. Second, the inclusion of a theory in one box or another it is not always easy; the decision will depend on the importance attributed to a certain aspect of it. Therefore, the Figure is presented as a didactic attempt and device to give the students guidance about the subject rather than as a definite classification. Both doctoral students and scholars working in this field have always found it very useful and stimulating.

In the remainder of this article we will comment the main theories that have been developed in the four approaches and three levels. The limits imposed by an article obliges us to a brief treatment of each theory, although its brevity will depend on its individual setting, level of general knowledge or future prospects.

Economic Approach

Micro Level

Entrepreneurial Function as Fourth Factor of Production

The entrepreneur's function has been proved for its importance as organizer of the production of goods or services. For some authors, for instance, Say the entrepreneur's function is fundamental for the economic activity. For this author "to be entrepreneur requires the combination of moral qualities that are not frequently found together". He writes on this respect:

"Outre la connaissance de son art, il lui faut du jugement, de la constance, une certaine connaissance des hommes. Il doit pouvoir apprécier avec quelque exactitude, l'importance de son produit, le besoin qu'on en aura, les moyens de production dont il pourra disposer. Il s'agit de mettre a l'oeuvre un grand nombre d'individus; il faut acheter, ou faire acheter, des matières premières, réunir des ouvriers, trouver des consommateurs. Il faut avoir une tête capable de calcul, capable d'estimer les frais de production et de les comparer avec la valeur éventuelle du produit. Dans le cours de toutes ces opérations, il y a des obstacles à surmonter, qui demandent une certaine énergie; il y a des inquétudes à supporter, qu demandent de la fermeté; des malheurs à réparer, pour lesquels il faut avoir de l'esprit de ressources. En fin le métier d'entrepreneur veut qu'on ait de l'invention, c'est-à-dire, le talent d'imaginer tour à la fois les meilleures spéculations et les meilleurs moyens de les réaliser.

Or, la réunion de toutes ces qualités est moins commune que la réunion de celles qui sont nécessaires à un homme pour suivre servilement les ordres qui lui sont donnés." (p. 133).

For other authors, the tasks performed by the entrepreneur are equivalent to those of a manager that some authors like Mill and Marshall called "superintendent" or business men. Marshall writes on this respect:

"But in the greater part of the business of the modern world the task of so directing production that a given effort may be most effective in supplying human wants has to be broken up and given in to the hands of a specialized body of employers, or to use a more general term, of business men. They "adventure" or "undertake" its risks; they bring together the capital and the labour required for the work; they arrange or "engineer" its general plan, and superintend its minor details. Looking at business men from one point of view we may regard them as highly skilled industrial grade, from another as middlemen intervening between the manual worker and the consumer." (p. 244).

The above mentioned entrepreneur's functions consisting mainly of: a) to decide what product to produce to satisfy human needs; b) to decide on and acquire the necessary means of production (material means, capital and labour); c) to establish the general production plan or to decide on the optimal combination of the production factors; d) to manage the whole production and marketing process; e) to undertake the risks associated with this process, etc. have been considered since Marshall as the fourth production factor, together with land, capital and labour, and now also as a factor of competitiveness (Veciana, 1999:85).

Theory of the Entrepreneurial Profit

As already pointed out earlier, the main objective of the study of the entrepreneur's function by the economist during the XIX was to explain the entrepreneur's profit, a type of rent that was considered to be different from land's rent, capital interest and worker wage. This is considered as a **residual rent** that according to V. Mangoldt [1855: 81] includes: a) a risk premium, b) the entrepreneur's wage, and c) the entrepreneur's rent which is derived from the scarcity of persons with entrepreneurial capacity.

The entrepreneur's theory of profit that has enjoyed most followers is the one based on the entrepreneur's risk (Cantillon, H.V. Mangoldt, A. Weber, Knight, Kihlstrom & Laffont).

Theory of Occupational Choice Under Uncertainty

The theoretical models included under this theory try to explain why certain individuals choose to become entrepreneurs while others prefer an alternative occupation, for instance, paid employment. Lucas (1978) argued that individuals differ in terms of their innate ability and that most able choose, choose to become entrepreneurs.

On their part, Kihlstrom & Laffont (1979) following Knight's approach (1921) base their model on the assumption that individuals differ according to how risk averse they are. Based on the hypothesis that all individuals are equal in their ability to perform entrepreneurial as well as normal labor functions (p. 746) they develop a model that postulates that under a given wage rate individuals have the choice between operating a risky firm or working for a riskless wage. The less risk averse individuals become entrepreneurs, while the more risk averse work as laborers. The wage adjusts to the point where the supply of workers is equal to the entrepreneurial demand for labor.

Obviously, this model is based on a little realistic premise, that is that the decision to become an independent entrepreneur is made exclusively on the risk taking propensity/aversion and, specially, on the assumption that all people have the **same ability** to indistinctly act as entrepreneur or worker.

More recently Minniti & Bygrave (1999) have proposed a model to explain the decision to choose an entrepreneurial activity by comparing the subjective returns to becoming an entrepreneur with the subjective returns of performing any alternative income-producing activity. "Individuals become entrepreneurs if, and only if, their subjective relative return to entrepreneurship is positive" (p. 41) (10).

Meso Level

Transaction Cost Theory

Since the famous article by Coase "The Nature of the Firm" (1937), transaction cost theory tries to explain the creation of new firms on the basis of the transaction costs. The basic assumption is that the transaction costs determine both at an individual and corporate level which is the most appropiate governance structure: a) the creation of a new, own firm (hierarchical alternative), b) the sale of the new entrepreneurial idea or project (market option) or c) hybrid forms (networks or alliances). On the other hand, transaction costs also determine the degree of vertical integration of the new firm. The main concepts of this theory are: asset specificity, uncertainty and frequency of transactions.

Although the study of new firm formation based on transaction cost economics has been very limited so far, there exist some theoretical studies (Salas, 1990; Jimenez & Villasalero, 1999; Dew, Velamuri & Venkataraman, 2004). Dew et al. propose an entrepreneurial theory of the firm based on dispersed knowledge. According to these authors, "dispersion of knowledge and Knightian uncertainty lead economic agents to form heterogeneous expectations about an uncertain future. This heterogeneity is vital to the decision some agents make to create a structure of contracts we recognize as a firm" (p. 669).

There exist already some empirical investigations based on this theory. For instance, Picot et al. (1989) investigated a sample of new innovative firms based on transaction cost economics and showed that those new firms that analysed the transaction costs to decide whether or not to integrate certain activities/resources

in the firm performed better than those that did not consider these costs. Another important finding was that those firms that had been created by a heterogeneous funding team integrated by persons with a management background, knowledge of the industrial sector and of the market considered more the transaction costs than those created by only one entrepreneur with technical background.

Macro Level

Schumpeter's Theory of Economic Development

Without doubt the most prominent book is **Schumpeter's** one under the title: **"Theory of Economic Development"** (Theorie der wirschaftlichen Entwicklung") published first in 1912.

Although it is usual to find cited, Schumpeter's definition of the entrepreneur, this is not the most important contribution of this author. It should be noted that Schumpeter's concept of the entrepreneur is "sui generis", i.e. it is a construct, a Weberian ideal type of entrepreneur that Schumpeter uses to explain his theory of economic development.

For Schumpeter, "entrepreneur" is any person that "carves out new combinations of the factors of production" and, therefore, includes not only those "... **'independent'** businessmen in an exchange economy who are usually so designated, but all who actually fulfill the function by which we define the concept, even if they are 'dependent', employees of a company, like managers, members of boards directors, and so forth … "(Schumpeter, 1912: 74–75), and they cease to be an entrepreneur as soon as they have established their firm and begin to manage the business as a routine.

Schumpeter's important contribution lies in his explanation of economic development, a contribution that only recently has been adequately valued.

The creation of new firms as a factor of economic development depends, according to Shumpeter, on the entrepreneur's behaviour that carries out a new combination of the productive factors. This means a new production function. The opportunities for "new combinations" of factors of production result mainly from the technological change. Therefore the Schumpeterian model of new firm creation can be represented as shown in Fig. 4.

Recently, Shane's empirical research (1996) has corroborated the hypothesis of an existing positive relationship between the rate of technological change and new firms creation rate.

The rediscovery of the Schumpeterian approach has led to attempts to formulate his theory on the basis of the catastrophe theory (Ursprung, 1984) and of chaos theory (Bygrave, 1993) as well as to the development of the evolutionary theory, as we will see later on.

In general, we can say that the economic approach, despite being the prevailing one at the beginning of this field of study, is not the one that has attracted the

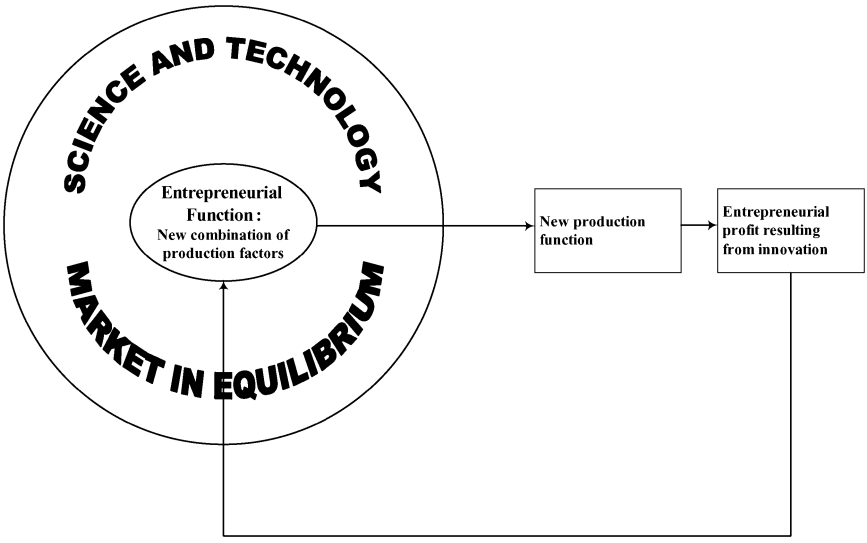


Fig. 4. Schumpeterian model of the entrepreneurial function

most attention. However, it is fair to point out that there have been some significant contributions, as is the case of Casson (1982) who develops the concept of the entrepreneur as the coordinator of the market activities and those by Baumol (1968 and 1993) explaining the difficulties and possibilities to develop an economic theory of entrepreneurship.

Anyhow, the situation is changing lately, as we will see in the next chapter.

Theory of Endogenous Regional Development

Theoretical developments on endogenous growth have received an important impulse in the last years.

Although Alfred Marshall (1980) already questioned the neoclassical assumption of economic growth, the theory of endogenous regional development started with Romer's growth model (1986). In this theory the central concept is the *spillover effect.* The models based on the *spillover effect* hypothesize that each new investment produces a dissemination effect outside the company making the investment. This knowledge spillover improves the productivity of the firms in a given industry and region that permits maintaining endogenous growth. This knowledge spillover derived from learning and experience comes from the different types of investment: physical capital, R&D, and human capital.

However, the first wave of endogenous growth models did not explain the processes that facilitate learning and the diffusion of knowledge nor the characteristics of the region or territorial unit that are relevant to produce the exchange of knowledge among the firms (Vázquez, 2002:90). It has also been argued that investment in R&D is not sufficient to explain the differences in economic development of the regions or countries. For instance, it has been observed that countries such as Japan and Sweden, with seemingly larger R&D stocks, grew slowly during the last decades, while other countries less endowed with knowledge such as Denmark and Ireland experience persistent and high growth rates.

The model developed by Acs et al. (2005) fills the gap in this field, and explains the importance of new enterprise formation. In knowledge society the new firms produce this spillover of scientific and technological knowledge. New firms are the most important mechanism that link the knowledge generated in the R&D departments of the big companies and universities to commercialization and economic growth. Research during the last years has evidenced that learning, diffusion of knowledge and therefore this spillover effect in a certain territory is facilitated by the following factors (Veciana, 2006): 1) human capital, 2) social mobility, 3) social networks and 4) entrepreneurship capital, this *entrepreneurship capital being* (the ability of individuals to start new firms, Audretsch & Keilbach, 2004) the central element in this theory. We will revert into this matter when dealing with institutional theory.

This is a field of study in progress that is not only being proved within the field of entrepreneurship (Venkataraman, 2004) but also and especially in economics and economic geography. The theoretical developments in the new economic geography (Krugman, 1991a, 1991b, 1994) and the above mentioned theory of endogenous growth have contributed to our understanding of spatial and territorial perspectives and economic growth. These theories have been tested by Audretsch & Fritsch (1994), Audretsch & Feldman (1996), and Anselin et al. (1997 and 2000). Several studies on the influence of regional characteristics on new firm formation rates were conducted in France, Germany, Ireland, Sweden, the U.K. and the U.S. and published in a special issue of the Regional Studies journal (1994, Vol. 28, no. 4). Armington and Acs studied the determinants of regional variation in new firm formation, and Scott (2006) proposes a geographic theory of the creative field to explain the influence of territorial factors on new firm formation.

Another interesting aspect is the power of spatial agglomeration in the production of knowledge (Jaffe et al. 1993 and Acs et al. 2002).

The lack of an economic theory of entrepreneurship has not been an obstacle to doing empirical research with the aim to determine the relationship between certain economic magnitudes or entry conditions and the rate of new firm creation (Orr, 1974; Deutsch, 1975; Hause & Du Rietz, 1984; Lafuente, 1986; Lafuente & Lecha, 1988; Acs et al. 1989; Audretsch & Acs, 1994; Audretsch, 1995) as well as on new firms' survival (Segarra & Callejón, 2002).

Psychological Approach

Micro Level

Traits Theory

This approach means a radical change compared to the economic approach from a methodological point of view. It was the prevailing approach in empirical research in the seventies and eighties. This approach does not mainly deal with theoretical lucubrations in the framework of the methodological essentialism about who an entrepreneur is and how to define him, but here research focuses on the entrepreneur as the "flesh and blood" person who creates an enterprise, that is research is based on what we have called "the empirical concept of entrepreneur" (Veciana, 1980). Its roots are in the above mentioned Collins and Moore's book (1964).

The "hard core", in Lakatos' terminology, of the psychological traits theory of the entrepreneur is formed of the following basic assumptions:

1st: The entrepreneur, that is, the person who decides to create a new enterprise has a different psychological profile from the rest of the population.

2nd: Successful entrepreneurs have a psychological profile different from the less successful ones.

Based on these assumptions, empirical research focused on determining which are the psychological traits or attributes that distinguish the entrepreneurs from nonentrepreneurs and the successful entrepreneurs from the less successful ones. The ultimate goal of this approach is to identify persons with an entrepreneurial profile or the successful entrepreneurs to be able to set up policies to foster entrepreneurship and the creation of new jobs.

The abundant empirical investigations have shown that the main psychological traits and motivations of the entrepreneur are the following (Veciana, 1989):

- Need of independence
- Need for achievement
- Internal locus of control
- Risk-taking propensity
- Unsatisfied or "marginated" person
- Intuition
- Tolerance of ambiguity

It should, however, be pointed out that the numerous empirical investigations have not always brought about consistent results on the psychological traits that define the entrepreneur. For this reason, both the psychological approach and the methodology and instruments used have been questioned. It has gone so far that some authors (for instance, Gartner, 1988) have proposed to give up the search for traits or attributes that discriminate the entrepreneurs from the non-entrepreneurs or that explain the success

of new enterprises. Despite this criticism there is overwhelming empirical evidence that confirms the above mentioned traits, especially the need for independence, need of achievement, internal locus of control and tolerance of ambiguity.

For whatever reasons, be it because the most common psychological traits of the entrepreneur are already known or because the traits theory of the entrepreneur can only supply a partial explanation of the phenomenon under study, the attention and interest of the research for this topic has diminished considerably in the last years, as we will see later. This does not mean, however, that the knowledge generated through these investigations is not interesting and useful. We should take into account that venture capitalist and, in general, when somebody has to evaluate new projects and business plans, the greatest importance is attributed to the factor "traits and characteristics" of the entrepreneur, besides other factors (product or service, industrial sector, etc.).

The study of the entrepreneur's profile has led to the elaboration of a taxonomy of new entrepreneurs and firms (Smith, 1976; Gartner et al. 1989; Lafuente & Salas, 1989; Birley & Westhead, 1994; Westhead et al. 2003; etc.).

Psychodynamic Theory

At an individual level there exists also the **psychodynamic theory of the entrepreneurial personality** which has its roots in the work by **Collins & Moore** and has been further developed by **Kets de Vries** (1970 and 1977). It has, however, had little repercussions both in academia and practitioners. For this reason and also due to space limitations we will skip it here.

Macro Level

Kirzner's Entrepreneur Theory

We include **Kirzner's theory of the entrepreneur** (1973) **under** the psychological approach at the macro level, although we are conscious that this decision can be questioned. It could as well be included under the economic approach. Once we have explained its hard core, our decision will be better understood.

For Kirzner an entrepreneur is the person who is alert to business opportunities that have not been identified by others. The central concept in Kirzner's entrepreneur is **alertness**. He speaks of the essentially entrepreneurial element in human action in terms of **alertness** to information, rather than its possession. "The aspect of knowledge which is crucially relevant to entrepreneurship is not so much the substantive knowledge of market data as **alertness, the "knowledge" of where to find market data"** (1973:67).

Also for **Kirzner**, as is the case with Schumpeter, the entrepreneur plays an important role in the economy. Kirzner assumes that the market is imperfect and in disequilibrium. Precisely because the market is in disequilibrium there are business opportunities. The entrepreneur through his behaviour pushes the market **towards** equilibrium, which evidently is never reached.

Kirzner's approach, in contrast to other theoretical approaches on the entrepreneur in the economic approach, is based on an empirical concept of the entrepreneur and on a specific attribute that defines him: his alertness or personal ability to identify business opportunities.

This is the reason why we include this theory under the psychological approach at the macro level, because it tries to explain the market process on the basis of this personal attribute of the entrepreneur that hypothetically defines him and distinguishes him from the rest of the population.

Lately, empirical research based on cognitive theory tries to explain the nature of this special ability to identify business opportunities and the differences that may exist in the different types of entrepreneur in the way they perceive and process market information (Krueger, 2000; Puhakka, 2002; Baron & Ward, 2004).

Sociocultural or Institutional Approach

All theories included under this approach share a common hard core: the basic assumption that the decision to become an independent entrepreneur and, therefore to start a new firm is conditioned by external or environmental factors. It is assumed that the socio-cultural factors or the institutional framework determines the entrepreneurial spirit and new enterprise formation in a certain place and time.

As can be seen in Fig. 3 many theories try to explain the phenomenon in question at a micro, meso, and macro level.

Although the first studies under this approach emerged early in the 20th century and in a more systematic way in the sixties, as we shall see, it is in the last two decades when the interest of the researchers in this approach at all three levels is stressed and increased.

Micro Level

Marginalization Theory

As we have explained elsewhere (Veciana, 1988) and as shown in Fig. 6 the research on the process of enterprise formation has discovered the importance of some **event**, generally a negative one that triggers and precipitates the start-up process. According to the result of many investigations, the creation of a new firm is not always the result of a deliberate and intentional act as the culmination of rational process of analysis and decision making, but for many entrepreneurs, the entering into the entrepreneurial arena begins with the shattering of a previous life pattern. This change in life is called by Collins and Moore "role deterioration" (1964:135) and by Shapero "trigger events" (1971). Caught in dangerous and insecure situation, the person begins playing with the idea and the activity of going into business for one's self. From this empirically tested reality the **theory of social marginality** has been developed. It was first put forward by Brozen (1954),

Young (1971), and Stanworth & Curran (1973), and it has been empirically corroborated by empirical investigations (Min, 1984).

According to this theory unadapted persons or individuals on the perimeter of a given social system are believed to provide the personnel to fill entrepreneurial roles. They may be drawn from religious, cultural, ethnic, migrant minority groups, or simply unemployed people. Their marginal social position is a driving force and has psychological effects which make entrepreneurship a particularly attractive alternative for them. Creating his/her own enterprise means not only the possibility of obtaining a "modus vivendi" but also social rewards and recognition. Needless to say, that for the act of creating a new enterprise to be produced, the existence of certain environmental favourable conditions and the legitimacy of the entrepreneur are necessary. We shall see these factors later on.

Recent empirical investigations have corroborated the marginalization factor as determinant of new enterprise creation. Thus, Evans & Leighton (1989) in a longitudinal study with a large sample in the United States found out that the worker in precarious labour conditions – that is unemployed people, workers with low wages or those that had often changed jobs have "ceteris paribus" a higher probability to become self-employed or entrepreneurs (p. 521).

The fact that the new firm formation rate is higher in the immigrant population of a certain country has been corroborated by several investigations (Min, 1984; Audretsch & Keilbach, 2004; etc.).

On the other hand, the results of an investigation by Bögendhold et al. (1990) based on time series of the seven leading OECD countries also confirm the marginalization theory.

Many of the biographies of persons that are or have been great entrepreneurs also confirm that it was a negative factor the trigger event or precipitating factor for the creation of their enterprises (Veciana, 1988).

Role Theory

Another theory that explains why new firm creation rate is higher in certain geographical areas than in others is **role theory**. As also indicated in Fig. 6, an important external factor that influences and fosters new firm formation is the existence of **"facts (examples and proofs) that let the possibility and success of new firm creation appear to be credible"**. In regions or areas with a dense entrepreneurial web such **examples or proofs** abound. It has also been discovered that in family environments in which there are or have been entrepreneurs and, therefore the "role of entrepreneur" has been seen and experienced closely it is more likely that new entrepreneurs emerge. This theory would explain why in industrial regions with an entrepreneurial culture more new firms are created and why it is so difficult to foster entrepreneurship in regions where these conditions are not given.

The emergence and development of so well known areas like the Silicon Valley or route 128 in the United States or the industrial "microclusters" in Catalonia or in Northern Italy support this theory (Veciana, 1997).

Network Theory

Network theory is based on the idea that the entrepreneurial function exists and develops in a network of social relations. The creation of a new enterprise needs and is favoured or constrained by a complex span of relationships between the future entrepreneur, resources and opportunities.

The interaction within networks may refer to: 1) communication content, i.e. the passing of information; 2) exchange content, i.e. the exchange of goods and services; and/or 3) normative content, i.e. the generation of expectations which people have of one another because of some special characteristics or attribute. It is usual to distinguish between strong and weak ties, depending on the level, frequency and reciprocity of the relations.

The relationships between the entrepreneur, suppliers, customers, banks, public or private agencies (local development agencies, chambers of commerce, professional associations, etc.) and family members and friends build the base of a network. Network theory probes five dimensions: a) size, b) density, c) reachability, d) heterogeneity, and e) centrality of nodes.

The theme of network has become very fashionable lately in the field of new firm formation. There are interesting contributions at a theoretical level that try to explain the role of social networks in the process of new venture creation (Aldrich & Zimmer, 1986; Hansen, 1995; Jensen, 1999, etc.) and also attempts to lay the foundations of a theory of new enterprise formation based on the network approach (Johannisson, 1986). There have also been some empirical investigations that try to confirm or refute the role of a network in new venture creation (Birley, 1985; Aldrich et al. 1986; Aldrich et al. 1987; Greve & Salaff, 2003).

There is no doubt that the creation of a new firm means creating a network of relationship with suppliers, clients, banks, etc. Therefore, the establishment and maintenance of a network of relationships is something inherent to the entrepreneurial function and to the entrepreneur's task of acquiring and combining the factors of production. It is also true that the tasks performed by the incubators or business centers, local development agencies, chambers of commerce, etc. in helping the new and would-be entrepreneurs in building contacts and relationships are important.

However, when at the theoretical level some authors want to explain the phenomenon of new enterprise formation based exclusively on the network approach or when it is affirmed that "the key to success lies in the ability to develop and maintain a personal network" (Johannisson, 1988:83) we think that it is an exaggeration, thereby undervaluing the importance of the business idea and project, that is, the product or service, the strategy, the industrial sector and other attributes and abilities of the entrepreneur as determinant factors of the success of the new firm.

Birley's research (1985) failed to confirm the importance of formal networks in the creation and success of the new firm, thereby showing that new entrepreneurs made more use of the informal relationships (family and friends) than the formal networks provided by the formal environment. She concludes that "information on ...the role of networks in connection with new venture creation is still scarce and anecdotal" (1985: 108).

The research by Aldrich et al. (1987) showed the relationship between some network variables and the number and performance of new firms. Yet the hypothesis supported by the theory that the degree of diversity of the network would have an impact on the type of ties and the performance could not be confirmed.

The network perspective has attracted the attention of a number of researchers in the last years, although it has not yet brought about much solid knowledge. This personal conclusion should not be interpreted in the sense that it is not worth deepening in its study, in as much as it refers to an entrepreneurial phenomenon which is based on the idea of trust and co-operation rather than on mistrust and competition. A critical review of the network-based research in entrepreneurship is provided by Hoang & Antonic (2003).

Meso Level

Network Theory

Network theory at the corporate level aims at the same "mutatis mutandis" objective as at the individual level. The creation of a network that supports and helps the new enterprise can be studied both at a personal/individual level of the entrepreneur and at the institutional level of the new enterprise. At the corporate level, network or strategic alliances are considered to be an intermediate or hybrid form of governance structure which is studied in the field of business strategy and in transaction cost economics.

Incubator Theory

According to this theory the existence of certain organizations (industrial enterprises, research centers or universities) would determine not only the number of new firm formations in a certain zone but also their characteristics. Empirical investigations have found that many of the business ideas or projects leading to a new firm have been "incubated" in the organization where the future entrepreneur was working. These sort of firms that have been "incubated" in other organizations are named "spin-offs".

For instance, in Palo Alto, 85.5 per cent of the new enterprises operated in the same market or used the same technology as the incubator (Veciana, 1988). In Michigan, 83.7 per cent of the new firms produced products or services directly related to the previous employment, experience and knowledge acquired by the founder-entrepreneur in the enterprise in which he/she had been employed. Both the size of the incubator organization and its location are factors that condition the new enterprises. Cooper (1973) and Johnson & Cathcart (1979) found out that the smaller incubator organizations produce more new entrepreneurs than the larger ones.

The research by Llopis et al. (1999) brings about additional evidence in this sense.

The university as incubator organization of "spin-offs" has become a favourite research field due to the importance attached to the high-tech spin-offs in entrepreneurial society (See Shane, 2004; O'Shea et al. 2004; Gómez Gras, 2006).

Evolutionary Theory

Evolutionary theory pursues the objective to explain economic development and change. According to Nelson & Winter "the core concern of evolutionary theory is with the dynamic process by which firm behaviour patterns and market outcomes are jointly determined over time" (1982:18). Nelson & Winter lay the "micro" foundations of the macroeconomy. Their theory shows the effects of technological change on economic growth. In this sense, it is the continuation of the Schumpeter approach, that is why the above mentioned authors designate their evolutionary approach as "neo-Schumpeterian".

The central idea of Nelson & Winter's evolutionary theory is that organizations are typically much better at the tasks of self-maintenance in a constant environment than they are at major change, and much better at changing in the direction of "more of the same" than they are at any other kind of change (Douma & Schreuder, 1991:159). According to Nelson & Winter organizational functioning is based on **"routines"**. Routines refer to all regular and predictable behavioral patterns of firms. There are production routines, advertising routines, hiring and firing routines as well as innovation routines. The organizational routines are the depository of organizational knowledge and skills. Routines rather than deliberate choice determine for a large part how an organization functions. Routines explain why organizations are resistant to change.

In our opinion this theory is closely related to the **incubator theory** in the sense that it could explain why some organizations have generated certain innovation routines that make them more innovative than others as well as why some organizations are more capable of producing more potential entrepreneurs and more "spin-offs" than others.

The development of this theory is still at a conceptual level, but empirical investigations are under process based on the concept of **organizational routine** in the field of innovation both in SMEs and large firms. Lately Aldrich & Martinez (2001) called it evolutionary approach what the same Aldrich (1979) included under population ecology and state that "evolutionary theory unites in a single coherent framework a concern for entrepreneurial outcomes and the processes and contexts making them possible, using the basic concepts of variation, adaptation, selection, and retention" (p. 42). 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, 2001:42).

Macro Level

Weber's Theory of Economic Development

Undoubtedly the first author in pointing to and probing the entrepreneurial phenomenon from a socio-cultural perspective was **Max Weber** in his book **"The**

Protestant Ethic and the Spirit of Capitalism" published in 1905. According to this author, the behaviour of the capitalist-entrepreneur is strongly conditioned by religious beliefs; this is the reason why business activities flourished in those regions in which the protestant ethic prevailed, from which the following factors having a decisive influence on the business activities derived: the concept of calling ("Berufung") that means that the person's most important responsibility is to comply with its duty in the best possible way, regardless of the place God has assigned him/her in this life; b) the Calvinist notion of predestination; c) the asceticism that prescribes hard work and savings, and proscribes the conspicuous consumption.

M. Weber's thesis have been empirically confirmed through the investigations by Carroll (1965), Jeremy (1984), Singh (1985), and Shane (1996).

Considering the great contemporary importance of this topic, as we shall see, we would like to stress the main conclusion of Cochran's investigation in the sixties, i.e. that cultural factors have a great impact on the entrepreneurial behaviour as the engine of economic development (1960).

Theory of Social Change

The basic assumption in this theory is that the social characteristics are a determinant factor of the entrepreneurial spirit. These include the degree of mobility, both social and geographical, and the nature of mobility channels within a situation.

While most writers have maintained that a high degree of mobility is conductive to entrepreneurship (Bruton, 1960; Hoselitz, 1960; Marris, 1969; McClelland, 1961), Hagen (1962 and 1968) asserts that what fosters entrepreneurship is the lack of mobility possibilities. Hagen refers to this as **relative social blockage** to indicate that only some channels of mobility must be blocked, while the possibility of upward mobility by means of entrepreneurship is available to particular groups or individuals. Marris and Somerset have also stressed the importance of the individuals to find rewards in established, non entrepreneurial occupations, and Cole (1959) describes entrepreneurship as coming through the crevices in a rigid society (Wilken, 1979).

The basic ideas of this theory are nowadays integrated in the institutional theory.

Population Ecology Theory

Population ecology theory or organizational ecology starts from the basic assumption that the environment determines the birth, growth and death of new organizational forms or enterprises. Although inspired in biology, it has been developed in the field of sociology. It has a strong relationship with economic analysis, although it uses different terms to designate similar concepts.

One of the main objectives of this theory, the ones that interest us most here, is to determine what the environmental factors that cause and explain the variation in new firm foundings are. This theory operates with long time horizon and adopts a dynamic and evolutionary approach.

The hard core or basic assumptions of this theory are the following:

1) The existing organizational forms in a certain time are unable to adapt to the environmental changes due to internal **inertia**.
2) Environmental changes produce new organizational forms and thereby "new firms".
3) Changes in organizational populations are essentially due to the demographic processes of creation (births) and disbandments (deaths) of organizations.

Therefore, this theory studies the environmental conditions that determine: (1) the rate of organizational foundings, (2) the mortality rate, and (3) the rate of organizational change.

According to this theory new firm creation depends on three environmental factors: a) organizational density, b) birth rate or prior foundings, and c) mortality rate in the previous periods.

There are at least six different themes in how ecologists have approached the study of mortality: a) fitness set theory, which includes competition theory and niche-width theory; b) liability of newness, which central concept is external legitimization of the new organization; c) density dependence and population dynamics; d) resource partitioning theory; e) the liability of smallness, and f) the impact of founding conditions on organizational mortality.

This theory operates with the concepts of *variation, adaptation, selection and retention* (Aldrich, 1979, 1999). These concepts, as we have seen above, Aldrich & Martinez (2001) have now included in the *evolutionary theory*.

There has been quite a lot of empirical investigations in the framework of this theory in several sectors, such as:

- Newspaper industry (Carrol & Delacroix, 1982; Carroll & Huo, 1986; Amburgey, Lehtisalo & Kelly, 1988).
- Automobile industry (Hannan, 1997).
- Brewing industry (Carroll & Swaminathan, 1989; Swaminathan & Wiedenmeyer, 1989).
- Semiconductor firms (Freeman & Hannan, 1987; Freeman 1989)

These investigations have produced evidence of the consistency of many of the basic assumptions of the theory. They have also provided both a solid conceptual framework for future research and useful knowledge. The fact that it has been developed in the departments of sociology and that it operates with a different terminology from that used by the economists causes it to be little known in this field.

Institutional Theory

Without doubt, the theory that currently provides the most consistent and appropriate conceptual framework to probe the influence of environmental factors on entrepreneurship is **institutional theory**.

This theory utilizes a very broad concept of "institution". In the framework of this theory, institutions include any form of constraint that human beings devise to shape human interaction. "Institutions are the rules of the game in a society or, more formally, are the humanly devised constraints that shape human interaction (North, 1990:3). It is usual to distinguish between formal and informal factors or constraints.

Formal rules include political (and judicial) rules, economic rules, and contracts. The hierarchy of such rules, from constitutions, to statute and common laws, to specific bylaws, and finally to individual contracts, defines constraints from general roles to particular specifications. Economic roles define property rights and private contracts which contain the provisions specific to a particular agreement in exchange (North, 1990:47).

Although in the modern Western world, we tend to think of life and the economy as being ordered by formal laws and property rights, formal rules, in even the most developed economy, make up a small (although very important) part of the sum of constraints that shape choices. In our daily interaction with others, whether within the family, in external social relations, or in business activities, the governing structure is overwhelmingly defined by codes of conduct, norms of behaviour, and conventions. Underlying these informal constraints are formal rules, but these are seldom the obvious and immediate source of choice in daily interactions (North, 1999: 36).

Economic institutional thought begun at the beginning of the 20th century by authors like Veblen (1904), Commons (1924–1934). It received an important impulse from the stream called neo-institutionist by Grunchy (1987), such as Ayres (1944) and Myrdal (1959), but especially from Ayres who through his theory of culture introduced the concept of "homo institutionalist". Williamson (1975) in the field of organizational economics and, specially North (1990) in the field of economic theory, make a special point of the institutional environment or framework (formal and informal factors or constraints) as determinant of the economy, since they constitute the underlying rules of the game. North emphasizes the role played by the organization, and the entrepreneurs – as agents of institutional change.

It is obvious that new enterprise formation is highly conditioned by the institutional framework.

Empirical investigations in the framework of this theory are still scarce; only individual factors have been probed. Anyhow, much of the research on new enterprise formation rate highlights the environmental or institutional factors, i.e. Reynolds et al. (1994), Shane (1996), Busenitz et al. (2000), Ahlstrom & Bruton (2002), Audretsch & Keilbach (2004), Wennekers et al. (2005). Even the model proposed by Minniti & Bygrave (1999) mentioned under the economic approach, include variables regarding the institutional context.

In the European Doctoral Programme several doctoral dissertations have been elaborated and others are in progress trying to compare the institutional framework from different countries and its impact on the development of entrepreneurship (11).

Managerial Approach

The theories included under this approach are based on the assumption that the act of new enterprise formation is the result of a rational decision making process in which the knowledge and the techniques elaborated in the field of economics and business administration are of paramount importance. The theories that we will comment on here try to furnish knowledge that is useful for that process and, therefore, for guiding action. They do not aim so much at explaining the causes of new firm creation but rather at generating knowledge and at building models of practical usefulness (Veciana, 2005).

It is in our opinion one of the most recent approaches, although it is not yet recognized as such in academia. We think, however, that many of the investigations carried out on, and the models elaborated about the new firm formation process can be ascribed to this approach.

Micro Level

Leibestein's X-Efficiency Theory

The first theory that explains the role and task of the entrepreneur in new firm formation from a managerial perspective can be found in Leibestein's X-efficiency theory. Although Leibenstein published his ideas about this theory in a special issue of the "American Economic Review" on "Entrepreneurship and Economic Development" in 1968 to explain the unique and critical role of the entrepreneur in the economy, his arguments fit perfectly in a managerial theory of enterprise formation. His reasoning is the following: If all inputs are marketed and their prices are known, and if all outputs are marketed and their prices are known, and if there is a definite production function that relates inputs to outputs in a determinate way, then we can always predict the profit for any activity that transforms inputs into outputs. If net profits are positive, then this should serve as a signal for entry into this market with a new enterprise. The problem of marshalling resources and turning them into outputs appears to be a trivial activity. From this point of view it is hard to see why there should be a deficiency of entrepreneurship. But there is frequently a lack of entrepreneurship. The answer is that standard competitive models hides the vital function of the entrepreneur (Leibenstein, 1968:72).

This is Leibenstein's departing point to develop his concept of entrepreneur as "input completer" which we can also call "managerial-entrepreneur".

In a paper already published in 1966, Leibestein argued that there does not exist a one-to one correspondence between sets of inputs and outputs and that there are three main reasons for this: contracts for labour are incomplete, the production function is not completely specified or known, and not all factors of production are marketed. Under these circumstances the entrepreneur has a distinct and critical role in the economy.

This author distinguishes two types of entrepreneurial activity: the routine entrepreneurship and the Schumpeterian or "new type" entrepreneurship. By the latter he means "the activities necessary to create or carry on an enterprise

where not all markets are well established or clearly defined and/or in which the relevant parts of the production function are not completely known. In both cases the entrepreneur coordinates activities that involve different markets; he is an intermediate operator. But in the case of the "new type" entrepreneurship not all markets exist or operate perfectly and the entrepreneur, if he is to be successful, must fill in for market deficiencies.

Among the important "inputs" for which there are not adequate markets, we have new technologies, management and market knowledge and managing personnel.

To create a new enterprise, the entrepreneur, especially for innovative firms, must have the "input completing" capacity. If six inputs are needed to achieve the goal of producing a marketable product of service, it is not sufficient to find and combine only five of them. Hence for Leibenstein the entrepreneur is a person with four major characteristics or tasks: a) he connects different markets, b) he is capable of making up for market deficiencies ("gap-filling capacity"), c) he is an "input-completer", and d) he creates or expands time-binding, input-transforming entities (i.e. new firms). Obviously these are typical management tasks or functions (Veciana, 1999).

Behavioral Theory of the Entrepreneur

Research under this approach aims at identifying, describing and explaining the overt behaviours of the entrepreneur, i.e. it starts with the investigation of what the entrepreneur **DOES** to be able to establish guidelines that can guide potential entrepreneurs in the process of new enterprise creation. It differs from the psychological approach in that this focuses on how the entrepreneur **IS**. This distinction is important because while the psychological traits are considered to be a part of the entrepreneur's personality, and therefore, are impossible or difficult to change, behaviour is believed to be based on skills or abilities that can be learnt. That is why the objective of this approach is to establish a **behavioral theory of the entrepreneur**.

The entrepreneur's behaviors we are referring to here provide the setting for management function. The main ones that have been identified through empirical research are:

- The ability to search and gather information.
- The ability to identify opportunities.
- The ability to deal with risk.
- The ability to establish relationships and networks.
- The ability to make decisions under uncertainty and ambiguity.
- Leadership ability.
- The ability to learn from experience.

Research in this field mainly focus on the ability to search information, opportunity identification, and learning (Krueger, 2000; Shane 2000, 2001; Ardichvili et al. 2003; Baron & Ward, 2004; Westhead et al. 2003, etc.).

Models of New Enterprise Creation

In the same line of generating knowledge that can be useful for the task of creating a new firm, several models have been developed. Some of them are presented in Fig. 5–7.

Figure 5 illustrates the idea that the new enterprise is the result of four variables: environment, individual, process and the organization itself. Other models have been developed by Wester (1976) and Bhave (1994), among others.

In Fig. 6 the main conditioning factors of new enterprise creation are presented. It integrates the main variables that have been probed and identified in the framework of the different theories referred to earlier. These models attempt also to draw attention to the fact that new enterprise creation is equivalent to the creation of a new system and therefore the knowledge supplied by the organization theory can and must be taken into account (Stinchcombe, 1965). Yet unfortunately, little empirical research has been done on them in our field. Anyhow, worth mentioning are: Reynolds & Miller (1991), Carter et al. (1996), and Baron & Hannan (2002).

Modes to Becoming an Entrepreneur

While usually the study of new enterprise formation refers to the **creation of a new firm by an individual or a team**, lately there is an increasing interest in the study of alternative ways of becoming an entrepreneur. Among them we highlight the following:

Taking Up a Franchise

Taking up a franchise, that is, buying the right to exploit a trade mark and a proven business concept from a franchisor, is a way to become an entrepreneur.

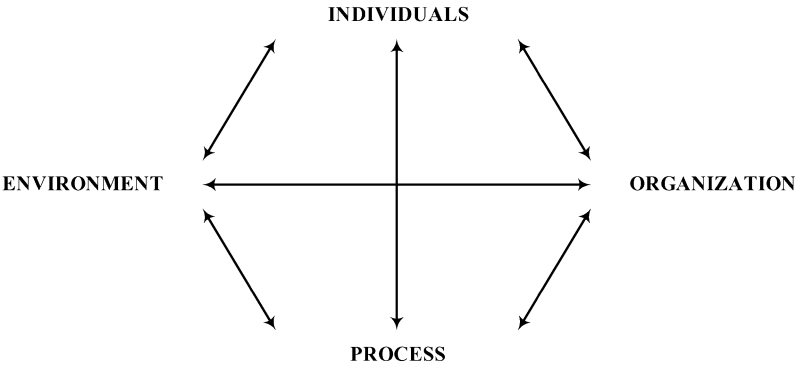


Fig. 5. A framework for describing new venture creation (Gartner, 1985: 698)

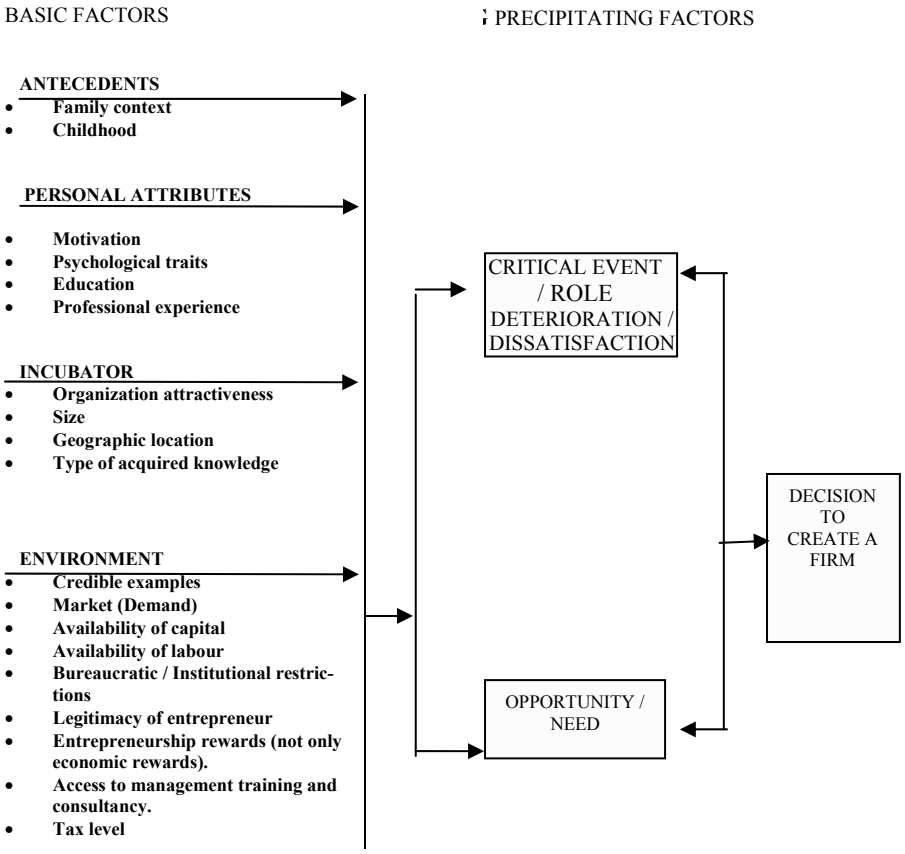


Fig. 6. Factors affecting the decision to create a firm

From the theoretical viewpoint, the franchise system is explained by the agency theory. For the franchisor (the principal) is more economical to operate a franchise system, thereby sharing risks and profit with the franchisee, than hiring managers under contract to manage the branches or outlets under his/her own trade mark that may be located far from the headquarters. The franchisee has the advantage to become a legally independent entrepreneur using the experience, trade mark and adverting support provided by the franchisor.

Time	Variable	1–2 years		2–5 years
	PHASE 1 GESTATION	**PHASE 2 CREATION**	**PHASE 3 LAUNCHING**	**PHASE 4 CONSOLIDATION**
	➢ Childhood ➢ Antecedents ➢ Incubator ➢ Critical event / role deterioration. ➢ Decision to create a firm	➢ Search for and identification of an opportunity. ➢ Elaboration and configuration of the entrepreneurial project. ➢ Network creation ➢ Opportunity evaluation. ➢ Preparation of a business plan. ➢ Formal / legal creation of the firm.	➢ Team building ➢ Purchase and organization of the production factors. ➢ Product / service development. ➢ Search for finance ➢ Launching the product / service.	➢ Re-definition of the business concept. ➢ Getting through the knothole. ➢ Getting rid of partners ➢ At last "everything under control".

Source: Veciana, J.M. (1988): The entrepreneur and the process of enterprise formation, in "Revista Economica de Catalunya", Num. 8, May–August.

Fig. 7. The process of enterprise formation

One of the most controversial topics that has been object of research refers to the degree of independence of the franchisee and whether the failure rate is higher or lower than in the new firms that are not within a franchise system (Bates, 1995; Holmberg & Morgan, 2002).

Purchasing an Existing Company by the Management (Management Buy-outs and Buy-ins)

The purchase of an existing company by the management, either internal or external to the company (Management buy-out or buy-in, respectively), is another way of becoming an entrepreneur.

Buy-out operations increase in all industrial countries and form a field of research and teaching of increasing importance due to the entrepreneurial dynamics in the industrial societies. Besides the study of the mechanics and process of such buy-out operations, one topic of interest and research is the influence of a management buy-out or buy-in on the survival and growth of the company (Wright et al. 2002).

Inheritance of an Existing Family Firm

Succession in the family firm has been the star topic in the research in this subprogramme. The transmission of ownership and control in the family business to one family member is another way to become an entrepreneur.

In the preparation for the succession, the creation of a family council, the elaboration of a family protocol, the integration of outside members in the board, the separation of ownership and management, etc. Much progress has been made during the last years both from the theoretical and practical viewpoint. The treatment of these topics here is not possible due to space limitations (12).

To mention them here has also the aim to justify that this new scientific research programme that we proposed in Chap. 3 includes the creation of a new enterprise up to the family firm.

Meso Level

Models of New Enterprise Success and Failure

While in the psychological approach the success of the new firm is assumed to be dependent on the entrepreneur's psychological profile, and in the sociocultural or institutional approach the environmental factors are supposed to determine the new firm success, under the managerial approach it is hypothesized that there are other factors that determine the success and failure of new enterprises, and that these variables are subject to the entrepreneur's control. Therefore, a success theory for new enterprise should furnish useful knowledge to guide the configuration and management of new firms and offer clues to be able to predict its failure.
The main variables that have been investigated so far are:

1) The entrepreneur's characteristics (i.e. previous experience).
2) The management tasks.
3) The product or service.
4) The industrial sector.
5) The initial strategy of the new firms.
6) Financial aspects.

The main models that include several of the above mentioned variables (in some instances even their mutual interaction) that have been tested through empirical research are the following: a) Stuart and Abetti (1987), b) Sandberg & Hofer (1987), c) Keeley & Roure (1990), d) McDougall, Robinson & Densi (1992), e) Lussiert and Connan (1995), and f) Planellas (1994; g) Wu & Young (2002).

Corporate Entrepreneurship

As we have explained elsewhere (Veciana, 1996) due to the increasing globalization of the economy and the acceleration of technological change, growth and competition strategies based on the identification of new business opportunities or the development of new products have again acquired importance nowadays. For this creativity and innovation are required. This leads to the emergence of "venture management" or "corporate entrepreneurship" which can be described as the activity in a corporation that aims at identifying new opportunities beyond the core business or generating new business for the company.

Corporate entrepreneurship has to do with encouraging and fostering the entrepreneurial spirit, and with taking advantage of the knowledge generated in other approaches to develop the entrepreneurial function in large firms.

This field of study is not new, since under the name of "venture management" several investigations were already carried out in the sixties and seventies (Cook, 1970; Jones & Wilemon, 1970; Vesper & Hohlmdahl, 1973; Fast, 1977). In recent years, it is more usual to talk about "corporate entrepreneurship" or "intrapreneurship", although the phenomenon under investigation is the same.

We find again here the usual disquisition on the definition of "corporate entrepreneurship" (Sharma & Chrisman, 1999) a concept which is mixed up with the terms of "innovation", "sustained regeneration", "organizational rejuvenation", "strategic renewal", "domain redefinition" (Covin & Miles, 1999).

Among the investigations realized in this field in the last years the following stand out: Burgelman (1980), Covin & Slevin (1991), and Russell (1995). In Fig. 8 we present Guth & Ginsberg's (1990) model. In this model the close relationship between this field of study and business strategy can be noticed. Evidently, the decision to encourage and invest in new product development and new ventures in a company is an eminently and highly strategic issue that most companies are forced to face today.

However, from the methodological viewpoint we should raise the question whether the inclusion of this controversial concept of "corporate entrepreneurship" in our field of study does provide additional arguments to the colleagues in the traditional disciples to question the identity and legitimization of our scientific research programme as a distinctive domain and discipline.

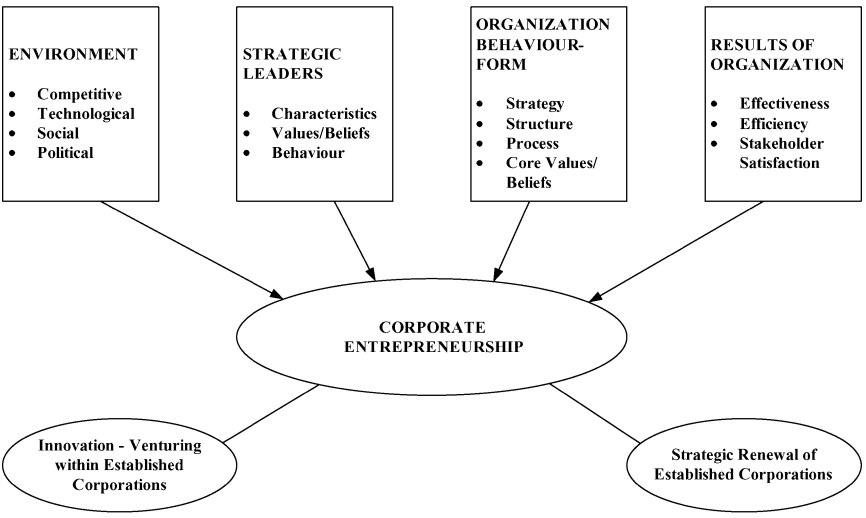


Fig. 8. Fitting corporate entrepreneurship into strategic management

Conclusions

In the preceding pages we have tried to develop and present what we consider constitutes a new scientific research programme: entrepreneurship. As conclusions, we would like to stress the following:

First, this new scientific research programme has been formed during the last fifty years. Yet its explosion and consolidation has occurred in the last three decades.

Second, the object of study and research domain of this scientific research programme should in our opinion be:

- New firm creation
- Small and Medium-sized Enterprises (SMEs)
- Family firms

Third, the justification and academic legitimacy of this new field of study for being independent and distinctive from traditional disciples (finance, marketing, strategy, etc.) has to be based on the fact that the above mentioned subprogrammes are not covered by these disciplines, since these focus on the existing firms and, principally, on large companies.

Fourth, we have identified and developed four main theoretical approaches and three levels of the study of entrepreneurship. The diversity of theories that have been developed under the different approaches and levels are based on very different assumptions. While the theories included in the first three approaches (economic, psychological and sociocultural/institutional) try to *explain* why new firms are created, the fourth approach – the *managerial approach* does not aim at explaining the new firm formation but at generating knowledge that is useful for the practice of new firm formation. Obviously, it also aims at elaborating theoretical models and theories, but these are of a different, lower level than the former. They are called *technological theories* (Bunge, 2002:136).

Failure to clearly distinguish the purpose of these different approaches in the debate on the domain of entrepreneurship research has created confusion and many difficulties. Therefore, we think that the distinction between the objective of these four approaches has to help in clarifying the methodological debate on the field of study and domain of our discipline. In general, the above mentioned theories provide evident proof of the richness of this new field of study as well as different theoretical frameworks that should guide future empirical research (13).

Fifth, although no general theory of entrepreneurship is yet available, we think that sufficient previous conceptual and research work has been done so far to attempt to tackle this pending matter. Unfortunately, more time and effort is devoted to empirical research, which is often based on “ad hoc” hypothesis and not on solid theoretical frameworks, than to abstract conceptualization and to more general and integrative theory building.

Finally, the overwhelming empirical evidence in this field, on the one hand, and the pressing need to foster new firms and new job creation, on the other, should lead us to urge and claim for recognition of “entrepreneurship” and more precisely “new firm creation” as an independent and distinctive domain of research and teaching at the university level like other disciplines (marketing, finance, and organization).

Notes

1. For instance: O'Kean Alonso, J.M. (1985): "La función empresarial en la Teoría Económica Clásica", Universidad de Sevilla; Batista Canino, R.M. (1996): "Metodología para la identificación de los factores determinantes del potencial empresarial de una realidad multinivel. Aplicación empírica en el distrito Comercial Zona Triana, Universidad de Las Palmas de Gran Canaria; Santos Cumplido, F.J.: "La Teoría de la Función Empresarial: una aproximación cualitativa al empresario sevillano", Universidad de Sevilla.
2. In this Symposium only two Europeans participated, Professors Hans Jobs Pleitner, Sí, Gallen University and José Mª Veciana, Universitat Autònoma de Barcelona.
3. Among them are: Journal of Business and Entrepreneurship; Journal of Entrepreneurship, Innovation and Change; International Entrepreneurship and Management Journal.
4. In the remainder of this article we will use the term of "entrepreneurship" and "new firm formation" as synonymous although for logical reasons when referring to the debate on the definition of "entrepreneurship"; in the Anglo-Saxon countries we will preferably use the former.
5. In order to avoid any misunderstanding we want to stress that we are referring here to the *essentialist definitions* that have prevailed in the debate in the field of entrepreneurship. A different thing is the need to *operationalize concepts*, that is, to formulate operational definitions for a concrete empirical research that allows for *empirical testing* and the *measurement* of the object of study.
6. On this regard Vesper (1998:6–7) writes: "One reason we need them (paradigms) is to deal with what might be called the 'snippets problem'. A letter I received from a dean in the – Midwest illustrated this difficulty. He said he liked the idea of introducing entrepreneurship as a field of concentration in his school but he could not figure out how its content should be defined. He had looked at various textbooks with the work entrepreneurship on the cover and come away with the impression that they were mostly just books for survey courses in business. The topics included a little of accounting, a little bit of law, some marketing, production, and human resource management snippets duplicating parts pof other courses across his business school's curriculum".
7. "On forming the modern corporation and the organization required by the technology and modern planning methods with the separation of the owner of the capital and the control of the enterprise, the entrepreneur has ceased to exist as an individual person in the modern industrial firm" (Galbraith, 1967:90).
8. See Veciana (1989).
9. On the entrepreneurial economy or society see Audretsch & Thurik (2001).
10. On a more extensive review of the different models in this field see Parker (2006).
11. Aponte, M. (2002): "Factores condicionantes de la creación de empresas en Puerto Rico: un enfoque institucional", Tesis doctoral, Universitat Autònoma de Barcelona.; Urbano, D. (2003): Factores condicionantes de la creación de empresas en Catalunya: un enfoque institucional 2, Tesis doctoral, Universitat Autònoma de Barcelona.
12. See Veciana & Garcia (1998) and Lansberg (1999).

13. We would like to remember that in this article we have referred to the first subprogramme: new firm formation. On the subprogramme Management, Growth and Development of SMEs see Mugler (1998). Another field of study that is attracting increasing attention is "Public policy to foster entrepreneurship".

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Differentiating Entrepreneurs from Small Business Owners: A Conceptualization*

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Abstract

The literature of small business and entrepreneurship is explored. It is established that, although there is an overlap between entrepreneurial firms and small business firms, they are different entities. Using the 1934 work of Schumpeter and recognizing the additions to the field of current writers, a conceptual framework is established for the differentiation of entrepreneurs from small business owners.

Schumpeter (1934) was among the first to identify the entrepreneur as an entity worthy of study, distinct from business owners and managers. He described entrepreneurs as individuals whose function was to carry out new combinations of means of production. To Schumpeter, this function was fundamental to economic development. Entrepreneurs, therefore, warranted study independent of capitalists and business managers. Today there continues to be an implicit assumption that the entrepreneur contributes disproportionately to the economy of a nation, yet little has been done to isolate this individual for further analysis. Extending the theory of Schumpeter, who argued that an entrepreneur was distinguishable both by type and by conduct, two conceptualizations are proposed in this paper: one for differentiating entrepreneurs from small business owner/managers and the second for differentiating entrepreneurial ventures from small businesses.

Entrepreneurship: the Contribution

Because the definition of entrepreneurship denotes the creation of some combination that did not previously exist, entrepreneurship often is equated with small business ownership and management. The small business sector has received

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attention in the economic and management literature because of its significance to the economy. The Small Business Administration (U.S. Government Printing Office, 1982) has compiled a fist of statistics that dramatically demonstrate the impact of small business on the nation's economy:

1. There are 14.7 million businesses in the United States, of which 3.2 million are farms.
2. Approximately 99.7 percent of these businesses are considered small by the SBA's size standards for loan applicants.
3. The small businesses identified above account for: 38 percent of the gross national product; 44 percent of the gross business product; and 47 percent of total U.S. business employment.
4. The small business sector identified above accounted for the vast majority of the net new jobs created by business between 1969 and 1976.

Although there is no uniform definition of a small firm, the statistics above relate to businesses that fall within SBA guidelines as being small. The Small Business Act states that "a small business concern shall be deemed to be one which is independently owned and operated and which is not dominant in its field of operation" (U.S. Small Business Administration, 1978, p. 121.1).

As the SBA statistics demonstrate, small business research is justified because of sheer numbers. It must be noted that small firms are treated as a separate sector, not because they are cohesive and homogeneous, but because there are certain common management limitations due to extremely limited resources as compared with the "deep pockets" of resources of larger corporate organizations. Research often is directed toward the implications of public policy developments or the impact of environmental variables on the small business sector (Chilton & Weidenbaum, 1982; Goodman, 1981; Legler & Hoy, 1982; Robinson, 1982).

Although small business is a significant segment of the American economy, the entrepreneurial portion of that segment may wield a disproportionate influence. If entrepreneurship can be viewed as incorporating innovation and growth, the most fertile ground for management research may be entrepreneurs and entrepreneurial ventures. Entrepreneurship has been found to extend beyond small businesses: some large corporations have been described as engaging in entrepreneurial behavior (Ronstadt, 1982, Schollhammer, 1982, Shils, 1982). Additionally, a person who owns an enterprise is not necessarily an entrepreneur (Martin, 1982). Clearly, an overlap exists of entrepreneurship with the small business sector. The concern of this paper is. If entrepreneurs exist as entities distinct from small and large organizations and if entrepreneurial activity is a fundamental contributor to economic development, on what bases may entrepreneurs be separated from nonentrepreneurial managers in order for the phenomenon of entrepreneurship to be studied and understood?

Literature Review: the "Entrepreneur"

One of the earliest definitions of an entrepreneur was that of Cantillion (circa 1700) who described the individual as a rational decision maker who assumed the risk and provided management for the firm (Kilby, 1971). Schumpeter (1934) credited Mill (1848) with bringing the term into general use among economists. Mill, also, believed that the key factor in distinguishing a manager from an entrepreneur was the bearing of risk. Schumpeter, however, countered that risk bearing was inherent in ownership and that entrepreneurs, the combiners, were not necessarily owners; therefore, the risk bearing propensity would not be a trait. Martin (1982) believes that capital risk is a function of the investor. Further, Brockhaus (1980) cast doubt on the validity of the risk taking propensity as an entrepreneurial characteristic with his descriptive work. Brockhaus found no statistical difference in the risk preference patterns of a group of entrepreneurs and a group of managers. It should be noted that Brockhaus used the establishment of a business as the criterion for inclusion of the participants in the entrepreneur group. Omitting business ownership as a designation of entrepreneurship permits both the inclusion of corporate entrepreneurs and the elimination of the risk bearing characteristic. However, many writers have asserted and continue to assert that risk bearing is a prime factor in the entrepreneurial character and function (McClelland, 1961; Palmer, 1971; Timmons, 1978; Welsh & White, 1981).

Numerous normative and descriptive studies have supported various sets of personality characteristics of entrepreneurship. Brockhaus (1982) has presented an excellent historic overview of the definitions of entrepreneurs. Perhaps the most important factor from a societal perspective is the characteristic of innovation. Schumpeter (1934) believed that innovation was the central characteristic of the entrepreneurial endeavor. His emphasis on this point is revealed in his declaration that one behaves as an entrepreneur only when carrying out innovations. McClelland (1961) stated that energetic and/or novel instrumental activity was a key factor in entrepreneurial activity. Martin (1982) stressed that entrepreneurial creativity is different from literary or artistic creativity in that the entrepreneur does not innovate by creating ideas but by exploiting the value of ideas. Table 1 displays a sampling of entrepreneurial characteristics appearing in the literature.

The characteristics listed in Table 1 represent attitudes and behaviors that may be manifested by entrepreneurs. Demographic characteristics such as birth order, sex, or marital status have been examined in certain of the studies cited and in various other investigations (Vaught & Hoy, 1981). They have been excluded from the present conceptualization because of the inability of a prospective entrepreneur to alter those variables in order to increase his/her probability of success.

Schein's (1974) work on career anchors clarifies some of the differences in individual approaches to careers. In studying M.I.T. graduates' careers, he found that five types of job directions were prevalent. He described these as career

Table 1. Characteristics of entrepreneurs

Date	Author(s)	Characteristic(s)	Normative	Empirical
1848	Mill	Riskbearing	x	
1917	Weber	Source of formal authority	x	
1934	Schumpeter	Innovation, initiative	x	
1954	Sutton	Desire for responsibility	x	
1959	Hartman	Source of formal authority	x	
1961	McClelland	Risk taking, need for achievement		x
1963	Davids	Ambition; desire for independence; responsibility; self-confidence		x
1964	Pickle	Drive/mental; human relations; communication ability; technical knowledge		x
1971	Palmer	Risk measurement		x
1971	Hornaday & Aboud	Need for achievement; autonomy; aggression, power; recognition; Innovative/independent		x
1973	Winter	Need for power	x	
1974	Borland	Internal locus of control		x
1974	Liles	Need for achievement		x
1977	Gasse	Personal value orientation		x
1978	Timmons	Drive/self-confidence; goal oriented moderated risk taker; internal locus of control; creativity/innovation	x	x
1980	Sexton	Energetic/ambitious; positive reaction to setbacks		x
1981	Welsh & White	Need to control; responsibility seeker; self-confidence/drive; Challenge taker; moderate risk taker		x
1982	Dunkelberg & Cooper	Growth oriented; Independence oriented; craftsman oriented		x

anchors that included managerial competence, technical/functional competence, security need, independence need, and creativity. The entrepreneurs made up his creative group.

> The group concerned with creativity is the most interesting in that it contains the entrepreneurs. Four of these men are successful in that they have been able to launch enterprises which have succeeded and have brought to their founders either fame or fortune or both. The kinds of activities vary greatly—but they all have in common that they are clear extensions of the person and his identity is heavily involved in the vehicle which is created (1974, p. 19).

It is difficult to sketch a profile of an entrepreneur from the attitudinal and behavioral characteristics listed in Table 1. It may be more appropriate to accept Vesper's (1980) view of a continuum along which several "types" of entrepreneurs exist. The question then becomes: Which characteristics and what level of intensity do the entrepreneurs possess at various points on the continuum? Vesper described the entrepreneur as an individual but implied that he or she could be found working with others in larger organizations. His first type, the "Solo Self-Employed Individual," is essentially what is treated here as the small business owner/operator, but not truly an entrepreneur in the Schumpeterian sense because a new combination is not created.

A major obstacle preventing the attribution of characteristics to entrepreneurs in firms along Vesper's continuum is the great diversity of sources from which the authors cited in Table 1 derived the identified characteristics. Those citations that are indicated in Table 1 as normative are generally anecdotal, describing either the authors' personal impressions or conclusions drawn from reading the works of others. The empirical studies draw from quite diverse samples. McClelland's (1961) entrepreneurs were in fact business executives representing various functional specialities: general management, sales and marketing, finance, engineering, and personnel. Senior marketing managers were found to have the highest need for achievement. More frequently, samples of small business owners are chosen for study (Hornaday & Aboud, 1971; Pickle, 1964). The assumption underlying these selections is that the entrepreneur was the individual who brought the resources together and initiated the venture. Successful entrepreneurs are defined as those whose enterprises have survived some period of time, perhaps two years. The question then is: Are the characteristics listed in Table 1 those of entrepreneurs, of small business owners, or of some mixture that may or may not be capable of demonstrating the entrepreneurial function of economic development?

The Entrepreneurial Venture

A considerable body of literature has been built up treating the stages of organizational development (Vozikis, 1979). This growth–orientation, in and of itself, would represent an entrepreneurial characteristic to some scholars (Dunkelberg & Cooper, 1982). Yet, as Vesper (1980) has pointed out in his continuum of venture types, many business owners never intend for their businesses to grow beyond what they consider to be a controllable size. It is necessary to go beyond the notion of corporate life cycles and stages to conceive of an entrepreneurial venture.

Glueck (1980) distinguished between entrepreneurial ventures and what he termed family business ventures by focusing on strategic practices. Strategic management in Glueck's family business must emphasize preferences and needs of the family as opposed to those of the business. When in conflict, the needs of the family will override those of the business. Glueck cited the oft observed family business strategies to remain independent and to provide outlets for family investment and careers for family members as an example of conflict. In contrast, an entrepreneurial strategist would opt for pursuit of growth and maintenance of the firm's distinctive competence through obtaining, the best personnel available. Glueck's distinction is that strategic practices oriented toward the best interests of the firm are observed in entrepreneurial ventures.

An entrepreneurial venture can be identified by the strategic behavior of the firms. Schumpeter (1934) suggested that five categories of behavior can be observed that are characteristic of an entrepreneurial venture. These categories, listed below, are supported by Vesper (1980) and can be used as the basis for classification criteria.

1. Introduction of new goods
2. Introduction of new methods of production
3. Opening of new markets
4. Opening of new sources of supply
5. Industrial reorganization

Because of the ambiguity of criterion 4, it is not employed in this study. If any one of the remaining four criteria is observed in a firm's strategic actions, then that firm can be classified as an entrepreneurial venture. These criteria do permit the classification of a new small traditional firm as entrepreneurial if that firm represents an original entry into a market. Again, the determining factor would be whether organizational activity in any of the four criteria resulted in a new combination, indicating innovative behavior. Additionally, these criteria permit medium and large firms to be classified either as entrepreneurial ventures themselves or as the instigators of entrepreneurial ventures.

Schumpeter's criteria represent evidence of innovative strategies or innovative strategic postures. The criteria also emphasize the behavior of a firm consistent with its own best interests. This perspective is congruent with the development and pursuit of a distinctive competence prescribed by Vesper (1980) as a requirement for an entrepreneurial venture.

A Conceptual Distinction Between Small Business and Entrepreneurship

From the foregoing discussion, it can be seen that, although there is considerable overlap between small business and entrepreneurship, the concepts are not the same. All new ventures are not entrepreneurial in nature. Entrepreneurial firms may begin at any size level, but key on growth over time. Some new small firms may grow, but many will remain small businesses for their organizational lifetimes.

The critical factor proposed here to distinguish entrepreneurs from nonentrepreneurial managers and, in particular, small business owners is innovation. The entrepreneur is characterized by a preference for creating activity, manifested by some innovative combination of resources for profit. Drawing further on the characteristics outlined in Table 1, it is suggested that analyses of prospective entrepreneurial characteristics examine such traits as need for achievement (perhaps more appropriately labeled goal-orientation), internal locus of control, need for independence, need for responsibility, and need for power. Although a risk taking propensity is mentioned frequently in the literature, Schumpeter noted that it is inherent in ownership rather than entrepreneurship. Further, Brockhaus (1980) supported Schumpeter with empirical results demonstrating that risk taking behavior cannot be used as a distinguishing characteristic of entrepreneurship.

From this analysis, it is suggested that many published studies may be misleading in their conclusions. Economic theorists propose that the entrepreneur is essential to economic development (Schumpeter, 1934; Williams, 1981). Yet studies of

entrepreneurship neglect to distinguish adequately between entrepreneurs and other business managers, primarily small business owners. Erroneous descriptions of entrepreneurs can jeopardize investigations in a variety of ways. Specifically, analyses of how entrepreneurs make their fundamental contributions to economic development cannot draw sound conclusions if the case studies are not entrepreneurial.

To guide future studies, the following definitions are proposed to distinguish among the entities discuss on the paper:

Small Business Venture: A small business venture is any business that is independently owned and operated, not dominant in its field, and does not engage in any new marketing or innovative practices.

Entrepreneurial Venture: An entrepreneurial venture is one that engages at list in one of the Schumpeter's categories of behavior: that is, the principal goals of an entrepreneurial venture are profitability and growth and the business is characterized by innovative strategic practices.

Small Business Owner: A small business owner is an individual who establishes and manages a business for the principal purpose of furthering personal goals. The business must be the primary source of income and will consume the majority of one's time and resources. The owner perceives the business as an extension of his or her personality, intricately bound with family needs and desires.

Entrepreneur: An entrepreneur is an individual who establishes and manages a business for the principal purpose of profit and growth. The entrepreneur is characterized principally by innovative behavior and will employ strategic management practices in the business.

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Toward a Reconciliation of the Definitional Issues in the Field of Corporate Entrepreneurship*

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Abstract

Although authors generally agree on the nature of entrepreneurial activities within existing firms, differences in the terminology used to describe those activities have created confusion. This article discusses existing definitions in the field of corporate entrepreneurship, reconciles these definitions, and provides criteria for classifying and understanding the activities associated with corporate venturing.

Scholars have begun to pay increasing attention to entrepreneurial activities within existing organizations (e.g. Birkinshaw, 1997; Burgelman, 1983; Caruana, Morris, & Vella, 1998; Drucker, 1985; Guth & Ginsberg, 1990; Kanter, 1983; Miller, 1983; Pinchot, 1985; Zahra, 1986, 1995, 1996). Unfortunately, and similar to the study of entrepreneurship in general, there has been a striking lack of consistency in the manner in which these activities have been defined. A number of scholars have expressed concern about this lack of universally acceptable definitions (e.g. Jennings & Lumpkin, 1989; Stopford & Baden-Fuller, 1994; Wortman, 1987; Zahra, 1991), Although the choice of definitions in behavioral sciences generally remains subject to debate (Hoy, 1995), a clearly stated set of definitions is necessary for scientific understanding, explanation, and prediction (McKelvey, 1982). Moreover, clearly stated and agreed-upon definitions makes it easier for researchers to, build on each other's work, and for practitioners to decide whether research findings are applicable to their situation. Because the field of corporate entrepreneurship is still in its infancy, the time is ripe to work on the clarification of existing terminology.

This article represents one effort to systematize the use of terminology in the field of corporate entrepreneurship. To do this we first review some of the existing definitions and illustrate how they are contradictory. This review is conducted to provide a grounding from which a framework of definitions can be developed that covers the field of corporate entrepreneurship. In developing this framework we go from a general to a specific point of view in order to clarify the existing boundaries of the field, reconcile the various terms used to describe the phenomena of interest, and illustrate the territory they cover.

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Each of the definitions we will propose are broad, by intention. We are of the opinion that broad definitions of concepts are preferable to narrow definitions at this stage in the field's development for several reasons. First, broad definitions are less likely to exclude as-yet-unspecified problems, issues, or organizations that are potentially important or interesting. Therefore, starting broad makes it less likely that the definitions will become outmoded and in need of revision as new issues are discovered. Furthermore, broad definitions are more amenable, and more resilient, to the discovery and classification of unique populations and subpopulations of firms and events since they avoid premature or arbitrary decisions about the variables that delineate one group from another. Broad definitions make it possible for the natures of different organizations and events to emerge through empirical research and theories of differences. Finally, broad definitions are more likely to be acceptable to most scholars since most will find a place for the topic or sites of research that are of interest to them. In sum, broad definitions better reflect the early stage of development of the field, avoid the need for excessive retrenchment as new knowledge becomes available, and provide considerable latitude for a theoretical and empirical process to emerge that will eventually permit the unique parts of the whole to be classified, defined, and understood in relation to that whole.

After we have presented our framework of definitions pertaining to corporate entrepreneurship, we then proceed to discuss some of the critical constructs by which internal corporate venturing efforts might be classified to illustrate the possibilities of the approach taken. We focus on internal corporate venturing because it is the sub-area that has been perhaps the most thoroughly studied thus far and is, therefore, the most amenable to further classificatory efforts.

Existing Definitions

Entrepreneurship

Before discussing existing definitions in the field of corporate entrepreneurship, we briefly turn our attention to the term "entrepreneurship." Entrepreneurship has meant different things to different people (Gartner, 1990; McMullan & Long, 1990). The historical development of the term has been documented by various authors (e.g. Gartner, 1988; Hisrich, 1986; Livesay, 1982; McMullan & Long, 1983). The earliest reference of the term has been traced to Richard Cantillon's work (1734). To him, entrepreneurship was self-employment with an uncertain return (McMullan & Long, 1990).

In a recent study, Gartner (1990) identified two distinct clusters of thought on the meaning of entrepreneurship. The first group of scholars focused on the characteristics of entrepreneurship (e.g. innovation, growth, uniqueness, etc.) while the second group focused on the outcomes of entrepreneurship (e.g. creation of value). Scholars who subscribe to the notion that entrepreneurship should be defined by its characteristic attributes appear to be, the largest group, accounting for 79% of

Gartner's sample. Among members of this group, most seem to rely on variations of one of two definitions' of entrepreneurship: Schumpeter's (1934) or Gartner's (1988).

To Schumpeter (1934), an entrepreneur is a person who carries out new combinations, which may take the form of new products, processes, markets, organizational forms, or sources of supply. Entrepreneurship is, then, the process of carrying out new combinations. In contrast, Gartner states that "Entrepreneurship is the creation of organizations" (1988, p. 26). Gartner was careful to specify that this was not offered as a definition but rather as "an attempt to change a long held and tenacious viewpoint in the entrepreneurship field" toward "what the entrepreneur does, not who the entrepreneur is" (p. 26). Nevertheless, it is clear from the literature that a large number of researchers in entrepreneurship have employed this definition, including Gartner himself (e.g. Bygrave, 1993; Gartner, Bird, & Starr, 1991; Learned, 1992).

Whereas both these definitions have merit, it should be clear that despite their overlaps, each covers a somewhat different territory. Thus, while the carrying out of new combinations (i.e. an innovation of product, process, etc.) may result in the creation of a new organization, it does not necessarily have to do so. Likewise, the creation of a new organization may involve a new combination; however, there are many new organizations that can make no claim to innovative activity. The debate about what entrepreneurship is will surely rage on for the foreseeable future in spite of the best arguments of scholars on any side of the debate. Yet there are clear advantages to attempts to reconcile the language used in the field, as ambiguity in terminology holds back the development of cohesive, explantory, or predictive theories (Low & MacMillan, 1988). As explained below, in this article, we seek definitions that do not exclude what has been termed entrepreneurship or corporate entrepreneurship in the past, are most likely to cover those aspects of entrepreneurship and corporate entrepreneurship that will draw the attention of scholars in the future, and will facilitate the reconciliation of the theory and research on entrepreneurship and corporate entrepreneurship.

Corporate Entrepreneurship Terminology

In recent years, the entrepreneurial abilities of corporate organizations has become a major subject of discussion both among practitioners and academicians. With this broadening of perspective, entrepreneurship has become more a hypothetical and abstract term attached to any individual or group creating new combinations (e.g. Lumpkin & Dess, 1996; Pass, Lowes, Davies, & Kronish, 1991), either on their own or attached to existing organizations. This is reflected in some academic writings. For example, Covin and Slevin (1991) have suggested that the three entrepreneurial postures of risk taking, innovativeness, and proactiveness, brought forth by Miller (1983), can be applied to corporate processes as well as to new independent ventures. Collins and Moore (1970) have differentiated between "independent" and "administrative" entrepreneurs, with the former creating new organizations from scratch, and the latter creating new organizations within or

adjunct to existing business structures. More recently, Lumpkin and Dess (1996) have stated that launching a new venture can be done either by a start-up firm or an existing firm.

Although there is an increasing recognition of the entrepreneurial activities within existing firms, ambiguities continue to plague attempts to define such activities. In fact, the language problem is, if anything, more acute when entrepreneurship is applied to a corporate setting. While the terms "entrepreneurship" or "independent entrepreneurship" are used to describe entrepreneurial efforts of individuals' operating outside the context of an existing organization, a variety of terms are used for the entrepreneurial efforts within an existing organization such as corporate entrepreneurship (Burgelman, 1983; Zahra, 1993), corporate venturing (Biggadike, 1979), intrepreneuring (Pinchot, 1985), internal corporate entrepreneurship (Jones & Butler, 1992), internal entrepreneurship (Schollhammer, 1982; Vesper, 1984), strategic renewal (Guth & Ginsberg, 1990), and venturing (Hornsby, Naffziger, Kuratko, & Montagno, 1993). A list of definitions used in the literature for these related terms is presented in Table 1.

Definitional Ambiguities

A careful examination of Table 1 reveals that the same term is sometimes used differently by different authors, and some authors use different terms to describe the same phenomenon. Examples of these definitional ambiguities are provided below and highlighted in Table 2.

Table 1. Existing definitions

Author/s & Yr.	Definition suggested
	CORPORATE ENTREPRENEURSHIP
Burgelman (1983)	Corporate entrepreneurship refers to the process whereby the firms engage in diversification through internal development. Such diversification requires new resource combinations to extent the firm's activities in areas unrelated, or marginally related to its current domain of competence and corresponding opportunity set (p. 1349).
Chung & Gibbons (1997)	Corporate entrepreneurship is an organizational process for transforming individual ideas into collective actions through the management of uncertainties (p. 14)
Covin & Slevin (1991)	Corporate entrepreneurship involves extending the firm's domain of competence and corresponding opportunity set to through internally generated new resource combinations (p. 7, quoting Burgelman, 1984, p. 154)
Guth & Ginsberg (1990)	Corporate entrepreneurship encompasses two types of phenomena and the processes surrounding them (1) the birth of new business within existing organization, i.e. internal innovation or venturing, and (2) the transformation of organizations through renewal of the key ideas on which they are built, i.e. strategic renewal (p. 5).

(*Continued*)

Jennings & Lumpkin (1989)	Corporate entrepreneurship is defined as the extent to which new product and/or new markets are developed An organization is entrepreneurial if it develops a higher that average number of new products and/or new markets (p. 489).
Schendel (1990)	Corporate entrepreneurship involves the notion of birth of new business within ongoing businesses, and the transformation of a stagnant, ongoing businesses in need of revival or transformation (p. 2)
Spann, Adams, & Wortman (1988)	Corporate entrepreneurship is the establishment of a separate corporate organization (often in the form of a profit center, strategic business unit, division, or subsidiary) to introduce a new product, serve or create a new market, or utilize a new technology (p. 149)
Vesper (1984)	Corporate entrepreneurship involves employee initiative from below in the organization to undertake something new. An innovation which is created by subordinate without being asked, expected or perhaps even given permission by higher management to do so (p. 295)
Zahra (1993)	Corporate entrepreneurship is a process of organizational renewal that has two distinct but related dimensions innovation and venturing, and strategic renewal (p. 321).
Zahra (1995, 1996)	Corporate entrepreneurship – the sum of a company's innovation, renewal, and venturing efforts. Innovation involves creating and introducing products, production processes; and organizational systems. Renewal means revitalizing the company's operations by changing the scope for its business, its competitive approaches of both. It also means building or acquiring new capabilities and then creatively leveraging them to add value shareholders. Venturing means that the firm will enter new businesses by expanding operations in existent or new markets (1995, p. 227, 1996, p. 1715)
	INTERNAL CORPORATE ENTREPRENEURSHIP
Jones & Butler (1992)	Internal Corporate Entrepreneurship refers to entrepreneurial behaviour within one firm (p. 734).
Schollhammer (1982)	Internal (or intra-corporate) entrepreneurship refers to all formalized entrepreneurial activities within existing business organizations. Formalized internal entrepreneurial activities are those which receive explicit organizational sanction and resource commitment for the purpose of innovative corporate endeavours-new product development, product improvements, new methods or procedures (p. 211).
	CORPORATE VENTURING
Biggadike (1979)	A Corporate Venture is defined as a business marketing a product or a service that the parent company has not previously marketed and that requires the parent company to obtain new equipment or new people or new knowledge (p. 104).
Block & MacMillan (1993)	A project is a Corporate Venture when it (a) involves an activity new to the organization, (b) is initiated or conducted internally, (c) involves significantly higher risk of failure or large losses that the organization's base business, (d) is characterized by greater uncertainty than the base business (e) will be managed separately at some time during its life, (f) is undertaken for the purpose of increasing sales, profit, productivity or quality (p. 14)
Ellis & Taylor (1987)	Corporate Venturing was postulated to pursue a strategy of unrlatedness to present activities, to adopt the structure of an independent unit and to involve a process of assembling and configuring novel resources (p. 528).
Von Hippel (1977)	Corporate Venturing is an activity which seeks to generate new businesses for the corporation in which it resides through the establishment of external or internal corporate ventures (p. 163).

(*Continued*)

	VENTURE, INTERNAL VENTURES, INTERNAL CORPORATE VENTURING, NEW BUSINESS VENTURING
Hornsby, Naffziger, Kuratko, Montagno (1993)	Venture may be applied to the development of new business endeavors within the corporate framework (p. 30)
Roberts & Berry (1985)	Internal ventures are a firm's attempts to enter different markets or develop substantially different products from those of its existent base business by setting up a separate entity within the existing corporate body (p. 6).
Stopford & Baden-Fuller (1994)	New Business Venturing occurs when individuals and small teams form entrepreneurial groups inside an organization capable of persuading others to alter their behaviour, thus influencing the creation of new corporate resources (p. 522).
Zahra (1996)	Venturing means that the firm will enter new businesses by expanding operations in existing or new markets (p. 1715).
Zajac, Golden, Shortell (1991)	Internal corporate venturing involves 'the creation of an internal – staffed venture unit that is semi-autonomous, with the sponsoring organization maintaining ultimate authority (p. 171)
	INTRAPRENEURSHIP
Nielson, Peters, & Hisrich (1985)	Intrapreneurship is the development within a large organization of internal markets and relatively small and independent units designed to create, internally test-market, and expand improved and/or innovate staff services, technologies or methods within the organization. This is different from the large organization entrepreneurship/venture units whose purpose is to develop profitable positions in external markets (p. 181)
Pinchot III (1985)	Intrapreneurs are any of the "dreamers who do" . Those who take hands-on responsibility for creating innovation of any kind within an organization. They may be the creators or inventors but are always the dreamers who figure out how to turn an idea into a profitable reality (p. ix).
	STRATEGIC or ORGANIZATIONAL RENEWAL
Guth & Ginsburg (1990)	Strategic renewal involves the creation of new wealth through new combinations of resources (p. 6)
Stopford & Baden-Fuller (1994)	Organizational renewal alters the resource of pattern of business to achieve better and sustainable overall economic performance. To be sustainable, more pervasive effort is needed, involving more than a few individuals and the finance function (p. 522)
Zahra (1993, 1995, 1996)	Renewal means revitalizing a company's business through innovation and changing its competitive profile. It means revitalizing the company's operations by changing the scope of its business, its competitive approaches or both. It also means building or acquiring new capabilities and then creatively leveraging them to add value for shareholders (1995, p. 227, 1996, p. 1715) Renewal has many facets, including the redefinition of the business concept, reorganization and the introduction of system-wide changes for innovation. Renewal is achieved through the redefinition of a firm's mission through the creative redeployment of resources, leading to new combinations of products and technologies (1993, p. 321).

Table 2. Examples of some definitional ambiguities

Characteristics	Authors and terms used		
	Ellis & Taylor (1987) **CV**	**Burgelman (1983)** **CE**	**Biggadike (1979)** **CV**
Extent of innovation	assembling and configuring novel resources	requires new resource combinations	requires obtain new equipment, or people, or knowledge to introduce a new product or service
Relatedness to existing businesses	unrelated to present activities	activities in areas unrelated or marginally related to current domain of competence	
Structural autonomy	independent unit		

CE – Corporate Entrepreneurship
CV – Corporate Venturing

Burgelman (1983) defines corporate entrepreneurship as "the process whereby the firms engage in diversification through internal development. Such diversification requires new resource combinations to extend the firm's activities in areas unrelated, or marginally related, to its current domain of competence" (p. 1349). Biggadike (1979), on the other hand, describes corporate venturing as "marketing a product or service that the parent company has not previously marketed and that requires the parent company to obtain new equipment or new people or new knowledge" (p. 104). Taking a still different approach, Ellis and Taylor (1987) define corporate venturing as "a strategy of unrelatedness to present activities, to adopt the structure of an independent unit and to involve a process of assembling and configuring novel resources" (p. 528).

It is observed that all three definitions describe the creation of a new business in an area that requires innovative resource combinations. A closer observation of these definitions, however, also reveals differences in the degree of restrictiveness. Burgelman restricts corporate entrepreneurship to diversification into activities, unrelated or marginally related to a firm's area of competence. Biggadike's definition, on the other hand, does not necessarily limit the venturing effort in this way. Thus, an existing competence could still come into play as long as the venture extended that competence in, some manner, that is, through the need for new equipment, people, or knowledge. The difference in restrictiveness suggests that Burgelman's corporate entrepreneurship is a subset of Biggadike's corporate venturing.

Ellis and Taylor agree with the requirement of unique resources and with Burgelman's conception of an unrelated activity but add another level of restrictiveness into the definition by specifying the structural arrangement of the venture in relation to the corporation. Their definition would include only those venturing

efforts that involved the creation of a new venture division as a setting for such efforts. Thus, firms that engaged in venturing within a pre-existing corporate structure would fall outside Ellis and Taylor's definition. As a consequence, the firms that fit Ellis and Taylor's (1987) definition of corporate venturing constitute a subset of the firms that would fit Burgelman's definition of corporate entrepreneurship. In turn, Burgelman's corporate entrepreneurship appears to be a subset of Biggadike's (1979) concept of corporate venturing.

Perhaps the most widely accepted definition of corporate entrepreneurship was proposed by Guth and Ginsberg (1990). They say that corporate entrepreneurship encompasses the birth of new businesses within existing businesses and the transformation (or rebirth) of organizations through a renewal of their key ideas. Their definition of corporate entrepreneurship not only contains Biggadike's definition of corporate venturing (which contains Burgelman's, etc.), it also introduces, in a different context, the interplay of the idea of new organizations and new combinations that characterizes the debate found in the literature on entrepreneurship. While we follow Guth and Ginsberg (1990) in this article, it is important to illustrate the inconsistencies in these definitions because using the same terminology to describe markedly broader and narrower concepts is not conducive to the advancement of the field.[1]

In summary the need for a framework that will help clarify the definitional ambiguities that exist in the field of corporate entrepreneurship becomes obvious from these examples, a task we turn to below.

A Definitional Framework

Although organization creation and innovation[2] are generally regarded as key factors in entrepreneurship (Stopford & Baden-Fuller, 1994), the challenges that entrepreneurs face vary according to whether they are operating independently or as a part of an existing organization. This necessitates two things: first, a need to clarify the definition of entrepreneurship; and second, a need to differentiate between the settings in which entrepreneurship takes place.

[1] There is an interesting difference in the attempts to define individual or independent entrepreneurship on the one hand and corporate entrepreneurship on the other. Many of those who study entrepreneurs seem bent on limiting the field to individuals who create new organizations *and* new combinations (cf. Gartner, 1990) On the other hand, the definition proposed by Guth and Ginsberg (1990) makes it clear that corporate entrepreneurship can involve *either* the creation of new organizations *or* new combinations, Thus, corporate entrepreneurship is defined more broadly than some would like to define entrepreneurship This means that activities considered entrepreneurial in a corporate setting might not be considered as such if undertaken outside an existing company.

[2] An innovation is distinguished from an invention An innovation brings something into new use, whereas an invention brings something new into being (Rogers, 1962) The criteria for success of an invention are technical, whereas for an innovation the criteria are commercial (Burgelman & Sayles, 1986).

Entrepreneurship

For the sake of clarification in terminology and in recognition of the entrepreneurial efforts of individuals working in a corporate setup, the following definitions of entrepreneurship and entrepreneurs are proposed (Gartner, 1988; Schumpeter, 1934; Stopford & Baden-Fuller, 1994; Zahra, 1993, 1995, 1996).

Entrepreneurship encompasses acts of organizational creation, renewal, or innovation that occur within or outside an existing organization.

Entrepreneurs are individuals or groups of individuals, acting independently or as part of a corporate system, who create new organizations, or instigate renewal or innovation within an existing organization.

The conditions that define entrepreneurship are related to newness in the sense of strategy or structure.[3] Thus, the creation of an organization as defined by Gartner (1988) is entrepreneurial since it entails fundamental strategic and structural decisions (Cooper, 1979). Likewise, the renewal or rebirth of an existing organization is entrepreneurial in the sense that it represents a radical departure from predominant and historic strategic or structural patterns. Innovation is also an entrepreneurial activity since it involves new combinations that may dramatically alter the bases of competition in an industry, or lead to the creation of a new industry (Schumpeter, 1934; Stopford & Baden-Fuller, 1994), even though it may not be immediately manifested in organizational creation or renewal. However, while the above definition recognizes the centrality of innovation to entrepreneurship, it does not require that the birth or rebirth of an organization be accompanied by a Schumpeterian innovation (Stopford & Baden-Fuller, 1994), only that it consist of actions that materially affect the nature of the organization (Schollhammer, 1982). Put differently, both creation and renewal would subject the organization in question to the "liability of newness" as put forth by Stinchcombe (1965). The extent of this liability for an organization will vary according to the extent of its departure from its existing strategy or structural patterns, as well as the extent of newness of the product, service, technology, processes, etc. in a particular marketplace.

Thus, the presence of an innovation is viewed as a *sufficient* condition for entrepreneurship but not a *necessary* one, because organizational creation or renewal can occur in the absence of innovation. Newness or uniqueness of an innovation is a matter of degree both in terms of the tangible characteristics and in terms of the relevant market. Furthermore, new to the marketplace does not necessarily mean that the innovation is sold or consumed, as in the case of a new organizational form or a new process development. Since innovation may vary in its amount and impact, it is very difficult and, indeed, counterproductive to attempt to specify the

[3] By strategy we mean the manner in which an organization aligns its key resources with its environment.Thus, strategy includes an organization's core competencies, resource deployments, competitive methods, and scope of operations at either the business unit or corporate level (cf. Hofer & Schendel, 1978, Porter, 1980, Prahalad & Hamel, 1990). By structure we mean simply the manner in which an organization goes about implementing its strategy (cf. Galbraith & Nathanson, 1979).

precise level of innovation necessary for entrepreneurship. Therefore, we take the position that for the purpose of defining entrepreneurship, it is preferable to treat innovation as an entrepreneurial act rather than as the only act that makes the occurrence of entrepreneurship possible.

It should be apparent that despite the breadth of this definition it is highly consistent with the prevalent views of entrepreneurship (Gartner, 1990; Schumpeter, 1934) and corporate entrepreneurship (e.g. Zahra, 1995). Furthermore, the definition of entrepreneurship proposed allows for further distinctions between independent and corporate entrepreneurship to be made in a manner that is internally consistent.

Independent and Corporate Entrepreneurship

Following the lead of Collins and Moore (1970), entrepreneurial activities undertaken independently and those undertaken within the context of an organization are differentiated as "independent entrepreneurship" and "corporate entrepreneurship." Thus:

Independent Entrepreneurship is the process whereby an individual or group of individuals, acting independently of any association with an existing organization, create a new organization.[4]

Corporate Entrepreneurship is 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.

Strategic Renewal and Corporate Venturing

As mentioned earlier, a number of authors (e.g. Guth & Ginsberg, 1990; Schendel, 1990; Zahra, 1995, 1996) have suggested that within the realm of existing organizations, entrepreneurship encompasses three types of phenomenon that may or may not be interrelated: (i) the birth of new businesses within an existing corporation; (ii) the transformation of existing organizations through the renewal or reshaping of the key ideas on which they are built; and (iii) innovation. While the first has been referred to as internal corporate venturing (Zajac, Golden & Shortell, 1991), intrapreneurship (Pinchot, 1985), corporate new venture division (Sandberg, 1992), internal innovation, internal venturing (Guth & Ginsberg, 1990), and so on, the second has been called strategic renewal (Guth & Ginsberg, 1990), strategic change, revival, transformation (Schendel, 1990), strategic departure, new product development (Vesper, 1984), reorganization, redefinition

[4] Since organizational renewal obviously involved major strategic or structural changes to an existing organization, it cannot be considered independent entrepreneurship, by definition. Furthermore, organizational creation can occur in the presence or absence of innovation, as discussed above. Therefore, to include innovation in this definition would be redundant.

(Zahra, 1993), organizational renewal (Stopford & Baden-Fuller, 1994), etc. In this discussion the terms strategic renewal and corporate venturing are used.

Strategic Renewal refers to the corporate entrepreneurial efforts that result in significant changes to an organization's business or corporate level strategy or structure. These changes alter pre-existing relationships within the organization or between the organization and its external environment and in most cases will involve some sort of innovation. Renewal activities reside within an existing organization and are not treated as new businesses by the organization.

Corporate Venturing refers to corporate entrepreneurial efforts that lead to the creation of new business organizations within the corporate organization. They may follow from or lead to innovations that exploit new markets, or new product offerings, or both. These venturing efforts may or may not lead to the formation of new organizational units that are distinct from existing organizational units in a structural sense (e.g. a new division).

Thus, both strategic renewal and corporate venturing suggest changes in either the strategy or structure of an existing corporation, which may involve innovation. The principle difference between the two is that corporate venturing involves the creation of new businesses whereas strategic renewal leads to the reconfiguration of existing businesses within a corporate setting.[5]

External and Internal Corporate Venturing

As noted above, corporate venturing may or may not lead to the formation of organizational entities that are distinct from the existing entities within an organization. In fact, corporate ventures may or may not reside within the domain of the existing organization (von Hippel, 1977). Based on these options, corporate venturing can be classified either as external or internal.

External Corporate Venturing refers to corporate venturing activities that result in the creation of semi-autonomous or autonomous organizational entities that reside outside the existing organizational domain.

Some examples of external corporate ventures are those formed as a result of joint ventures, spin-offs, and venture capital initiatives. Although these may vary in their degree of separateness from the parent company, their common feature is that they reside outside the domain or boundaries of the existing organization.

[5] However, as our previous discussion has suggested, there may be instances where innovation occurs in an existing organization in the absence of either corporate venturing or strategic renewal efforts. Although these instances may be rare it is important to clarify the nature of these innovations for the purpose of completeness. To be entrepreneurial in the absence of organizational creation or renewal the innovation must be of the Schumpeterian (1934) variety or, in other words, involve the introduction of an original invention or idea into a commercially usable form that is new to the marketplace and has the potential to transform the competitive environment as well as the organization (Stopford Baden-Fuller, 1994).

Internal Corporate Venturing refers to the corporate venturing activities that result in the creation of organizational entities that reside within an existing organizational domain.

The relationship between the terms discussed above is diagrammatically presented in Fig. 1. It is observed that at every step down the hierarchy a new limiting criterion is added, resulting in a set of internally consistent definitions that conform with previous usages (Table 3).

Toward a Classification of Internal Corporate Ventures

Up to this point we have been concerned with a reconciliation of the definitions of the key terms used in the field of corporate entrepreneurship. As noted at the outset of this article, we have chosen to define these terms broadly. However, it should be clear that phenomena such as internal corporate venturing may take many forms. Indeed, a comparison of the definitions of Biggadike (1979), Burgelman (1983), and Ellis and Taylor (1987) emphasizes this point. As we move from abstract concepts to concrete solutions, it is desirable to classify groups or populations

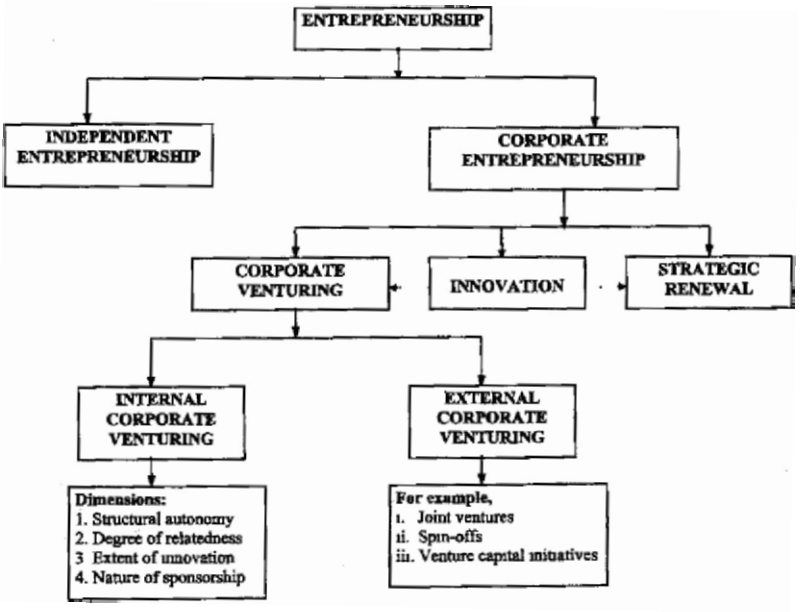

Fig. 1. Hierarchy of terminology in corporate entrepreneurship

Table 3. Unique features of corporate entrepreneurship terminology

Terms Unique Criteria	
Entrepreneurship	organizational creation, renewal, or innovation, within or outside existing organizations
Independent entrepreneurship	organizational creation, + by individual(s) not associated with an existing corporate entity
Corporate entrepreneurship	organizational creation, renewal, or innovation, + instigated by an existing organizational entity
Strategic renewal	organizational renewal involving major strategic and/or structural changes • instigated by an existing organizational entity • resides within existing organizational domain
Corporate venturing	organizational creation, + instigated by an existing organizational entity + treated as new businesses
Innovation	introduction *of* something new to marketplaced • potential to transform competitive environment and organization • usually occurring in concert with corporate venturing or strategic renewal
External corporate venturing	organizational creation + instigated by an existing organizational entity, treated as new businesses, + resides outside existing organizational domain
Internal corporate venturing	Organizational creation, • instigated by an existing organizational entity • treated as new businesses • reside within existing organizational domain.
Dimensional of internal corporate venturing	1 Structural autonomy 2 Relatedness to existing business(es) 3 Extent of innovation 4 Nature of sponsorship

pf organizations or events that share a large number of common characteristics and differ sharply from other groups or populations on those same characteristic dimensions. The problem of classification is best addressed by a combination of theoretical and empirical methods. Thus, while we can have a purely theoretical debate about what actions or situations to which the entrepreneurial or corporate

venturing labels should be attached, it is more difficult to effectively classify discrete types of such phenomena without empirical research. However, we can develop theories about the nature of the differences that distinguish one population from another to guide empirical investigation. In this vein we will discuss the dimensions that appear to differentiate discrete types of internal corporate ventures. We chose internal corporate ventures because of personal interest, their importance to the field, and because they have received considerable attention in the literature, and are, therefore, perhaps the best understood aspect of corporate entrepreneurship.

Although internal corporate venturing activities are located within existing organizations, they are created in different ways, have different relationships with the corporate parent, involve different levels of innovation, and differ in strategic importance. These distinctions suggest that internal corporate ventures may vary in terms of at least foul dimensions that may materially influence their subsequent development and performance: structural autonomy, relatedness to existing businesses, extent of innovation, and nature of sponsorship. In turn, these variations suggest that a classification of internal corporate ventures is possible. Although it is beyond the scope of this article to develop such a classification in full, each of the relevant dimensions is discussed briefly below as a starting point for empirical investigations.

Structural Autonomy

This refers to the extent to which the internal corporate venturing activities of a corporation are embedded within its existing organizational units. Put differently, this dimension addresses the crucial decision of where to locate the venture within an organization. The options vary from totally embedding the venture within the ongoing operations of an existing division to creating a separate new-venture division isolated from the rest of the organization and reporting directly to top management (Block & MacMillan, 1993; Kanter, Richardson, North, & Morgan, 1991). Block and MacMillan (1993) suggest that the ideal place to locate a venture will depend on its needs for managerial attention, resources, learning opportunities, and protection from corporate antagonism.

Different authors have focused on internal corporate ventures with different levels of structural autonomy, and these differences have influenced their definitions of terms as well as their descriptions of the phenomenon. For example, Burgelman and Sayles (1986) studied new venture divisions. This choice of setting may have influenced their restrictive definition of corporate entrepreneurship and may also explain the nature of the model by which they seek to describe the venturing process. However, Pinchot's (1985) work indicates that relationships among the critical components of the process may vary somewhat for ventures initiated within the structure of an existing division. Overall, this suggests that differences in the structural autonomy of internal corporate ventures may have a material effect on the venturing process.

Degree of Relatedness to Existing Business

The second dimension on which the internal corporate venture may vary is the degree of relatedness of the new business to existing businesses in terms of product offerings, markets, or core competencies and resources required. This construct may vary from being closely related to completely unrelated to the organization's present activities, leading to a variation in the challenge provided and the learning required for effectively managing the internal corporate venture (Block & MacMillan, 1993; Sorrentino & Williams, 1995).

Extent of Innovation

While the degree of relatedness to existing businesses refers to the degree of newness of the venture to the organization, the extent of innovation refers to the degree of newness of a venture in the marketplace. This dimension may vary from ventures that are simply imitative entries to those innovative entries that are potentially "frame-breaking" (Stopford & Baden-Fuller, 1994). Although imitative ventures will require considerable learning on the part of an organization, some lessons may be learned from experiences of pioneering competitors. For the ventures that are completely new to the marketplace, and perhaps even create new markets, the firm in question is the pioneer and faces considerably greater challenges as a consequence.

Nature of Sponsorship

This dimension is related to the degree of formal authorization for the venture. Zahra (1993) has suggested that ventures may vary from being formal or induced (sponsored by an organization) to informal or autonomous (entrepreneurial efforts based on employees' initiative without formal organizational sponsorship). This view has been extended by Day (1994), whose research supported the existence of "top-down," "bottom-up", and "dual-role champions" in entrepreneurial processes within internal corporate ventures.

Sponsorship has received considerable attention in the corporate entrepreneurship literature. While Covin and Slevin (1991) and Burgelman (1983) have focused on formal entrepreneurial efforts, other authors (e.g. Kanter, 1983; Pinchot, 1985) have focused on informal entrepreneurial efforts. The challenges and opportunities for entrepreneurship vary according to the nature of sponsorship. For example, in case of autonomous entrepreneurial efforts, the role of an organizational champion and sponsor is extremely important, whereas it may not be as critical in the case of formally induced efforts.

Reconciliation of Definitions

Based on the discussion presented in this article it is now possible to clarify the relationships between the definitions of Biggadike (1979), Burgelman (1983), Ellis and Taylor (1987), and Guth and Ginsgerg (1990). First, it should be clear that we follow Guth and Ginsberg (1990) in defining corporate entrepreneurship as an activity comprising corporate venturing, strategic renewal, and innovation. Second, it should also be clear that Biggadike's (1979), Burgelman's (1983), and Ellis and Talyor's (1987) definitions all involve internal corporate venturing efforts but that each defines somewhat different types of internal corporate venturing. Thus, Biggaidike's (1979) definition comprises all those internal corporate ventures that involve some amount of innovation regardless of the venture's degree of relatedness to the parent, structural autonomy, or sponsorship. Burgelman (1983), on the other hand, does not specify the degree of structural autonomy or sponsorship but makes it plain that the venture must be innovative and unrelated to the parent's existing businesses. Finally, Ellis and Taylor (1987) specifically exclude any venture that is not structurally autonomous, innovative, and unrelated to the parent, although either a formally or informally sponsored venture that possesses those characteristics would qualify.

As shown in Table 4, if we assume that each of the four dimensions by which internal corporate ventures might be classified can take one of two states, Biggadike's (1979) definition encompasses eight of the 16 possible types of internal corporate ventures. Burgelman's (1983) contains four of those types, and Taylor's (1987) consists of two.[6] This reconciliation not only illustrates the consistency of the definitional framework proposed in this article, but also illustrates how it might be utilized by researchers to reconcile the findings of those and other studies.

For example, all else held equal, Biggadike's (1979) findings are generalizable to the most situations. However, because his study does not distinguish between different types of innovative internal corporate ventures, generalizations must be made with the greatest caution; the averages across types may not apply strongly to any single type. Conversely, Ellis and Taylor's (1987) work is the least generalizable across internal corporate ventures because of the restrictiveness of their definition. On the other hand, this restrictiveness also means that one can have a higher degree of confidence in the generalizations that can be made. Of course, Burgelman's (1983) definition and study falls somewhere in-between in terms of the extent and reliability of the generalizations that can be made from his research.

Admittedly, not all of the definitions previously used will fit as neatly into the framework proposed in this article as the ones discussed above. Nevertheless, the frame- work does provide a standard term of reference by which definitions and research findings can be compared and harmonized.

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[6] The classification scheme shown in Table 4 is meant for illustrative purposes. Thus, while it might be a good starting point for clarifying internal corporate ventures, it is not our intention to suggest that this is how internal corporate ventures should be classified.

A Tentative Classification of Internal Corporate Ventures and a Reconciliation of Previous Definitions

Table 4. A tentative classification of Internal Corporate Ventures ans a reconciliation of previous definitions

Extent of innovation	Relatedness to parent	Structural autonomy	Nature of sponsorship	Definitions used		
Innovative	Unrelated	Autonomous	Formal	Biggadike	Burgelman	Ellis & Taylor
			Informal	(1979)	(1983)	(1987)
		Embedded	Formal			
			Informal			
	Related	Autonomous	Formal			
			Informal			
		Embedded	Formal			
			Informal			
Imitative	Unrelated	Autonomous	Formal			
			Informal			
		Embedded	Formal			
			Informal			
	Related	Autonomous	Formal			
			Informal			
		Embedded	Formal			
			Informal			

Conclusion

A review of the literature of corporate entrepreneurship reveals an ambiguity in terminology used. Although various authors agree on the features that are unique in corporate entrepreneurship, they often use different terms to express themselves. While this is not uncommon in behavioral sciences in general, and in new emerging disciplines in particular, an acceptance of a common set of terminology is necessary for scientific progress. This article represents one effort to systematize the terminology in corporate entrepreneurship.

A framework for the clarification and reconciliation of definitions was developed with the aim of providing a set of criteria for each descriptor. Moreover, a hierarchy of criteria was developed for the different terms. Finally, the basis for developing a system of classification for internal corporate ventures was proposed. While more work needs to be done, it is hoped that our efforts to put forward a set of internally consistent definitions and specify the criteria that differentiates one descriptor from another will provide a step toward a common terminology in the field of corporate entrepreneurship. Regardless, we believe that the clarification of the various elements that constitute corporate entrepreneurship should be of immediate value to the field.

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Fools Rush in? The Institutional Context of Industry Creation*

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Abstract

Now organizations are always vulnerable to the liabilities of newness, but such pressures are especially severe when an industry is in its formative years. We focus on one set of constraints facing entrepreneurs in emerging industries-their relative lack of cognitive and sociopolitical legitimacy. We examine the strategies that founders can pursue, suggesting how their successful pursuit of legitimacy may evolve from innovative ventures to broader contexts, collectively reshaping industry and institutional environments.

Founding a new venture is risky business under any conditions, but especially so when entrepreneurs have few precedents for the kinds of activities they want to found. Early ventures in the formative years of a new industry face a different set of challenges than those that simply carry on a tradition pioneered by thousands of predecessors in the same industry. Such foundings are risky, but are they also foolish? From an institutional and ecological perspective, founders of new ventures appear to be fools, for they are navigating, at best, in an institutional vacuum of indifferent munificence and, at worst, in a hostile environment impervious to individual action. In addition to the normal pressures facing any new organizations, they also must carve out a new market, raise capital from skeptical sources, recruit untrained employees, and cope with other difficulties stemming from their nascent status.

Among the many problems facing innovating entrepreneurs, their relative lack of legitimacy is especially critical, as both entrepreneurs and crucial stakeholders may not fully understand the nature of the new ventures, and their conformity to established institutional rules may still be in question. We capture these problems by using the term *legitimacy* in two related senses: (a) how taken for granted a new form is and (b) the extent to which a new form conforms to recognized principles or accepted rules and standards. The first form of legitimacy is labeled *cognitive*, and the second, *sociopolitical*.

In this article, we examine the social processes surrounding the emergence of new industries, from the early pioneering ventures through the early stages of

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growth, when the form proliferates as the industry becomes established. Legitimacy is not the only factor influencing whether an industry successfully moves beyond the stage of a few pioneers to fully realized growth. Clearly, many other factors are important to a new industry's success, such as the state of the economy, latent demand for the product or service, competitive pressures from related industries, and the skills of new venture owners and workers. Because only a few theorists have examined failed industries (e.g. Astley, 1985), and we have no systematic research in this area, our article is necessarily speculative. However, we believe that legitimacy is a more important issue than previously recognized, and so we focus our arguments and propositions on factors affecting an industry's legitimacy and on legitimating strategies pursued by innovating entrepreneurs.

Our aim is to identify factors hindering and supporting the progression from the founding of a completely new activity, in an institutional void, through its development as a legitimate industry. Our focus is on the development of independent new ventures that are not sheltered by sponsoring organizations. By definition, such ventures cannot rely on existing institutions to provide external legitimacy. Throughout the article, we refer to *new activities* as specific product/process innovations, one aspect of what ecologists refer to generally as new organizational forms; *new ventures* are independent organizations initiating the new activity; and *industries* are groups of organizations with similar products/processes.

Background

This paper extends current theories linking organizational legitimacy and industry creation. Ecological theorists have provided empirical evidence of lower founding and higher disbanding rates when industries are small (Hannan & Freeman, 1989). Borrowing from institutional theory (Meyer & Rowan, 1977; Scott & Meyer, 1983), they have argued that this pattern exists because firms initially lack external legitimacy due to their small numbers. Their strongest arguments have been based on findings from organizational populations with chronic problems of sociopolitical opposition and repression (e.g. labor unions and newspapers) (Delacroix & Rao, 1993). In the 1990s, they have begun to address legitimacy issues stemming from a lack of knowledge and understanding (Hannan & Carroll, 1992).

Theorists using economic models have challenged ecologists' legitimacy arguments, asserting that industry entry and exit patterns are the result of competition and industry consolidation (Delacroix, Swaminathan, & Solt, 1989). The focus of economic theories of industry creation has been on the risks and economic trade-offs that characterize new industry entry decisions (Klepper & Graddy, 1990; Winter, 1984), and they have given little weight to the social context within which those decisions are embedded. Klepper and Graddy's study, however, provided findings that strongly suggest the influence of other than purely economic-technical considerations in the growth of an industry. They found that some industries went from origin to stability (defined as the year when the number of firms reached a peak and remained more or less the same for a few years) in only two years, whereas others took more than 50 years. The average was 29 years, and the

standard deviation was 15, indicating that there is an enormous range of variation in the time required for industries to become established. Some fraction of this time reflects the early founders' struggles in developing cognitive and sociopolitical legitimacy.

We begin by defining and describing the two forms of legitimacy. We note that there are many constraints facing innovating entrepreneurs. Framing the problem in this way portrays founders as confronting a seemingly insuperable obstacle course in their struggle for legitimation. We then reframe the problem, using an institutional framework to specify a set of conditions that calls for particular strategies on the part of founding entrepreneurs. Reframing the issue in this way highlights founders' opportunities for overcoming existing legitimacy barriers and establishing a new set of norms, paving the way for an emerging industry to grow. We emphasize the cumulative way in which entrepreneurial activity plays a role in reshaping the larger environmental context by beginning with the individual venture and working our way up the hierarchy.

Entrepreneurs and Legitimacy Constraints

New industries emerge when entrepreneurs succeed in mobilizing resources in response to perceived opportunities. Identifying opportunities, assembling resources, and recruiting and training employees are challenges facing all entrepreneurs, and all of these activities require the cooperation and strategic interaction of individuals and groups. However, founders of entirely new activities, by definition, lack the familiarity and credibility that constitute the fundamental basis of interaction. Many of the other constraints on a new industry's growth are thus magnified. Access to capital, markets, and governmental protection are all partially dependent on the level of legitimacy achieved by an emerging industry.

In the original formulation of the argument linking industries and legitimacy, Hannan & Freeman (1986) identified increasing numbers of organizations as the primary force raising the legitimacy of a population. The empirical puzzle that Hannan grappled with is a pattern, in a population's growth, of low founding rates and high disbanding rates in its early years, followed by a gradual increase in founding rates and a decrease in disbanding rates. What contextual factors discourage potential founders and undermine the survival of many organizations that are founded? Subsequent answers to this question have become more theoretically subtle and historically sophisticated (Hannan & Carroll, 1992; Ranger-Moore, Banaszak-Holl, & Hannan, 1991), but they still follow Hannan's early identification of industry size-net of other conditions-as a crucial condition.

When the number of organizations in a new industry is small, new organizations are thought to have a lower chance of survival because they must learn new roles without having role models, and they must establish ties with an environment that does not understand or acknowledge their existence (Hannan & Carroll, 1992; Stinchcombe, 1965). As an industry grows, increasing numbers of organizations raise its legitimacy along two dimensions: cognitive, or knowledge about the new activity and what is needed to succeed in an industry, and sociopolitical, or

the value placed on an activity by cultural norms and political authorities (Ranger-Moore et al. 1991).

Cognitive Legitimation. It refers to the spread of knowledge about a new venture. Hannan and Freeman (1986: 63) noted that when an activity becomes so familiar and well known that it is taken for granted, time and other organizing resources are conserved, "attempts at creating copies of legitimated forms are common, and the success rate of such attempts is high." One can assess cognitive legitimation by measuring the level of public knowledge about a new activity. The highest form of cognitive legitimation is achieved when a new product, process, or service is taken for granted. An example is the diffusion of knowledge about personal computers – how to use them and how to manufacture them – in the 1970s and 1980s that facilitated the spread of PC use in homes and schools and that helped spawn many start-ups. From a producer's point of view, cognitive legitimation means that new entrants to an industry are likely to copy an existing organizational form, rather than experiment with a new one. From a consumer's point of view, cognitive legitimation means that people are knowledgeable users of the product or service.

Sociopolitical Legitimation. It refers to the process by which key stakeholders, the general public, key opinion leaders, or government officials accept a venture as appropriate and right, given existing norms and laws. One can measure sociopolitical legitimation by assessing public acceptance of an industry, government subsidies to the industry, or the public prestige of its leaders. An often-cited example is the passage of the Wagner Act in 1935, which gave special status under federal law to unions following the form specified in the Act (Hannan & Freeman, 1986). For U.S. unions, government approval was a symbol of a long struggle for legitimacy, waged first by craft and then industrial unions.

Studies of organizational legitimacy have focused primarily on the impact of controversial activities on a firm's ability to acquire and maintain sociopolitical approval (Elsbach & Sutton, 1992; Hannan & Carroll, 1992; Meyer & Rowan, 1977). However, this aspect of legitimacy may not be the most relevant to the legitimacy issues facing founders of entirely new activities. As Delacroix and colleagues (1989: 247) noted, there is a "diffuse belief that profit-seeking activities are valid, unless otherwise specified." Though it may be legally validated in the form of a legal charter, an entirely new activity begins, by definition, with low cognitive legitimacy. Without widespread knowledge and understanding of their activity, entrepreneurs may have difficulty maintaining the support of key constituencies.

Social Context as Opportunity

Social contexts present entrepreneurs with many constraints, yet they also set the conditions that create windows of opportunity. Through processes of social construction, entrepreneurs can develop new meanings that may eventually alter institutional norms. Our arguments follow institutional constructionists, who

emphasize how people in organizations act to produce and reproduce their environments (DiMaggio & Powell, 1983; Zucker, 1986). Social contexts, from this perspective, represent not only patterns of established meaning, but also sites within which renegotiations of meaning take place. Founding entrepreneurs of innovative ventures-the first stage in creating new industries-are initiators in this process of renegotiation. Table 1 proposes four levels of social context as progressively broadened sites within which founding entrepreneurs build trust, reliability, reputation, and, finally, institutional legitimacy.

We focus first on dynamics at the organizational level, and then we suggest how the progressive building of trust and reliability may work its way up the hierarchy, collectively reshaping industry and institutional environments. A series of propositions summarizes our discussion of possible strategies for gaining legitimacy at each level of the hierarchy.

Entrepreneurs and Trust-building Opportunities

What is trust? Early definitions refer to "assured reliance on the character, ability, strength, or truth of someone or something" (*Webster's New Collegiate Dictionary*, 1981: 1246). Later variants stress that trust is a belief, in the absence of any evidence, that things will "work out" (Gambetta, 1988; Gartner & Low, 1990). The role of trust is central to all social transactions (ranging from marriage to international affairs) where there is ignorance or uncertainty about actions and outcomes. Despite its pervasiveness, it is most often taken for granted as a background condition or "a sort of ever-ready lubricant that permits voluntary participation in production and exchange" (Dasgupta, 1988: 49).

Trust, reliability, and reputation are methods of attaining cooperation based on increasing familiarity and evidence (Bateson, 1988). Thus, the less information or evidence we have, the more we need to trust. As information accumulates and evidence mounts, we can increasingly rely on patterns of reliability and reputation.

Table 1. Entrepreneurial strategies to promote new industry development

Level of Analysis	Type of Legitimacy	
	Cognitive	**Sociopolitical**
Organizational	Develop knowledge base via symbolic language and behaviors	Develop trust in the new activity by maintaining internally consistent stories
Intraindustry	Develop knowledge base by encouraging convergence around a dominant design	Develop perceptions of reliability by mobilizing to take collective action
Interindustry	Develop knowledge base by promoting activity through third-party actors	Develop reputation of a new activity as a reality by negotiating and compromising with other industries
Institutional	Develop knowledge base by creating linkages with established educational curricula	Develop legitimacy by organizing collective marketing and lobbing efforts

Trust is a critical first-level determinant of the success of founding entrepreneurs because, by definition, there is an absence of information and evidence regarding their new activity. Gartner and Low (1990: 18) argued that the concept of trust "provides a link between factors influencing organization formation at the individual level to factors influencing formation at the organizational and environmental levels." Specifically, they believed that the social process of gaining legitimacy is shaped by the interpersonal processes of achieving trust in the organizing process.

Entrepreneurs in a new industry face rather different conditions than those operating in the relative security of simply reproducing old activities. With their industry having achieved cognitive and sociopolitical legitimacy, most entrepreneurs in recognized industries do not have to build trust within a vacuum. In contrast, founders of ventures in new industries, without the advantages of a taken-for-granted activity and without widespread sociopolitical approval, must first call upon whatever personal and interpersonal resources they possess. They must interact with extremely skeptical customers, creditors, suppliers, and other resource holders, who are afraid of being taken for fools. With no external evidence, why should potential trusting parties "trust" an entrepreneur's claims that a relationship "will work out," given that an entrepreneur may be no more than an ill-fated fool?

Organizational Strategies

Entrepreneurs need strategies for encouraging a trusting party's beliefs in the shared expectations, reasonable efforts, and competence of the aspiring entrepreneur. Given the absence of information and prior behavior concerning a venture in a new industry, pioneering founders cannot base initial trust-building strategies on objective external evidence. Instead, they must concentrate on framing the unknown in such a way that it becomes believable. An "entrepreneur must engineer consent, using powers of persuasion and influence to overcome the skepticism and resistance of guardians of the status quo" (Dees & Starr, 1992: 96).

Cognitive Legitimacy. Without clear guidelines for assessing performance in an emerging industry, a new venture's stakeholders find it difficult to consistently weigh risk/reward trade-offs. Founders cannot easily convince others to follow their directives, as they have no tangible evidence that such actions will pay off. In established industries, founders can simply cite tradition to their employees and other stakeholders as a justification for particular actions. No such appeal is available to founders in new industries.

Perceptions and evaluations of risk are highly subjective. The framing of an issue, rather than its actual content, often determines whether it is seen as a "foolish risk," especially in the absence of objective standards (Tversky & Kahneman, 1981). Brophy (1992: 396) noted that "new ventures by definition have no history and often provide an inadequate basis for making accurate predictions. 'Gut feel' and the netting of a lot of variables and complex relationships play vital roles in

new venture financing decisions." When external tests of reliability are unavailable, cooperation is possible if issues are "simplified, stylized, symbolized, and given ritual expression: if, that is, they are coded in convention" (Hawthorn, 1988: 114). Founders who can behave "as if" the activity were a reality-producing and directing great theater, as it were, may convince others of the tangible reality of the new activity.

Research has documented the powerful psychological effects of issue framing (e.g. Link, 1987). Issue frames are important not only because of their psychological consequences, but also because of their value as legitimating and motivating symbols. In a study of the process by which charismatic leaders transform the beliefs of their followers, Fiol, Harris, and House (1992) stressed the importance of symbolic communication. Based on the results of their study, they concluded that charismatic leaders employ a number of specific rhetorical techniques to change social norms. First, charismatic leaders appeal to a common bond with followers, even when breaking established values, so as to appear trustworthy and credible to society. They do this through the frequent use of inclusive referents such as "we" and "us," as opposed to "I" and "you." Second, charismatic leaders frame issues using high levels of abstraction, thus fostering a degree of ambiguity around their innovative ideas. Howell and Higgins (1990: 336) similarly wrote of technology champions "appealing to larger principles or unassailable values about the potential of the innovation for fulfilling an organization's dream of what it can be." If entrepreneurs frame their innovation broadly enough to encompass existing knowledge, they will appear more credible.

> *Proposition 1: Founders who utilize encompassing symbolic language and behaviors will gain cognitive legitimacy more quickly than others.*

Sociopolitical Approval. Innovative founders also face the hurdle of winning the approval of organizational stakeholders for their activities. With institutional support precarious, with other industries mounting attacks on the new industry, and with other ventures within the industry battling over what direction the industry will take, stakeholders within an organization are understandably shy about giving their wholehearted commitment to an entrepreneur. On what basis should they trust the entrepreneur? To the extent that elementary claims of efficacy by innovative entrepreneurs are difficult to verify, because cognitive legitimacy is absent, stakeholders are likely to resist their escalating resource demands.

Founding entrepreneurs must build a knowledge base that outsiders will accept as valid, and yet they have no external source of validation from which to argue. Given the lack of externally validated arguments, they must draw on alternative forms of communication, such as narratives, to make a case that their ventures are compatible with more widely established sets of activities. Rational argument is based on inferential moves and deliberation; narration works by suggestion and identification. Both express reasons to believe.

Philosophers of science have often noted the unique ability of stories to explain events without explicit reference to external criteria (Nagel, 1961). Kaplan (1986) observed that stories provide a way to explain something without having to agree on explicit criteria; subsequently, stories can form the currency of communications

to a wider public. "A political leader creates a story that helps persons structure their experience. He draws from their stories to make his more perfect, more encompassing, more capable of attracting a wider following and gaining greater allegiance" (Krieger, 1981: 75).

The validity of a story relies not on a set of external criteria, but on how well the story coheres and is free of contradictions (Fisher, 1985). A founding entrepreneur's "truth" may well contradict the "truth" people know. Stories can bridge the gap, by affirming the former without negating the latter. Based on their study of champions of technological innovations, Howell and Higgins (1990: 336) concluded that "the fundamental components of a champions capacity to introduce innovations successfully are the articulation of a compelling vision of the innovation's potential for the organization, the expression of confidence in others to participate effectively in the initiative, and the display of innovative actions to achieve goals."

Entrepreneurs need to disguise the truly radical nature of their new activity and the challenge it may pose to established organizations, while simultaneously making a case that they are different enough to hold a comparative advantage. Later, as the emergent industry attains some stability, founders can look back and tell new stories about the "radical pioneers" in the early days of the industry's history.

> *Proposition 2: Founders who-communicate internally consistent stories regarding their new activity will gain sociopolitical approval more quickly than others.*

Intraindustry Strategies

Intraindustry processes constrain the legitimacy of new industries by structuring the immediate environment within which new organizations operate. A lack of standard designs, for example, may block the diffusion of knowledge and understanding, thus constraining the new activities. Once founding entrepreneurs have developed a basis of understanding and trust at the level of their organizations, they must find strategies for establishing stable sequences of interaction with other organizations in their emerging industry.

Cognitive Legitimacy. Intraindustry processes of competition and cooperation pose a challenge to new founders, not only because they must convince skeptics of their organization's staying power, but also because they must fend off organizations offering slightly different versions of their products/services, creating confusion in the minds of interested observers (Carroll, Preisendoerfer, Swaminathan, & Wiedenmayer, 1989). Founding entrepreneurs have no ready-made formula for persuading others that they have it right. As Delacroix and Rao (1993) pointed out, organizations founded later in an industry's life cycle benefit by vicariously leaning from early successful foundings. The earliest founders have no such advantage.

Early on, founders of potential alternatives implicitly compete for the right to be taken for granted, appealing to potential customers, investors, and others to accept

their version. Organizations attempting to copy a new activity, while starting up, are in a difficult position because poorly understood activities are only imperfectly imitable (Barney, 1986; Reed & DeFillippi, 1990). Much of the knowledge of a new industry is only implicit, held by the founders and their employees in uncodified form. Such knowledge is often complex, making it hard for others to identify causal relations (Nelson & Winter, 1982). Finally, knowledge is often bound up in assets that are very specific to a particular organization, creating relationships that are hard for others to duplicate. Thus, until cognitive legitimacy coalesces around a reduced set of accepted standards or designs, pioneering entrepreneurs assembling resources for their organizations will inevitably make frequent mistakes. Foundings will be inhibited and disbandings will be frequent.

The lack of convergence on a dominant design in new industries constrains the perceived reliability of founding firms by increasing confusion about what standards should be followed. Convergence toward an accepted design is facilitated if new ventures choose to imitate pioneers, rather than seek further innovation. Implicit agreement on a dominant design, common standards, and the interfirm movement of personnel made possible by conditions of imitability increase the level of shared competencies within an emerging industry. Imitation and borrowing from early foundings eventually spread knowledge of new activities beyond their point of origin and contribute to convergence on a dominant design (Anderson & Tushman, 1990). Imperfect imitability is thus reduced and disbanding rates drop as effective knowledge is more widely diffused. Of course, some organizations may gain more than others as an industry's legitimacy is strengthened, as Rao (1993) found in his study of the early years of the American automobile industry. As the auto industry struggled for acceptance, firms that won victories in reliability and speed competitions organized by third parties were more likely to survive than those that did not win.

A new venture's ability to imitate others depends on whether what is being copied is protected by legal instruments-patents, copyrights, and trade secrets-and on whether the innovation is codified (Teece, 1987). If an innovation cannot be legally protected, and it involves a product or process whose nature is transparently obvious to outsiders, others may freely copy the innovation. By contrast, if the innovation can be protected and its nature is difficult to understand, except through learning by doing, the innovation is unlikely to be imitated by others (Dosi, 1988). Discord over a dominant design is exacerbated under these conditions.

Industries with imitable innovations are more likely than others to generate collective action. As founders with imitable products or services realize their innovations are leaking to competitors and potential new entrants, they gain a strong incentive to cooperate on stabilizing conditions in the industry. By contrast, firm-centered actions are likely to increase under conditions of inimitability, as founders are able to protect their core competencies from being widely diffused. Fiercely competitive individual strategies hamper a united collective front by an industry.

Initial collaborations begin informally, in networks of interfirm relations, but some later develop into more formalized strategic alliances, consortia, and trade associations (Powell, 1990). Van de Ven and Garud (1991) noted that those who

conducted studies of high-technology industries, such as the cochlear implant industry, have found that new-to-the-world innovations tend to be pursued by a handful of parallel, independent actors who come to know one another rapidly through personal interaction and through traveling in similar social/technical circles, such as attending the same industry conferences and technical committee meetings. This small handful of actors can generate networks that, in the aggregate, result in institutional-legitimating events. If founders can overcome the barriers to effective collective action, they can rise above the level of their individual ventures and run together "in packs" (Van de Ven. 1991).

Imitability's effects appear paradoxical unless we pay careful attention to different levels of analysis. For an industry, easier imitability means growth, because entry is facilitated, and an expanding market may mean that proportionately more entrants survive. For individual ventures, however, easier imitability makes survival more problematic, because their market becomes crowded with equally competent rivals, and survival becomes contingent on fairly small differences between ventures. One common pattern is that new entrants survive at the expense of early entrants who cannot learn fast enough to keep up. The net effect of imitability is contingent on where an industry is in its life cycle, as it will depend on the relative balance between underlying growth in a market, new entries, and exits from the industry.

> *Proposition 3: Industries in which founders encourage convergence around a dominant product/service design will gain cognitive legitimacy more quickly than others.*

Sociopolitical Approval. Collective action is extremely difficult to organize early in the life of an industry due to free rider problems (Moe, 1980; Olson, 1965). To the extent that mistakes are frequent and a consistent body of knowledge emerges very slowly, and thus collective action is impeded, sociopolitical approval may be jeopardized.

Several conditions quite common to new industries impede the collective action needed to gain sociopolitical approval. First, intense competition over designs and standards may prevent any particular firm from growing much faster than the rest of the industry, thus reducing the chances that an industry champion will emerge to energize efforts toward collective action. Second, if competing designs emerge and subgroups form around them, conflict among the subgroups may cause confusion and uncertainty for potential stakeholders. Dissension and diversity within an industry may thus be mirrored by a similar pattern externally, hampering an industry champion's ability to form coalitions promoting the total industry (Bolton, 1993). For example, the nascent pay-per-call information-services industry (using 900-prefix phone numbers) was growing rapidly until it ran into political problems in the early 1990s because it lacked uniform standards and consistent government regulations. U.S. Sprint decided to stop carrying most pay-per-call services because of consumer complaints and difficulties in collecting from customers who disputed their bills. The industry was fortunate to have a trade association, the Information Industry Association, that was able to lobby for

uniform federal regulations, although whether the industry will survive in its early form is still uncertain (Andrews, 1992).

The importance of finding avenues to collaborative action within an industry is well illustrated by the history of a new industry in Asia: American universities operating in Japan. In the 1980s, many American universities rushed to set up branch campuses in Japan, as Japanese educators welcomed them as models for educational reform of the Japanese system (Regur, 1992). By the early 1990s, the disbanding of some branches and well-publicized problems in others had eroded Japanese confidence in American university branches, and the industry's future was in doubt. In response, in 1991, 20 of the strongest programs formed the Association of American Colleges and Universities in Japan, setting standards for quality and reliability for American programs in Japan. The new association markedly improved the image and reputation of such programs, and Japanese local governments have renewed their interest in helping sponsor these ventures.

Funeral home owners' successes in controlling state regulation of the industry kept the founding rates of technically superior alternatives very low (Torres, 1988), almost totally suppressing the emergence of competing industries. For almost a century, locally owned funeral homes in the United States blocked alternatives to traditional means of disposal of the dead, opposing crematoriums, burial societies, and chain-owned funeral homes. Locally owned homes, which controlled most state boards regulating the industry, imposed requirements that were intended to exclude alternative forms, such as prohibiting corporate ownership, requiring that all establishments be fully equipped, prohibiting establishments from sharing equipment, and requiring that all establishments employ a full-time embalmer.

In Europe, small retail shops resisted the growth of large shops located in suburban areas (called hypermarkets) by arguing that the long hours and weekend operations of such businesses threatened traditional values by disrupting family life. "Blue laws" in the United States have been used by small shops for the same ends.

> *Proposition 4: Industries in which founders mobilize to take collective action will gain sociopolitical approval more quickly than others.*

Interindustry Strategies

Interindustry processes-the nature of relations between industries, whether competing or cooperating-affect the distribution of resources in the environment and the terms on which they are available to entrepreneurs. Established industries that feel threatened are sometimes able to change the terms on which resources are available to emerging industries, either by questioning their efficacy or their conformity to the established order. Even after a new industry develops into a recognized entity, other industries may withhold recognition or acceptance of it. If a critical mass of founders unites and builds the reputation of their new industry as a visible and taken-for-granted entrant into the larger community, gaining sociopolitical approval is more likely.

Cognitive Legitimacy. Established industries that feel threatened by a newcomer may undermine a new venture's cognitive legitimacy through rumors and information suppression or inaccurate dissemination. Though sometimes a low level of cognitive legitimacy may be an advantage for a new venture (when the activity is not taken as a serious threat), it is a detriment when older, competing firms spread rumors that a product or technology is unsafe, costly, or of inferior quality. For example, early mail- and phone-order computer supply stores in the United States were highly specialized, selling mainly to people very knowledgeable about electronics who were building or modifying their own equipment. When the industry began to grow rapidly in the 1980s, selling to "amateurs," traditional walk-in stores argued that such operators did not provide after-sales service and, thus, were an inferior form. Similarly, HMOs confronted bitter opposition from traditional physician practices, and they grew slowly until other organizations intervened on their behalf (e.g. large insurance companies) (Aldrich, 1989; Wholey, Christianson, & Sanchez, 1990). Traditional physicians argued that HMOs violated customary expectations about effective physician-patient relationships and, thus, delivered inferior services to patients. In the United States, high-technology firms, such as medical-equipment manufacturers, tried to use cognitive legitimacy arguments as a weapon against small, independent firms that wanted to service the machines the manufacturers sell to customers, such as clinics and hospitals (Naj, 1991). The manufacturers, such as Eastman Kodak, argued that third-party service technicians could not legitimately service their machines because they lacked the manufacturer's training and diagnostic service equipment. Had they been successful, they would have suppressed the growth of the independent repair industry, but the courts did not accept their claims.

Founders must build a reputation of the new industry as a reality, as something that naturally should be taken for granted by others. A new vocabulary must be coined, new labels manufactured, and beliefs engendered in an industry with no natural history. Although formulated in the context of examining behaviors and meanings within organizations, Fiol's (1991) proposition that identities link an organization's culture (consisting of unarticulated underlying beliefs and values) with the behaviors of its members, illuminates the task facing new founders. The actors who are the targets of entrepreneurs' legitimizing strategies (suppliers, distributors, bankers, and so forth) attempt to make sense of entrepreneurs' behaviors by drawing on current understanding of what they observe. This meaning-making process is mediated by what people perceive as the identities of the founders: gamblers, serious business leaders, cowboy entrepreneurs, high achievers, wild-eyed inventors, water-walkers, and so forth. Any of these labels is potentially applicable, but their meanings differ drastically.

Entrepreneurs can take advantage of the inherent ambiguity in interpreting new behaviors by skillfully framing and editing their behaviors and intentions vis-à-vis the trusting parties. They need to emphasize those aspects of their ventures and their own backgrounds that evoke identities that others will understand as risk oriented but responsible. Founders must do this work for their individual ventures as they negotiate with other firms, but a more powerful image can be invoked when founders work through interfirm associations.

Trade associations are "minimalist organizations", they can be operated via low overhead and quickly adapted to changing conditions and, thus, are easier to found than, for example, production organizations (Halliday, Powell, & Granfors, 1987). Many trade associations, following the example of state bar and other voluntary associations, operate out of the offices of member firms in their early years. Others are administered by law firms that represent some of the larger firms in the industry. Thus, the catalyst to an association's founding is often an industry champion who steps forward and volunteers to cover the costs of running the association as it recruits enough members to gain a stable dues base. Typically, the largest firms in an industry do this, and they are well represented on the association's board of directors.

Interfirm linkages such as trade associations play a critical role in helping entrepreneurs promote an industry's cognitive legitimacy (Aldrich & Staber, 1988). They help firms formulate product/process standards through trade committees, trade journals, marketing campaigns (to enhance the industry's standing), and trade fairs (where customers and suppliers can gain a sense of the industry's stability). Trade associations represent the industry to government agencies, and they play a critical role in times of crisis (when an industry's public image may be threatened).

> *Proposition 5: Industries in which founding firms promote their new activity through third-party actors will gain cognitive legitimacy more quickly than others.*

Sociopolitical Approval. Insufficient cognitive legitimacy renders a new industry vulnerable to interindustry processes that may jeopardize its normative acceptance. Established organizations in related industries often strongly oppose the rise of new ventures seeking to exploit similar resources, and they may try to block these new ventures at every turn, including questioning their compatibility with existing norms and values. Established organizations usually do not challenge entrepreneurs' generic rights to create business organizations (such rights are assured in most Western political democracies), but rather they resist the creation of ventures that threaten the markets of established industries. In addition to questioning the knowledge base of a new industry, established industries may effectively oppose a newcomer by inducing legal and regulatory barriers.

The emergence and growth of new industries is thus partly dependent on the severity of attacks from established industries that may resist encroachment. They may raise doubts about the new activity's efficacy or its conformity with societal norms and values and, thus, change the terms on which resources are available to emerging industries. Beyond recognition, new industries need reliable relationships with other, established industries. Once cognitive legitimacy is achieved, tacit approval in the form of economic transactions is more likely. Some forms of interindustry cooperation emerge as the unintended consequences of competing industries pursuing their self-interests, whereas other forms are more deliberate. For example, in his study of three forms of cooperatives in Atlantic Canada, Staber (1989) found that increases in the density of several forms of cooperatives improved the overall climate for cooperatives to such an extent that founding rates

for other types were increased. The cooperatives not only provided direct support to each other, but also created a positive image of cooperative activity that raised the salience of norms of cooperation in the region.

If a new industry faces overt conflict with an established industry, a trade association or an industry council is probably required to mobilize the newcomer's strength. However, many interindustry relations are more matters of education and negotiation than of zero-sum conflict. For example, new biomedical and health-care industries only survive if they can convince third parties (insurance companies and the government) to pay the costs that patients cannot bear, such as CAT scans or cochlear implants. Thus, firms in the industry must cooperate to educate and influence these third parties to include the product or service in their payment reimbursement systems (Van de Ven, 1991).

The paradox of individual versus collective benefits is again apparent: pioneering ventures that solicit or accept cooperative relations with established industries may succeed to such an extent that followers (so called "second movers") enter the fledgling industry with lower costs and thus drive the pioneers out of business Jovanovic, 1982). Osborne Computer, for example, was a pioneer in bundling other manufacturers' software with its products, but did not survive some costly marketing blunders that gave other firms a chance to surpass it. At the industry level, however, such cooperation often is essential for survival.

> *Proposition 6: Industries in which founding firms negotiate and compromise with other industries will gain sociopolitical approval more quickly than others.*

Institutional Strategies

Institutional conditions may constrain the rate at which an industry grows by affecting the diffusion of knowledge about a new activity and the extent to which it is publicly or officially tolerated. If founders have pursued effective trust-building and reliability-enhancing strategies within their emerging industry, and have established a reputation vis-à-vis other industries, the groundwork has been laid for attaining legitimacy at the institutional level. At this level, founders are no longer working as isolated individuals. Instead, industry councils, cooperative alliances, trade associations, and other vehicles for collective action are in place to achieve institutional legitimacy.

Cognitive Legitimacy. Established industries enjoy an enormous benefit via the institutionalized diffusion of knowledge about their activities. The "social space" (Delacroix & Rao, 1993) an industry has achieved in a society is sustained, in part, by a widespread understanding of how it fits into the community. At the beginning, organizations in the new industry are too rare to create the critical mass needed to begin raising the new industry's level of cognitive legitimacy. Reporters, newspaper and magazine editors, and other mass media gatekeepers are unfamiliar with the set of terms for describing the activity, and their depictions may be inaccurate. Thus, potential entrepreneurs (i.e. early followers) may be seriously

misled if they rely on such reports, and mistakes in imitating the new activity will be common (Phillips, 1960).

The lack of general understanding of the new industry also makes it difficult to recruit and retain employees. People wonder what will happen to their careers if they join a persuasive entrepreneur in building a totally new organizational venture. Because new ventures tend to be specialized, the skills they require may not be easily transferable to other organizations that are searching for people with recognizable talents.

Educational institutions create and help spread information about the competencies these organizations need. Educational institutions, especially vocationally and professionally oriented ones, base their training on curricular materials prepared by mass market-oriented publishing houses. Without an accepted vocabulary or conceptual framework, writers and editors face serious difficulties in devising manuals and textbooks. Because such programs are backward-looking, training people in skills for which curricular material has already been prepared, founders cannot rely on existing programs to train their employees (Romanelli, 1989).

A new industry must either build on the competencies already supported or find ways to encourage the provision of new ones. In technology-based industries, the basic research on which firms draw often has been generated in university laboratories a decade or more before it was commercialized (Link & Bauer, 1989). For example, the basic ideas for cochlear implant devices were developed in the late 1950s and early 1960s, almost two decades before the ideas were fully commercialized. Thus, firms such as Nucleus and 3M had an already developed pool of scientific expertise from which they could draw consultants and employees (Van de Ven & Garud, 1991).

In the United States, new firms regularly establish partnerships with community and technical colleges, often at the request of local economic development agencies that are hopeful of the generation of new jobs. Because educational institutions are inherently conservative in their curriculum development, a new industry must achieve a fairly high degree of self-organization before curriculum materials will be written especially for them. Superconductor research was well underway in the United States before universities began putting science/industrial ceramics sequences into their applied sciences and engineering curricula. Shan, Singh, and Amburgey (1991: 82) noted that early in the history of the biotechnology industry in the United States, "there was only a limited supply of scientists with Ph.D.s and other specialized training so essential for an NBF [New Biotechnology Firm]." Eventually, as career prospects in the industry became known, more recruits were attracted, and the supply of scientists improved.

> *Proposition 7: Industries that create linkages with established educational curricula will gain cognitive legitimacy more quickly than others.*

Sociopolitical Legitimacy. Lack of institutional support for the diffusion of knowledge about new industries also may undercut an industry's efforts to secure sociopolitical approval. Most forms of business enterprise have enjoyed at least institutional tolerance of their existence when they first emerged (Delacroix et al. 1989; Zucker, 1989), but this apparent easy success has blinded us to the

occasions on which such support has not been forthcoming or has been lost. The first newspaper editor in the United States was jailed (Delacroix: & Carroll, 1983), the life insurance industry was initially vilified as profaning the sacredness of life (Zelizer, 1978), and many forms of interbusiness alliances were ruled illegal in the 19th century (Staber & Aldrich, 1993).

Low sociopolitical legitimacy is still a critical barrier to many potential business activities today. For example, new schemes for burning or burying toxic waste often clash with U.S. communities' norms about local control over land-use decisions (Levine, 1982). A similar public controversy dogged attempts by chemical firms manufacturing fluoride to convince local community officials to purchase fluoridation systems for their public utilities (Coleman, 1957). In such cases, firms try to hire lobbyists with local connections and to form "citizens' groups" backing the proposed scheme.

New industries whose activities and long-term consequences are not well understood may have trouble in winning approval from cautious government agencies. In the 20th century, U.S. firms in the fledgling biotechnology industry, which based their technologies on manipulation of DNA, faced a major hurdle in winning FDA approval of their testing procedures. New industries whose production technologies may put workers at risk have to win approval from state and federal OSHA offices. Once an industry's activities are well understood, government regulatory agencies have shown considerable resistance to new industries whose activities challenge an older industry but which use unfamiliar or novel technologies. In the 1980s, the removal of federal regulations in many industries made us aware of how many new forms of organization were suppressed by implicit governmental strictures against their activities (e.g. cellular phones) (Haveman, 1990; Prentiss, 1984).

In the U.S. political system of divided executive and legislative branches, and with independent regulatory agencies, newly organized industries ultimately must co-opt, neutralize, form alliances with, and otherwise come to terms with, government agencies. The biotechnology industry developed in an environment of great uncertainty, because firms did not have a clear idea of what products would he regulated and what safety tests would be required by the Environmental Protection Agency, the Food and Drug Administration, and the Department of Agriculture. Accordingly, the Industrial Biotechnology Association lobbied the FDA, the EPA, and other agencies in an attempt to create a more certain regulatory environment. The first FDA ruling in 1981, approving the first diagnostic kit based on a monoclonal antibody, significantly raised the founding rate of biotech firms in the years that followed (Shan et al. 1991).

Biotechnology firms also appealed to the President's Council on Competitiveness to pressure federal agencies to weaken regulations perceived as hindering the growth of the biotech industry. In what we take as a sign that sociopolitical approval had finally been achieved at the highest levels of government, these efforts were rewarded in early 1992. President Bush issued a new government policy on biotechnology which said that genetically engineered products should not be assumed to be inherently dangerous and that regulations for biotechnology

products should not receive greater scrutiny than products produced by conventional means (Fisher, 1992; Hilts, 1992).

The cochlear implant industry faced a similar problem as its products were brought forward for official scrutiny (Van de Ven & Garud, 1991). Contracts and grants from the National Institute of Health for basic cochlear implant research stimulated university-based research, and some discoveries were developed into potentially commercial products in the late 1970s and early 1980s. Five private firms initiated activities, but each had its own ideas about product standards, appropriate tests, and so forth. Conditions stabilized only when the FDA gained experience in testing the new technology and began systematically favoring certain kinds of evidence on product safety over others. Government agencies such as the FDA and EPA are important for any new industry whose products or services are costly, technically complex, and whose use may create an irreversible health or welfare condition for a user (Van de Ven, 1991).

Government agencies can play a role in structuring the interorganizational environment of new industries in ways that encourage trusting relations between firms. Rappa's (1987) study of the development of the gallium arsenide integrated circuit in the United States, Japan, and Western Europe found that more firms and scientists were involved in the United States, but in Japan there was greater coordination among the firms' and scientists' efforts. In Japan, MITI encouraged interfirm cooperation via industry and trade committees. The cooperating firms jointly formulated industrial governance policies, developed a competence pool of scientists and managers through training programs and informal information sharing, and also worked on commercial applications of the technology (see also Fransman, 1990). By contrast, U.S. firms stood on the sidelines and waited for an industry infrastructure to emerge on its own.

> *Proposition 8: Industries that organize collective marketing and lobbying efforts will gain sociopolitical approval more quickly than others.*

The strategies for generating and sustaining trust, reliability, reputation, and finally, institutional legitimacy, are as interrelated as the hierarchical contexts that spawn them. Gaining the trust of stakeholders within and around the firm provides a basis from which to build a knowledge base via cooperative exchange rules with other similar organizations. Such interactions, in turn, make it easier for member firms to organize collectively and to build a broad reputation of their industry as an enduring reality. An established reputation facilitates the co-optation of institutional actors, ultimately leading to legitimacy.

Though we have emphasized the communicative aspects of trust building at the organizational level, trust is the "lubricant" (Dasgupta, 1988: 49) that smoothes the way throughout the legitimacy-building process. As founders pursue legitimacy within successively broader social sites, they must continually persuade without proof. Evidence of trustworthiness within one context does not automatically serve as evidence of trustworthiness within a broader context. Fortunately for founders, trust has the capacity to be self-fulfilling and self-reinforcing (Gambetta, 1988), making it a powerful weapon against the vicious cycle of social barriers to innovation.

Discussion and Conclusions

New organizations are always vulnerable to the liabilities of newness, but never more so than when entrepreneurs have few precedents for their actions. The first organization of its kind faces a different set of challenges than one which simply carries on a tradition pioneered by many predecessors. Given the institutional, interindustry, intraindustry, and organizational conditions facing pioneering founders, different strategies are called for than those used by imitators and borrowers. Such foundings are risky, but they need not be foolish. We have highlighted the conditions under which founders can pursue strategies that could culminate in an industry gaining legitimation at the institutional level. We began with a discussion of the dynamics at the organizational level, suggesting how the progressive building of trust may work its way up the hierarchy, collectively reshaping the interindustry and institutional environments.

The period during which a new industry emerges deserves more theoretical attention, because the struggle to carve out a niche for a new industry involves such strong forces that the events of that period may he forever imprinted on the organizations that persist (Stinchcombe, 1965). Indeed, the model of industry development implicit in Table 1 points toward a new activity pattern that eventually is in harmony with its interorganizational and institutional environments. As a settled member of the community, the new industry takes its place as a defender of the status quo.

Our examination of the early phases of an industry's life also implies that many promising new activities never realize their potential because founders fail to develop trusting relations with stakeholders, are unable to cope with opposing industries, and never win institutional support. Thus, understanding the strategies used by founders of new ventures helps us understand the forces contributing to industry variety in organizational communities.

Finally, the strategies that emerge from our reframing of ecological and institutional theories raise an important practical issue. Strategy theorists have long prescribed uniqueness and imperfect imitability as means of gaining a sustainable competitive advantage (Barney, 1986; Reed & DeFillippi, 1990). Our framework suggests that a single venture's uniqueness during initial stages of an industry's development must be counterbalanced with the collective efforts of all players in the emerging industry to portray the new activity as familiar and trustworthy, if they are to survive as a group.

Research Directions

Generating and sustaining trusting relationships are at the heart of overcoming low legitimacy. We have offered a number of propositions about effective strategies for achieving trust in the development of new industries. Researching these ideas will take us beyond the cross-sectional surveys that currently dominate methods of data collection in entrepreneurship research (Aldrich, 1992). The creation and institutionalization of new activities occurs through a

dynamic process that cannot be captured in discrete snapshots. A number of additional research implications emerge from our study.

First, entrepreneurship researchers often attempt to distinguish between new businesses that copy well-known practices in their industry and businesses that are truly innovative, pioneering practices without precedent. However, such distinctions are almost always made within the context of an established industry, rather than calling attention to the possible origins of a new industry. Investigators thus conflate two very different events that pose very different problems for entrepreneurs: innovating within an institutionalized context versus striking out into uncharted waters, where industry boundaries are not yet secure. In the future, researchers of entrepreneurship need to separate these two forms of innovation.

Second, the debate in the ecological-institutional literature over "legitimacy" has focused, in part, on the issue of left-censoring of a population's history: Are data on the population available from its earliest days, when foundings were beginning to be observed? Left-censoring of data (i.e. not having the early years of an industry's history available) can lead to misspecification of models and biased conclusions regarding the pattern of population growth. However, such debates overlook a more serious form of selection bias: to the extent that researchers study only industries that survived long enough to make their mark upon the usual sources of archival information, they overlook the unsuccessful industries. Groups of firms that struggled and did not succeed in becoming institutionalized provide the best historical record for testing our ideas about the social context of industry formation. Indeed, only by comparing the strategies of terminated industries with those that completed their life cycles can we assess the relative importance of the forces we have identified in this article.

How can we avoid a bias against industries with truncated histories? Becoming aware of the issue is a good start. Just as evolutionary theorists have made us aware of the danger of focusing our research attention on cross-sectional studies of surviving organizations (Aldrich, 1979: 56–61), so too must we become aware of our tendency to focus on surviving industries. We must pay more attention to economic and business history, written not at the level of case studies of individual firms, but rather at the level of eras and epochs. Which activities have attracted entrepreneurs, speculators, investors, and others, only to lose out when support was not forthcoming from key stakeholders, other industries, and institutional forces? We have found that the business press is a good source of information on new activities that attract attention because they are challenging traditional industries, failing in spectacular fashion, or otherwise making short-run news.

Third, when a new industry's origin is identified, researchers must focus intensively on its early years. Ecologists have now collected information on fairly complete life histories for many populations, but only for such generic events as foundings and disbandings. In addition to these key events, researchers must also collect information on patterns of contact between the entrepreneurs who founded early ventures, and especially on any efforts they undertook to create vehicles for collective action. We also need information on how other groups of firms (possible competitors, regulatory agencies, local governments, etc.) responded to the first new ventures in a fledgling industry.

Fourth, a new industry's boundaries are ultimately determined by the balance it achieves between competition and cooperation vis-à-vis other groups of firms. Hannan and Freeman (1986) adopted the language of institutional theory in arguing that a population's boundaries are socially constructed. We have argued that whether a new population even finds a niche for itself in the community of populations is problematic. Research is needed on contacts at the boundary between industries: How are such contacts managed? Is there an implicit division of labor within new industries according to which founders negotiate boundaries? Have governments made this process easier or more difficult for new industries?

Fifth, within new industries, the key events affecting their emergence as stable entities involve the formation of other types of organizations (Delacroix & Rao, 1993). These signs of an industry's success-industry councils, trade associations, joint university-industry research ventures-have been investigated, but they have not been linked to the life cycle of industries. By focusing on these independent markers of an industry's legitimacy, we can avoid the ambiguity inherent in trying to infer a social process from mere increases in the number of member organizations.

Finally, investigating these ideas will require expanding our disciplinary reach to take in anthropologists, political scientists, social psychologists, and others interested in understanding the genesis of contexts that give meaning to new behaviors. The social construction of organizational reality involved in building a new industry requires meaning making on a grand scale, and we suspect that those entrepreneurs who do it well are obsessed with the process. As such, they make fascinating subjects of study.

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Part II

Theory

Entrepreneurship: Past Research and Future Challenges*

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Abstract

The contributions and shortcomings of past entrepreneurship research can be viewed within the context of six research design specifications: purpose, theoretical perspective, focus, level of analysis, time frame and methodology. The authors suggest a unifying definition of the field of entrepreneurship. The recent trend toward theory driven research that is contextual and process oriented is encouraging. It is time for entrepreneurship researchers to pursue causality more aggressively. Exploratory studies that are not theory driven should be discouraged unless the topic is highly original. Implications for practicing entrepreneurs are discussed.

The past decade has witnessed a significant rise in popular enthusiasm for entrepreneurs and entrepreneurship. This enthusiasm has been matched in the academic arena, resulting in a significant increase in the amount of research effort being devoted to the subject[1]. This increased attention seems justified given the growing evidence that new firm creation is a critical driving force of economic growth, creating hundreds of thousands of new jobs (Birch, 1979; Birley, 1987; Reynolds, 1987), as well as enhancing federal and local tax revenues, boosting exports, and generally increasing national productivity (*President's Commission Report*, 1984).

As a body of literature develops, it is useful to stop occasionally, take inventory of the work that has been done, and identify new directions and challenges for the future. This reflective process is essential in order to derive the maximum benefit from future research. The purpose of this review is to provide such a reflective moment for the field of entrepreneurship research. The contributions and shortcomings of past research will be examined and suggestions will be made for the direction of future research.

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[1] There are several sources that can provide basic background for the non-specialist interested in entrepreneurship research. *The Encyclopedia of Entrepreneurship* (Kent, Sexton, & Vesper, 1982) and its recent sequel, *The Art and Science of Entrepreneurship* (Sexton and Smilor, 1986) provide comprehensive reviews under a range of entrepreneurship related subject headings. *Entrepreneurship and National Policy* (Vesper, 1983) provides an excellent discussion of the new venture process and implications for national policy. Finally, review articles by Gartner (1985a) and Wortman (1987) provide a good overview of the literature.

The organizing theme of this paper consists of six key specification decisions that we feel researchers need to address as they begin to assemble a research program in the area of entrepreneurship. These design specification decisions are interrelated, and cannot be made independently. However, for the purposes of this paper, we will consider each of the following research dimensions separately: **Purpose**-what is the specific as well as larger purpose of the study? **Theoretical Perspective**-what is the theoretical perspective adopted? **Focus**-on what specific phenomena shall the investigation be focussed? **Level of analysis**-what level or levels of analysis will be considered? **Time frame**-what length of time frame will be considered? **Methodology**-what methodology will be adopted?

Past entrepreneurship research will be reviewed within the context of these six design dimensions.[2] This organizing structure is meant to complement previous reviews that have been organized around subject categories or units of analysis. Readers who have limited familiarity with the entrepreneurship literature or those interested in specific topics may find it useful to refer to these previous comprehensive works.

Finally, since our intention is to provide a critical review, we wish to preface our remarks by acknowledging a debt to those who have pioneered the study of entrepreneurship. Although hindsight makes it easy to identify the shortcomings of early studies, it is important to recognize that these works were necessary first steps in the exploration of the entrepreneurship phenomenon.

Decision 1: Specification of Purpose

Entrepreneurship is a multifaceted phenomenon that cuts across many disciplinary boundaries. Studies falling under the rubric of "entrepreneurship" have pursued a wide range of purposes and objectives, asked different questions and adopted different units of analysis, theoretical perspectives and methodologies. This diversity is reflected in the many and varied definitions of entrepreneurship: Schumpeter (1934) defined entrepreneurship as "carrying out new combinations." Knight's (1921) definition focussed on the ability to predict the future successfully. Leibenstein (1978) argued that firms do not necessarily operate at the outer limit of their production function; therefore, entrepreneurship is the ability to work smarter and harder than your competitor. Kirzner's (1973) concept is closely linked to arbitrage and the ability to correctly anticipate where the next market imperfections and imbalances will be. Cole (1968) defined entrepreneurship as purposeful activity to initiate, maintain, and develop a profit-oriented business. Stevenson, Roberts and Grousbeck (1985) suggested that entrepreneurship is being driven by perception of opportunity, rather than resources currently controlled. And Gartner (1985b) defined entrepreneurship as the creation of new organizations. Empirical researchers have argued for some time that this inability to agree upon common definitions has hampered research progress (Gartner, 1985a; Vesper, 1983).

[2] Limitations of space have meant that this review has focused primarily on US literature related to new firm creation. It is important to note that there is a well defined literature on corporate venturing as well as a rapidly growing body of European literature that is not discussed in this review.

The problem with these definitions is that though each captures an aspect of entrepreneurship, none captures the whole picture. The phenomenon of entrepreneurship is intertwined with a complex set of contiguous and overlapping constructs such as management of change, innovation, technological and environmental turbulence, new product development, small business management, individualism and industry evolution. Furthermore, the phenomenon can be productively investigated from disciplines as varied as economics, sociology, finance, history, psychology, and anthropology, each of which uses its own concepts and operates within its own terms of reference. Indeed, it seems likely that the desire for common definitions and a clearly defined area of inquiry will remain unfulfilled in the foreseeable future.[3]

However, because of the range of approaches available for entrepreneurship research, some common ground is needed upon which to synthesize the insights of diverse approaches of inquiry. At the broadest level, there is a need for an overall, common purpose that will forge some unity among entrepreneurship researchers.

In the spirit of the challenge to define an overall, common purpose, we suggest that entrepreneurship be defined as the "creation of new enterprise" and propose the following: that entrepreneurship research seek to *explain and facilitate the role of new enterprise in furthering economic progress*. This fundamental purpose, or one like it, is wide in scope yet still delineates a constrained area of inquiry within which multi-disciplinary research programs may be built.[4] Furthermore, by emphasizing "explanation" it encourages researchers to go beyond descriptive studies and to pursue causal inference. And by emphasizing "facilitation" it encourages researchers to maintain relevance for practice and to consider both micro and macro perspectives.

In the past, much of the entrepreneurship research has either lacked clarity of purpose or the specified purpose was of little consequence. Many early works were of the "census taking" type-confined largely to documenting and reporting the occurrence of entrepreneurs or their personality characteristics, with little attempt to uncover causal relationships or to explore implications for practice. Many of these studies left the reader wondering what the authors really hoped to achieve.

[3] It can be argued that the term *entrepreneurship* is too imprecise a concept to be of much use to researchers. In this respect, it is interesting to make a comparison with the term *leadership*. Pfeffer (1977) argues that the concept of leadership is so broad that its usefulness is called into question: "Apparently there are few meaningful distinctions between leadership and other concepts of social influence. Thus, an understanding of the phenomenon subsumed under the rubric of leadership may not require the construct of leadership" (p. 105). It seems that the same argument could be made about the construct of entrepreneurship.

[4] In this context, it is appropriate for us to explicitly raise our point of view regarding the outcomes of entrepreneurial effort. A comprehensive research program cannot confine itself solely to studies of entrepreneurial *success*. This is for two reasons. First, the venture's failure may be the result of established competitors' reactions to the entry of the new firm. If this competitive response enhances the industry's overall competitiveness, then economic progress has still been achieved, even if the venture fails. Second, failure is an important source of learning, and even though a specific venture may fail, the people involved may have developed skills and knowledge that will lead to future entrepreneurial success (Maidique & Zirger, 1985).

The failure to clearly specify the purpose of the research combined with the lack of common ground for synthesizing research findings has hindered the advancement of the field. To address this problem, we suggest not only that the specific purpose of a study be explicitly stated at the outset, but that the field will best advance if this more specific purpose is explicitly linked to a generally accepted overall purpose such as "explaining and facilitating the role of new enterprise in furthering economic progress."

Decision 2: Specification of Theoretical Perspective

After the specification of purpose, the next important decision is the specification of theoretical perspective. Much of the entrepreneurship research to date has implicitly assumed a "strategic adaptation" perspective. A strategic adaptation perspective suggests that the key to entrepreneurial success lies in the decisions of the individual entrepreneurs who identify opportunities, develop strategies, assemble resources and take initiatives. Recently, this perspective has been challenged by theorists who adopt a "population ecology" perspective, which suggests that individual goal-driven behavior is largely irrelevant and that environmental selection procedures are the most powerful determining factors.

The Strategic Adaptation Perspective

Authors that adopt a strategic adaptation perspective usually start by identifying key success factors that enhance the chances of survival. Vesper (1980) suggested five key ingredients: technical knowhow, product or service idea, personal contacts, physical resources, and customer orders. Timmons (1982) reviewed the works of over two dozen authors and concluded that there are "substantial variations in content, assumptions, and emphasis, and little theory to anchor the variety of viewpoints" (p. 132). Nevertheless, he notes several recurrent ingredients in discussions of successful venture creation, such as the importance of a lead entrepreneur, building a team with complementary skills, a triggering idea for a product or service, a well developed business plan, a network of people and resources and appropriate financing.

The flip side of "key success factors" is "key failure factors." Unfortunately, the list of potential pitfalls associated with starting a new venture appears limitless. Woodruff and Alexander (1958) identified 23 causes of failure among small manufacturers. Vesper (1983) identified 12 "barriers" to entrepreneurship Typical problems include lack of market knowledge, inability to delegate responsibility, lack of technical skills, lack of seed money. Rather than attempt to list the potential pitfalls associated with new ventures, it can be argued that the seriousness of any problem depends on the extent to which it detracts from one of the key success factors identified earlier—and failure to address any *one* of the key success factors will be sufficient to kill a new venture.

In addition to key success factors, another important consideration is entry strategy. Vesper (1980) provided the most extensive compilation of entry

strategies. These include new product, new service, imitative product, imitative service, franchising, geographical transfer, customer sponsored, parent company sponsored, government sponsored and acquisitions. Vesper's purpose seemed to be to make the potential entrepreneur aware of the variety of entry strategies. He suggested that a combination of strategies might be effective, but provided only anecdotal evidence about the appropriate use of a given strategy.

The most advanced strategic adaptation entrepreneurship research has come from researchers who have tried to capture the expertise of the venture capital community. The assumption here is that people who make profits from assessing new venture proposals will have developed expertise in distinguishing between winning and losing ventures. Works by Tyebjee and Bruno (1981), Roberts (1983), and MacMillan, Siegel and SubbaNarasimha (1985) all examined the factors that venture capitalists evaluate in deciding to fund entrepreneurial venture proposals. Recently, this work has been extended to studies that seek to link pre-funding characteristics with ultimate success. Roure and Maidique (1986) confirmed that experienced, well balanced venture teams improve performance and found that "successful ventures targeted product-market segments with high buyer concentration in which, through technological advantage, their products could attain and sustain a competitive edge" (p. 295). MacMillan, Zemann and SubbaNarasimha (1987) reached similar conclusions and identified two major criteria that predict success: "1) the extent to which the venture is initially insulated from early competition and 2) the degree to which there is demonstrated market acceptance of the product" (p. 124).

In the review of these studies it became clear that entrepreneurial firms are too diverse to permit simple generalization (Gartner, 1985a). Some researchers have dealt with this complexity by adopting a contingency approach that seeks to identify major contingent variables that significantly shape entrepreneurial outcomes. Sandberg and Hofer (1987), who also collected data via the venture capital route, have developed and tested a contingency model for predicting venture performance based upon characteristics of the entrepreneur, the structure of the industry being entered, the venture strategy, and the interactive effects of these three factors. Although their findings are based on a small sample and can be challenged on statistical grounds, their results are nevertheless suggestive: the entrepreneur's characteristics appear to have little effect on venture performance, whereas the interaction between industry structure and strategy appear to be strongly associated with performance. By using theory and inductive arguments to develop and test hypotheses that consider the interaction of personal, environmental and strategic variables on performance, Sandberg and Hofer take the research on strategic adaptation an important step forward. Hopefully future studies of this type will follow.

Another emerging stream of strategy research seeks to determine what repeatedly successful entrepreneurs have learned through experience. Lamont (1972) initiated the first study of this type by conducting a matched pair sample of 24 technology-based enterprises, half of which were founded by individuals with no previous entrepreneurial experience and half of which were founded by experienced entrepreneurs. He found that the experienced entrepreneurs tended to found firms with a product orientation (as opposed to a contract orientation), with larger

initial financing, and with a better balance of business skills among the management team. More recently, the notion that there is much to be learned by studying repeatedly successful entrepreneurs was advocated by an individual who has himself started over 30 new businesses over a 10-year period (Executive Forum. 1986). He contends that study of one-shot entrepreneurs will inevitably focus or problems and obstacles that may simply be a product of inexperience. His argument is that only multiple entrepreneurs can provide the base for a theory of entrepreneurship since only they have developed an "experience curve."

Ronstadt (1988) argued that such multiple entrepreneurs are more common than previously supposed. In a sample of 1537 practicing and ex-entrepreneurs, Ronstadt found that 63% of the former and 40% of the latter were involved in the creation of more than one venture. He suggested that the best new venture opportunities are most often revealed only after an individual is already involved in a start-up. This is due to the fact that once the firm is initiated, greater information becomes available about relevant contacts, viable markets, product availability, competitive resources and response time.

A review of the strategic adaptation literature shows that progress is being made. The strategy conceptualizations have advanced from rather static, overly generalized "key success factor" models to contingency models that consider a range of variables under varied circumstances and take into account the learning effect of past efforts. In spite of this progress, it is still surprising that so little work has been done in the area of entrepreneurship strategy. There are very few good empirical studies, and those that exist are limited by small sample sizes.

Whether it is explicitly stated or not, the dominant assumption of the strategy oriented literature is that success is primarily dependent upon the entrepreneur's ability to develop and execute effective strategies. The literature that adopts a population ecology perspective offers a different point of view and will be discussed next.

The Population Ecology Perspective

Hannan and Freeman's 1977 article entitled "The Population Ecology of Organizations" was a provocative piece that challenged many assumptions held by organizational researchers. The authors argued that most management theory overemphasizes the capacity of an organization to adapt to a changing environment. In contrast, they viewed inertia as a dominant organizational characteristic. Employing a biological analogy, they suggested that those organizations that are well adapted to their environment will survive, and those that are not will die. Through this selection mechanism, the environment will determine the characteristics of populations of organizations. The essence of the argument is that chance variations in organizational forms that are adaptive are selected *for* whereas nonadaptive forms are selected *against*.

Perhaps that best articulation of the application of ecological thinking to entrepreneurship lies in the work of Greenfield and Strickon (1986). They argued that contemporary paradigms in social science research and thought have become

static and therefore incapable of explaining dynamic social processes. As an alternative, they proposed a new paradigm that has its origins in Darwinian biology:

> With respect to entrepreneurship this means that we are no longer looking for a transcendent type—the analogue of the immutable species— but instead recognize existing diversity of behavior within specific populations, which at its extremes encompasses innovation and novelty. What is called entrepreneurship, from this point of view, is actually one segment of an otherwise seamless variability. (p. 14)

Population ecology theory has significantly matured in recent years, developing from a simplistic and deterministic biological metaphor into a rich theoretical framework capable of incorporating other theoretical perspectives. There have been many attempts to reconcile population ecology with extant organizational theory (Hannan & Freeman, 1984; Hrebiniak & Joyce, 1985; Singh, House, & Tucker, 1986). One such attempt is by Brittain and Freeman (1980), who developed a particularly comprehensive model of the organization creation process by beginning with the population ecology model and incorporating elements of other perspectives such as strategy and transaction cost economics. They argued that new opportunities are created for the expansion of existing and founding of new organizations through technological or demographic change. These changes result in what they call "new resource sets." Following Stinchcombe's (1965) argument, they suggested that knowledge of opportunity and access to requisite resources to exploit the opportunity are not uniformly distributed throughout the population. Instead, opportunities are most likely to come to individuals at key informational loci within existing organizations. Depending on the nature of the existing organizations, the new opportunity may be best exploited by a new firm.

Brittain and Freeman's model begins to connect the insights of the seemingly disparate perspectives of population ecology and strategic adaptation. It directly addresses the role of chance, and by emphasizing changing resource sets and the replacement of short-term opportunities types of firms (*r* strategists) with long-term low cost producers (*K* strategists), it is a dynamic model that explicitly deals with ongoing change and competition.

In their study of organizational births and deaths in the newspaper industry, Carroll and Delacroix argued that an ecological perspective should be concerned with both foundings and mortality, and that each will be driven by different factors (Carroll & Delacroix, 1982; Delacroix & Carroll, 1983). This research raises an important possibility: organizational births may better be explained by macro variables such as technological or demographic shifts, whereas survival of entrepreneurial firms may better be explained by micro variables such as strategy.

As the above studies have demonstrated, the strategic adaptation and population ecology perspectives are not irreconcilable. One promising opportunity for combining the insights of these perspectives lies in the study of industry evolution, or the "community" level of analysis, as it has been labeled by the ecologists (Astley, 1985; Carroll, 1984). A good example is the work of Tushman and Anderson (1986), who studied three different industries and observed that technology evolves "through periods of incremental change punctuated by technological

breakthroughs" (p. 439). They defined technological breakthroughs in Schumpeterian terms: "Major technological innovations represent technical advance so significant that no increase in scale, efficiency, or design can make older technologies competitive with the new technology" (p. 441). They added an interesting dimension by distinguishing between two fundamentally different types of technological discontinuity: competence-enhancing and competence-destroying. A competence-enhancing technological shift builds upon existing know-how (replacement of mechanical typewriters by electric), whereas with a competence-destroying shift, existing know-how is largely irrelevant (replacement of steam-engines by diesel locomotives).

Tushman and Anderson found that competence-destroying technological discontinuities favor the entrance of new firms into an industry because of the inability of established competitors to exploit the new technology. Competence-enhancing discontinuities, on the other hand, work to the long-run advantage of established firms who can use their resources and market position to incorporate the new technology. Thus the entrepreneurial firm that enters an industry via incremental change or via the introduction of a new competence-enhancing technology is in far greater peril from existing competitors than one that enters via the introduction of competence destroying technology.

This is an example of how the ecological perspective can provide valuable insight that can lead to more effective strategy formulation: an aggressive entry strategy is more likely to succeed under conditions of a competence-destroying discontinuity than under conditions of a competence-enhancing discontinuity, where competitors are in a strong position to retaliate.

Our review of the population ecology literature leads us to the following comment regarding future entrepreneurship research: In the past, much of the entrepreneurship research has implicitly assumed a strategic adaptation perspective. The application of ecological thinking to entrepreneurship has challenged many previously held assumptions, increased our understanding of the entrepreneurial process, and demonstrated the significant benefits of theory driven research. Ideally, the example of population ecology will encourage the exploration of other theoretical perspectives that have the potential to provide insight into the entrepreneurship phenomenon.

Whether the strategic adaptation, population ecology, or some other perspective or combination of perspectives is pursued, it is clear that the field will be better served in the future if the issue of theoretical perspective is addressed directly and unstated assumptions are avoided. Theory can then be tested and elaborated, and from this, *informed* knowledge can be developed to aid the academic and the practitioner alike.

In this section we have highlighted one set of theoretical issues by contrasting the strategic adaptation and population ecology perspectives. In the next section, on focus, we pursue a second, related set of issues by examining the trend toward more contextual and process-oriented research.

Decision 3: Specification of Focus

Early entrepreneurship studies typically focussed on the personality or cultural background of the individual entrepreneur as a determinant of entrepreneurial behavior. Over time, these approaches yielded to a recognition that meaningful research must adopt a more contextual and process-oriented focus. This section will review this progression toward richer and more dynamic approaches as a method of highlighting the challenge of "focus."

Psychological Theories

McClelland's work on "need for achievement" (McClelland, 1967) and an empirical study of 150 successful Michigan entrepreneurs by Collins, Moore and Unwalla (1964) were early works that started a prolific stream of personality-based entrepreneurship research that continues to this day. Brockhaus (1982), Gasse (1982), Martin (1984), and Sexton and Bowman (1985) have provided reviews of this psychological/personality-based literature. Most of the comments in this section are drawn from these reviews.

McClelland argued that need for achievement is culturally acquired and a key psychological characteristic of an entrepreneur. An individual with a high n-Ach is characterized as (a) taking personal responsibility for decisions, (b) setting goals and accomplishing them through his/her effort, and (c) having a desire for feedback (McClelland, 1967). The two basic problems with need for achievement are first, the theory is as applicable to salespeople, professionals, and managers as it is to entrepreneurs, and second, subsequent research has not validated a link between a high need for achievement and the decision to start a business (Sexton & Bowman, 1985). McClelland's more recent work has gone beyond need for achievement and examined other personality characteristics such as initiative, assertiveness, efficiency orientation, systematic planning, and commitment to work contract (McClelland, 1986). As with need for achievement, these are not unique to entrepreneurs, but instead characteristics common to many successful individuals.

Internal locus of control is another characteristic that has been attributed to entrepreneurs. This concept refers to the belief held by individuals that they can largely determine their fate through their own behavior. However, internal locus of control has proved to be no more useful than need for achievement in differentiating the entrepreneur from the non-entrepreneur (Brockhaus, 1982; Sexton and Bowman, 1985; Gasse, 1982). Brockhaus concluded that although a high internal locus of control is common to both successful managers and successful entrepreneurs, it may still hold "promise for distinguishing successful entrepreneurs from the unsuccessful" (p. 45).

A high risk-taking propensity is another psychological characteristic often attributed to entrepreneurs. Although some of the empirical findings are contradictory (see Sexton & Bowman, 1985), the overall evidence is that entrepreneurs are moderate risk takers and do not significantly differ from managers or even the general population. It is perhaps more insightful to view entrepreneurs

as capable risk managers whose abilities defuse what others might view as high risk situations.

One psychological characteristic that does appear to distinguish the entrepreneurial personality is the tolerance for ambiguity. Studies by Schere (1982) and Sexton and Bowman (1985) have indicated that entrepreneurs have a significantly greater capacity to tolerate ambiguity than do managers. Other personality characteristics that have been argued to distinguish between entrepreneurs and managers are a high need for autonomy, dominance, independence combined with a low need for support and conformity, and a capacity for endurance (see Sexton & Bowman, 1985).

Definitional and methodological problems associated with these past psychological studies, such as noncomparable samples, bias toward successful entrepreneurs, and the possibility that observed entrepreneurial traits are the *product* of entrepreneurial experience, make it difficult to interpret the results. Furthermore, at a more fundamental level, it can be argued that the wide variations among entrepreneurs make any attempt to develop a standard psychological profile futile. One is struck by the appropriateness of Gartner's (1985a) observation that there is as much difference among entrepreneurs as between entrepreneurs and non-entrepreneurs.[5]

Some researchers have used personality traits to identify different entrepreneurial types. Smith (1967) distinguished between crafts and opportunistic types. Stanworth and Curran (1976) specified 3 types: the artisan, the classical and the manager. Webster (1977) suggested 5 categories of entrepreneurs, Vesper (1980) listed 11 different types and Gartner developed 8 entrepreneurial archetypes (Gartner, 1983). These studies make interesting reading, but as with the other personality-based literature discussed so far, it is questionable whether these descriptive studies move us closer toward a theory of entrepreneurship.

Demographic studies of entrepreneurship suffer from some of the same problems as the psychological/personality literature. Most of the empirical work that examines the demographic characteristics of entrepreneurs suffers from small sample sizes, non-comparability of samples and static terms of reference. The most comprehensive study to date is by Cooper and Dunkelberg (1987). They collected broadly based data on 890 entrepreneurs and contrasted their findings with earlier research using smaller samples. They confirmed that entrepreneurs tend to be better educated, come from families where the parents owned a business, start firms related to their previous work and locate where they are already living and working. In other ways, however, the entrepreneurs in their sample were less different than previous research has indicated, "being no more likely to be of foreign-stock and not being particularly likely to leave school early or to drift from job to job" (p. 21) than the general population. Cooper and Dunkelberg concluded

[5] There are some interesting parallels that can be made between the personality-based entrepreneurship research and the studies that sought to identify leadership traits. Theories of leadership progressed from simple "trait" theories through two-dimensional personal-behavioral approaches and on to highly complex models that; considered a variety of forces at work within the leader, the situation, and the subordinate. As we shall see, entrepreneurship research has followed a similar pattern to become much more contextual and dynamic.

that diversity seems to be a central characteristic of their sample. This is our conclusion as well: being innovators and idiosyncratic, entrepreneurs tend to defy aggregation. They tend to reside at the tails of population distributions, and though they may be expected to differ from the mean, the nature of these differences are not predictable. It seems that any attempt to profile the typical entrepreneur is inherently futile.

More useful are recent psychological studies that focus on the entrepreneur within an organizational context. Schein (1983) examined the role of the founde in creating organizational culture. According to Schein, entrepreneurs "typically . . . have strong assumptions about the nature of the world, the role their organizations will play in that world, the nature of human nature, truth, relationships, time and space" (p. 17). Schein examined the process by which the assumptions and theories of the founders interacted with the organization's own experiences to determine culture. Kets de Vries (1985) focussed on dysfunctional entrepreneurial personality characteristics by examining the negative repercussions of need for control, sense of distrust, desire for applause, and psychological coping mechanisms demonstrated by some entrepreneurs. This article was the result of studies done in collaboration with Miller that sought to link executive personality with strategy and organizational structure (Kets de Vries & Miller, 1984, 1986). Kets de Vries and Miller developed a typology of pathological organizations and their most recent work examined culture as the link between personality and strategy.

The work by Schein and by Kets de Vries and Miller is important because it does not focus simply on the psychology of the entrepreneur, but focuses instead on the relationship between the entrepreneur and the organization and on the *process* by which individual characteristics affect organizational outcomes. The focus of these most recent psychological studies is clearly more contextual and process-oriented than the earlier work.

Social-Cultural Theories

One of the earliest and best known attempts to link entrepreneurship to the larger social context was Weber's classic work "The Protestant Ethic and the Spirit of Capitalism" (1930). Weber argued that the rise of Protestantism encouraged hard work, thrift, and striving for material advancement, which in turn gave rise to capitalism. Although the causal effects of the Protestant ethic on the development of capitalism have since been hotly contested, it does seem clear that the rise of Protestantism swept away many institutional obstacles that were preventing the development of capitalism. Our conclusion is that there must be congruence between ideological constructs and economic behavior if entrepreneurship is to flourish.

The tendency of certain cultures to produce entrepreneurs has made it intuitively appealing to view culture as a determinant of entrepreneurship. Hagen (1960) explained entrepreneurial behavior as a means by which disadvantaged minorities seek to alter the status quo. Some examples are the Dissenters in England, the Protestants in France, the Samurai in Japan, the Jews in many countries, and the Parsees in India (Greenfield & Strickon, 1981). This perspective is continued

today in the work of Brenner (1987), who argued that it is those groups that have lost or face the prospect of losing social status that are driven to take entrepreneurial risks. Although there may be some validity to these assertions, some contradictory evidence does exist (Shapero & Sokol, 1982). The recent entrepreneurial proliferation associated with Silicon Valley (Stanford and Berkeley graduates) and Route 128 (Harvard and MIT graduates) demonstrates that not all entrepreneurs come from disadvantaged backgrounds. The best that can be said with confidence is that *in some cases* entrepreneurship is a response to lack of social mobility through other channels.

Studies in the 1960s by Cochran (1965) and Alexander (1967) recognized the complex economic, social, and psychological factors that impact the entrepreneurial process. However, it was Glade (1967) that really set the stage for the types of contextual models currently advocated. Glade viewed the entrepreneur as a decision maker operating within a specific social and cultural setting. He termed this setting an "opportunity structure," implying both the perception and existence of an opportunity combined with the availability of resources: "Integral features of any given situation are both an 'objective' structure of economic opportunity and a structure of differential advantage in the capacity of the system's participants to perceive and act upon such opportunities" (p. 251).

More recently, Vesper (1983), Martin (1984), and Shapero and Sokol (1982) all developed models of venture initiation that build upon this idea. The Shapero and Sokol model is perhaps the most sophisticated model of entrepreneurial event formation in the Glade tradition. It identifies life-path changes, perceptions of desirability, and perceptions of feasibility as variables leading to new company formation. Their model considers the interaction of many situational and cultural factors and provides a dynamic framework that captures the range of positive pulls and negative displacements leading to the start-up of a business.

Network Theories

Recent studies that have examined "networks" are more refined attempts to place the entrepreneur within a social context. Birley (1985) studied the role of networks in the founding of new firms by sampling 160 firms in Indiana. She differentiated between two kinds of networks: informal (family, friends, business) and formal (banks, accountants, lawyers, SBA) and found that entrepreneurs rely heavily on the informal network, but seldom tap into the formal network. MacMillan (1983) argued that there is a distinct manipulative aspect of networks. In a small sample longitudinal study he identified the critical role played by deliberate network building in the launch of eight start-ups.

The importance of networks has been reflected in a growing interest in "incubators." An incubator may be a formally organized facility offering laboratory and office space, support services, technical and business consulting services, and contact with other entrepreneurs (Smilor & Gill, 1986), or may simply be the organization where the entrepreneur worked prior to launching a venture, The most famous example of a firm acting as an incubator for entrepreneurial spinoffs is Fairchild, which spawned at least 35 companies (Vesper, 1983). Studies of such

incubator organizations have shown that high-tech entrepreneurs tend to locate themselves in the same area as their previous employer and develop products that are closely related to their prior organizations (Cooper, 1986).

The understanding of networks was further advanced by Aldrich and Zimmer (1986), who viewed the entrepreneurial process as embedded in a shifting network of continuing social relations that facilitate and constrain "linkages between aspiring entrepreneurs, resources and opportunities" (pp. 8–9). They contended that new business formation is part of an evolutionary processes of "variation, selection, retention, and diffusion and the struggle for existence" (p. 9). Though recognizing that individuals are intentional or purposeful in their actions, they argued that the growing evidence of cognitive limits on human behavior and the "powerful influence of social factors on cognitions and information processing" means that one cannot attribute new business formation to individual acts (p. 6). For Aldrich and Zimmer, the entrepreneurial process takes on meaning only in the context of the broader social processes that they described.

These recent studies demonstrate how the focus of entrepreneurship research has progressed to become more contextual and process oriented. Several authors have suggested frameworks for capturing this contextual complexity. Gartner (1985a) suggested a conceptual framework for describing the phenomenon of new venture creation that identified the similarities and differences between ventures. His framework "integrates four major perspectives in entrepreneurship: characteristics of the individual(s) who start the venture, the organization which they create, the environment surrounding the new venture, and the process by which the new venture is started" (p. 696). Carsrud, Olm, and Eddy (1986) suggested a similar model, one that examines the interaction between psychological, personal/demographic, organizational, and situation/environmental variables on the venture creation process.

This section has reviewed a range of entrepreneurship literature from the perspective of focus. There is strong evidence of a trend toward research with a more contextual and process-oriented focus. Research has progressed beyond deterministic personality and cultural theories toward more comprehensive and dynamic theories. The challenge for future entrepreneurship research is to continue this trend and move toward explaining rather than merely documenting the entrepreneurial phenomenon.

Decision 4: Specification of Level of Analysis

Given our earlier comments about the general purpose of entrepreneurship research, it follows that we are interested in *all* entrepreneurial phenomena that impact economic progress. This means we may be concerned with the fate of the individual entrepreneur, the progress of an entire industry, or the impact of that industry on society as a whole. Thus researchers may choose among five levels of analysis: individual, group, organizational, industry and societal levels. Most of the research to date has been at a single level of analysis. However, two recent

studies illustrate just how much can be gained by attempting a richer, albeit more difficult multi-level research design.

The first is a study by Van de Ven, Hudson and Schroeder (1984) that examined the start-up of 14 educational software companies. The firms were divided into high and low performers based on a composite measure of success. Key variables from three different levels of analysis were examined for their impact on success. The three levels of entrepreneurial (characteristics of the founding individual), organizational (planning and initial development processes of the firm) and ecological (industry as a whole).

The Van de Ven et al. study is exemplary in its use of the literature to identify key variables for investigation at each level of analysis. At the entrepreneurial level, the authors concluded that success was related to education and experience, internal locus of control and risk reduction, a broad and clear business idea, and personal investment. At the organizational level, success was positively related to planning activities (although ironically, spending time on a detailed business plan seemed to result in poorer performance), small scale startup, incremental expansion, single person command, and active involvement of top management and board members in decision making. At the ecological level, the study suggested that assistance from a corporate sponsor in the form of equity capital, training, or guaranteed contracts was actually maladaptive, and that firms competing for contracts on an independent basis advanced more quickly, at least over the short run.

Aldrich and Auster (1986) provide a second example of a multi-level research design. They built upon Stinchcombe's work and argued that the "strengths of large, old organizations are often the weaknesses of small, new organizations and vice versa" (p. 165). For smaller and newer organizations they looked at various strategies such as franchising, long-term contracts, and mergers and acquisitions to overcome the liabilities of newness and smallness. For larger and older organizations, they examined strategies of franchising, mergers and acquisitions, subcontracting, and corporate venturing to overcome the liabilities of oldness and largeness. The connection between different levels of analysis was made through the observation that adaptive strategies at the organizational level result in new "forms" at the industry level that improve the viability of whole populations of organizations.

The relationships between phenomena that can be observed at different levels of analysis are important not just for academics, but for both practitioners and public policy makers as well. From the entrepreneur's perspective, the success of the individual enterprise will be affected by factors that can only be observed at different levels of analysis. To miss any one of these perspectives increases the probability that key factors will be overlooked, and that unanticipated events will take the entrepreneur by surprise. From the public policy maker's perspective, the insights generated by multi-level studies have the potential to improve targeting of government efforts to encourage successful entrepreneurship.

The two studies discussed above demonstrate that each level of analysis provides unique insight and that the synthesis of these insights yields a richer understanding than that possible from the perspective of a single level of analysis. The

challenge for entrepreneurship research is to increase the incorporation of multiple levels of analysis into future research designs.

Decision 5: Specification of Time Frame

A key building block for understanding the pattern of new business formation is the notion that start-ups move through predictable stages. The fact that this pattern can only be observed through wide time frame research is the key thrust of this section. Other issues related to longitudinal research will be discussed in the final section on methodology.

Most of the studies that focus on stages in the start-up of an enterprise are variations on a theme. Although typically arranging the stages in natural order, most theorists note that the stages need not be strictly sequential, nor can they be dealt with in isolation. One of the more detailed works (Swayne & Tucker, 1973) listed 57 steps in three overall stages of concept, planning and implementation. A recent review by Gartner (1985a) of the work of eight researchers identified six common actions undertaken in the entrepreneurial process: locating a business opportunity, accumulating resources, marketing products and services, producing the product, building an organization, and responding to government and society. Stevenson et al. (1985) identified five steps in the start-up: evaluating the opportunity, developing the business concept, assessing required resources, acquiring needed resources, and managing and harvesting the business.

Block and MacMillan (1985) focussed on the planning for a launch and suggested that there are critical milestones in a start-up. They argued that a new venture is an experiment with implicit hypotheses or assumptions about the relations among product, market, and competition that can only be tested through experience. Block and MacMillan suggested that go/no-go or redirection decisions be made at each of ten milestones, based upon emerging information that becomes available as each milestone is reached.

From the point of view of advancing theory, studies that merely document the stages of a start-up are of questionable value. However, identifying the major tasks that need to be accomplished during the launch of a venture has practical value; furthermore, the notion that a start-up moves through discrete stages is an insight that must be incorporated into any theory of new venture creation.

Although the above researchers focus on the stages of start-up, other researchers use still longer time frames and focus on major stages of growth in fully launched organizations. Greiner (1972) identified five distinguishable phases of development, each characterized by "evolutionary" periods of relative calm followed by "revolutionary" periods of management crisis and realignment. This approach was furthered by Churchill and Lewis (1983), and Hambrick and Crozier (1985) and bears similarity to the "life-cycle" work of Kimberly and Miles (1980). These works go beyond the start-up phase and demonstrate that different management and strategic issues become paramount at different stages of development. Robinson and Pearce (1986) took the analysis one step further with a comprehensive study of the relation between venture performance at different

stages of development and the attention given to strategic and operational decisions. They showed that as the firm evolves, each state calls for emphasis on different strategic activities.

Short time frame studies are simpler to design and easier to execute but clearly lack the richness of insight that results from studying a phenomenon over a longer time period. For entrepreneurship research this is extremely important, since new firms are extremely fragile and experience many changes within short periods of time. Often the seeds of future problems are sown in the early stages. Only wide time frame studies will allow us to study the development problems faced by new firms and to pursue the objective of causal inference.

Decision 6: Specification of Methodology

As entrepreneurship emerges as a recognized area of inquiry, the quality and usefulness of the theory that is developed will be tied to the ability of researchers to identify patterns of causality. Early efforts in entrepreneurship research were understandably exploratory case studies or cross sectional statistical studies of the "census-taking" type. However, if such exploratory studies are successful, they should be followed by more systematic studies that subject a priori hypotheses to formal testing and work toward the development of theory.

Unfortunately, the progress toward a priori hypothesis testing has been slow. The current standard appears to be data collection and a posteriori statistical testing. Still, there has been some progress in terms of building upon previous research and designing more rigorous studies. For example, in measuring the contribution of entrepreneurship to economic progress, Birley (1987) and Reynolds (1987) built upon the earlier work of Birch (1979), with their analyses characterized by much greater precision. In Reynolds' case, he used regression and discriminant analyses to distinguish between factors related to the social contribution of new firms and factors related to their survival. A further example is Khan (1987), whose study of the effectiveness of venture capital decision making went beyond simple additive regression approaches (MacMillan et al. 1987) and employed non-compensatory decision modelling.

The goal of establishing causal linkages among variables means that more longitudinal work is necessary. Longitudinal studies are inevitably more difficult and expensive than cross sectional studies, but the benefits are considerable. Two good examples of longitudinal studies are Hambrick and Crozier's (1985) examination of the difficulties of managing rapid growth firms, and Tushman, Virany and Romanelli's (1986) study of a cohort of minicomputer firms over a protracted time period. Following a group of firms over time is expensive and time consuming, but it is important to recognize that only such large scale cross sectional *and* longitudinal studies can start to provide us with enough confidence about causality to provide the basis for theoretical model building and experimental research.

To date the attempts to develop formal methods have been limited. Baumol (1982) developed a theoretical model describing the influences that determine the supply of entrepreneurship and its influence on economic growth. Kihlstrom and

Laffont (1979) proposed an entrepreneurship-based theory of competitive equilibrium by building upon Knight's (1921) concept of risk. Casson (1982) developed an economic theory of entrepreneurship within the neoclassical framework. These attempts at formal model building hold promise, but pale compared to the sophistication of the models used in other fields. Until progress is made in the development of rigorous models of the entrepreneurial process, our ability to generate theory will be severely circumscribed.

If attempts at formal model building have been limited, attempts at experimentation have been rare. Worthy of note are two studies – the use of simulation techniques to study venture capital investment effectiveness by Stevenson, Muzycka, and Timmons (1987) and the experimental study by Kourilsky (1980) that examined the entrepreneurial behavior of children in a simulated economy. The lack of experimental research is a further indication of slow progress in developing entrepreneurship theory.

It is interesting to note that the studies cited above stem from a variety of disciplinary backgrounds: Hambrick and Crozier from strategy; Reynolds from sociology; Kourilsky from education; Kihlstrom and Laffont, Baumol, and Casson from economics. Other disciplines that have contributed to the study of entrepreneurship include anthropology (Owens, 1978), marketing (Dickson & Giglierano, 1986), psychology (Brockhaus, 1982), history (Cochran 1965), finance (Huntsman & Hoban, 1980), and political science (Gatewood, Hoy & Spindler, 1984). This diversity of approaches and methods is to be encouraged, for entrepreneurship is as varied as it is elusive, and the range of research methods should match the complexity of the phoneomenon under study.

Our review of the literature leads us to suggest that there is a need to pursue causality more aggressively. The field must move to the stage where exploratory case analyses or cross sectional census taking studies that are not theory driven and do not test hypotheses are no longer acceptable.

Implications for Entrepreneurs

This review has focussed on issues of research design and is primarily targeted at an academic audience. This approach reflects the belief that useful knowledge for practice will only result from the pursuit of rigorous research and the development of entrepreneurship theory. For those who do not share this view, there is no shortage of anecdotal "how to" books to which they may refer.

Even though this review has focussed on research design issues, several important implications for practice have been raised. At the most general level, the design issues raised in this paper can serve as criteria for sifting through the vast amount of popular and academic literature dealing with entrepreneurship. In much of this literature the practitioner is advised to look out for the same inappropriate generalizations and misleading assumptions about causality that we caution academics to beware.

Although past attempts to stereotype entrepreneurs based upon psychological and cultural characteristics have been discredited, recent work suggests that entrepreneurs' personalities do have important influences on the organizations they

create (Kets de Vries, 1985; Schein, 1983). The behaviors and values of the entrepreneur interact with the experiences of the unfolding organization to imprint its culture. In turn, organizational culture has important implications for the performance. Entrepreneurs are encouraged to be aware of how their behavior shapes the emerging culture. We by no means suggest that entrepreneurs try to change their personalities, but it may be possible for them to be alert for and avoid behaviors that have dysfunctional organizational consequences.

The literature makes it clear that opportunities do not drop from the sky. Opportunities are created within and among existing organizations as a product of ongoing networks of relationships and exchanges. Opportunities come most frequently to people located at advantageous positions within networks. Furthermore, exploiting an opportunity requires certain resources (human resources, capital, marketing and technical information, sales etc.). The same types of network relationships and contacts needed to identify opportunities are also necessary to obtain the resources required to exploit opportunities. Aspiring entrepreneurs are advised to evaluate and map their current networks. Doing so is the first step toward building an effective network, an activity that is too important to be left to chance.

It is also clear from the literature that there are no magic formulae for success. Each venture will have its own key success factors, any one of which will be sufficient to kill the venture if overlooked. Some important items for consideration are the following: Is there an established market for the product? Is the market defensible? Is the strategy appropriate for the industry structure?

Although planning is important, spending too much time on a detailed business plan can be counterproductive. And though assistance from a corporate sponsor is usually thought to be helpful, evidence suggests that firms competing for contracts on an independent basis advance more quickly (Van de Ven et al. 1984). For technologically innovative ventures, it is important to establish whether the innovation can easily be adopted by established competitors (Tushman & Anderson, 1986). If so, a long range objective might be to be acquired by an existing firm. If not, an aggressive share-building strategy might be most appropriate.

The ecology literature suggests that success is also a matter of chance, and that one needs some luck. This is true, but it is also possible to shape luck-by building networks, by exercising parsimony of investment, by seeking competitively insulated niches, by moving incrementally, and by continually monitoring performance. This approach conserves resources, heightens awareness of developing trends and maintains the flexibility needed to quickly respond to new opportunities.

Finally, start-ups move through distinct phases, with different management and strategic issues paramount in each phase. Effort must be taken to ensure that resources are spent on the areas most critical to the firm's success, given its stage of development. And care must be exercised to think through how short-term actions might be planting the seeds of future problems.

Summary and Recommendations

We have reviewed the literature in the context of the challenges faced when designing an entrepreneurship research program. In the course of this review, we came to the conclusions that are summarized in Table 1 and discussed in greater detail below:

1. Purpose. There is a need for future research programs to include a clear statement of purpose. Furthermore, we appeal to researchers to link the specific purpose of their study to the more fundamental purpose we have proposed: to explain and facilitate the role of new enterprise in furthering economic progress. It is hoped that by linking to this overall purpose, a wide variety of research activities can be brought into a broad but unifying arena.

2. Theoretical Perspective. In the past, much of the entrepreneurship literature has implicitly assumed a strategic adaptation perspective. The insights resulting from recent work using the population ecology perspective has challenged some of these assumptions and demonstrated the benefits of theory driven research. We suggest that future research should examine and clearly state theoretical assumptions and that additional theoretical perspectives should be explored.

3. Focus. Recently, there has been a trend toward more contextual and process oriented research. This is an important advancement and moves the field closer to a position of being able to explain rather than merely document the entrepreneurial phenomenon. Future research should continue this trend.

4. Level of analysis. There has been a welcome initiation of studies that examined more than one of the individual, group, organization, industry, and society levels of analysis. Such multi-level studies provide a much richer understanding of the entrepreneurial phenomenon and should therefore be encouraged in future research programs.

Table 1. Overview of entrepreneurship: past research and future challenges

Research Design Decisions	Past Research	Model Research and Future Challenges
Specification of purpose	Little clarity, descriptive, lack of unity	Clearly stated, explanatory, further economic progress
Specification of theoretical perspective	Weak theory development, implicitly assuming strategic choice	Theory driven, clearly stated assumption, variety of theoretical perspectives
Specification of focus	Focus on personality or cultural determinants	Focus on the entrepreneurial process in social context
Specification of level of analysis	Primarily single level of analysis	Multiple levels of analysis
Specification of time frame	Narrow time frame	Wide time frame
Specification of methodology	Cause studies, cross sectional surveys, single method, descriptive	Theory driven, a priori hypotheses, multiple methods, explanatory

5. Time frame. It appears that greater insights can be obtained from studies which employ wide time frames than from studies employing cross sectional "snapshots." A push towards longer time frame studies is desirable, particularly since it is becoming clear that different strategic issues become important as firm and industry evolve.

6. Methodology. There has been disappointingly slow progress in research that addresses issues of causality, perhaps reflecting the elusiveness of the entreprenurial phenomenon. Recent years have seen only limited examples of research designs that develop a priori hypotheses. Consequently, formal modelling and experimental research have lacked a foundation for development. On the positive side, the incidence of studies that are both cross sectional and longitudinal are on the rise.

In closing we wish to be realistic. Clearly it is unrealistic to expect that future research designs will incorporate all the qualities we have suggested. Very few researchers have sufficient resources to design and execute projects that are theory driven, choose a contextual and process-oriented focus, adopt multiple levels of analysis, and employ wide time frames. Indeed, although we have been arguing that entrepreneurship research needs to move in a particular direction, we accept the fact that there are unavoidable tradeoffs in research and that there is no single best approach (McGrath, 1964; Weick, 1979). However, we do suggest that more meaningful and insightful results will be forthcoming if researchers consider these design issues and eschew research program designs in which all of the easy design alternatives are selected.

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A Paradigm of Entrepreneurship: Entrepreneurial Management*

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Abstract

Corporate entrepreneurship seems to many entrepreneurship scholars a contradiction in terms. This paper represents an attempt to bridge that gap. This is done by, first, reviewing the literature on entrepreneurship, trying to summarize it in a few major themes. Second, a view of entrepreneurship is proposed that facilitates the application of the previous findings to the field of corporate entrepreneurship. Finally, a series of propositions are developed, as instances of the kind of research that can be pursued by following the proposed approach.

Corporate entrepreneurship is a concept that has acquired more and more importance in the last few years. Serious, scholarly work has appeared on the subject (see, for instance, Burgelman, 1983a,b, 1984a,b, Nielsen, Peters and Hisrich, 1985; MacMillan, Block and Subba Narasimha, 1986; Hisrich and Peters, 1986; MacMillan and Day, 1987; for some recent examples). General interest books have also made an impact (Brandt, 1986; Hisrich, 1986; Kanter, 1983, 1989), and some of them have even reached best-seller lists (Pinchot, 1985). The very existence of this issue of the *Strategic Management Journal* testifies to the credibility gained by the concept among experts in business management.

Yet, when reading much of the literature on entrepreneurship as such, to which corporate entrepreneurship should be somewhat related (perhaps as is a species to its genus), one finds an implicit definition of entrepreneurship as something which is radically different from corporate management. Indeed, some writers find it to be the opposite of corporate management (Vesper, 1985). Thus, the very concept of corporate entrepreneurship sounds to many entrepreneurship scholars as something of an oxymoron.

What is, then, behind that surge of the corporate entrepreneurship construct? There is no doubt that, of late, entrepreneurship in general has gained its status as a legitimate scholarly research subject, enjoying in addition much public interest (Vesper, 1988). This is evidenced by the appearance of new academic journals, such as the *Journal of Business Venturing*; by the fact that mainstream journals carry more and more articles on related issues (Churchill and Lewis, 1985); and by the growth of interest in non-academic publications, which has been even faster

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(see McClung, J. J. and J. A. Constantin, 'Nonacademic literature on entrepreneurship: An evaluation', in Kent et al. 1982). As of today, there is practically no business school without at least one course on entrepreneurship (Porter and McKibben, 1988).

The main traits generally believed to be associated with entrepreneurship, such as growth (Drucker, 1985), innovation (Backman, 1983), and flexibility (Birch, 1987), however, were deemed to be also desirable traits for large corporations, by theorists and practitioners alike. Thus the field of corporate entrepreneurship was born. There is a need, however, to establish clear links between the fields of entrepreneurship and corporate management, if the large body of research in the former is to benefit the latter. Establishing such a link is especially important because, as pointed out above, many entrepreneurship scholars would consider entrepreneurship as just what is outside of mainstream corporate management.

This paper attempts to establish this linkage. It reviews much of the literature on entrepreneurship and groups these previous studies into a few underlying themes which have relevance to corporate entrepreneurship. It then re-examines definitions of entrepreneurship and advances its own definition of entrepreneurship that facilitates the connection of the previous research findings to the broader field of corporate management. From that connection, propositions for research and implications for the teaching and practice of corporate entrepreneurship are developed.

Three Main Streams of Research

The plethora of studies on entrepreneurship can be divided in three main categories: *what* happens when entrepreneurs act: *why* they act; and *how* they act. In the first, the researcher is concerned with the results of the actions of the entrepreneur, not the entrepreneur or even his or her actions per se. It is generally the point of view taken by economists, such as Schumpeter, Kirzner, or Casson. The second current may be termed the 'psychological/sociological approach', founded by McClelland (1961) and Collins and Moore (1964), in the early 1960s. Their work provides a useful emphasis on the entrepreneur as an individual, and on the idea that individual human beings – with their background, environment, goals, values, and motivations – are the real objects of analysis. The causes of individual entrepreneurial action constitute the primary interest of the researcher. Both the individual entrepreneur and the environment as it relates to the motives of individual entrepreneurial behavior are considered. It is the *why* of the entrepreneur's actions that becomes the center of attention. Finally, *how* entrepreneurs act can become the center of attention. In this case, researchers analyze the characteristics of entrepreneurial management, how entrepreneurs are able to achieve their aims, irrespective of the personal reasons to pursue those aims and oblivious to the environmental inducements and effects of such actions.

Considering What Happens when Entrepreneurs Act: Studying the Results of Entrepreneurship

The area of literature concerned with the question of what happens when entrepreneurs act is dominanted by economists. What matters here is the net *effect upon the general economic system* of the actions of the entrepreneur, and the role he or she plays in the development of the market system. The earliest interest in entrepreneurship was expressed by Richard Cantillon, who focused upon the economic role of the entrepreneur, rather than the individual who performs such a role. Cantillon, who coined the word 'entrepreneur,' said that entrepreneurship entails bearing the risk of buying at certain prices and selling at uncertain prices. Jean Baptiste Say broadened the definition to include the concept of bringing together the factors of production. Thus the entrepreneur is the protagonist of economic activity in general.

Schumpeter takes a more specific view. He considers entrepreneurship the process by which the economy as a whole goes forward. It is something which disrupts the market equilibrium, or 'circular flow.' Its essence is 'innovation.' He writes that 'the carrying out of new combinations we call "enterprise"; the individuals whose function is to carry them out we call "entrepreneurs" (1934: 74). He thus distinguishes different roles:

> We call entrepreneurs not only those 'independent' businessmen in an exchange economy who are usually so designated, but all who actually fufil the function by which we define the concept, even if they are, as is becoming the rule, "dependent" employees of a company, like managers, members of boards of directors, and so forth, or even if their actual power to perform the entrepreneurial function has any other foundations, such as the control of a majority of shares. As it is the carrying out of new combinations that constitutes the entrepreneur, it is not necessary that he should be permanently connected with an individual firm; many 'financiers,' 'promoters,' and so forth are not, and still they may be entrepreneurs in our sense. On the other band, our concept is narrower than the traditional one in that it does not include all heads of firms or managers of industrialists who merely may operate an established business, but only those who actually perform that function (p. 74).

A few pages earlier he had spelled in detail what he understood by 'new combinations':

> (1) The introduction of a new good-that is one with which consumers are not yet familiar – o, of a new quality of a good. (2) The introduction of a new method of production, that is one not yet tested by experience in the branch of manufacture concerned, which need by no means be founded upon a discovery scientifically new, and can also exist in a new way of handling a commodity commercially. (3) The opening of a new market, that is a market into which the particular branch of manufacture of the country in question has not previously entered, whether or not this market has existed before. (4) The conquest of a new source of supply of raw materials or half-manufactured goods, again irrespective of whether this source already exists or whether it has first to be created. (5) The carrying out of the new organization of any industry, like the creation of a monopoly position (for example, through trustification) or the breaking up of a monopoly position (p. 66).

After Schumpeter's work, most economists (and many non-economists as well) have accepted his identification of *entrepreneurship with innovation*. This represents a change from the previous tradition, where the term '*entrepreneur*' meant basically '*businessman*,' as we saw. (See Kilby, 1971, for a summary of the term 'entrepreneur' in classical economics.)

Some economists interpret the results of entrepreneurship in a different way: instead of disrupting the market equilibrium, thus advancing the economy to qualitatively higher levels, the entrepreneur works towards the accomplishment in real life of the (theoretical) equilibrium (Kirzner, 1979). The first tradition, represented by Cole (1968) at the Harvard Research Center in Entrepreneurial History, has stressed the aspect of innovation in the entrepreneurial function (see Scherer, 1984, significantly titled *Innovation and Growth, Schumpeterian Perspectives*). The second, represented by Kirzner, has stressed the informational aspects of the entrepreneurial function; his argument is that the entrepreneur has a superior knowledge of market imperfections, that he uses to his advantage. Leibenstein (1968), also based at Harvard, takes this approach, beyond merely allocative efficiency. He makes the entrepreneur's basic function the destruction of pockets of inefficiency in the system.

For the most part, microeconomics, has neglected the study of the entrepreneurial function, simply by assuming that markets would eventually reach equilibrium. Even industrial organization, the area of microeconomics that is arguably closest to actual management practice (Porter, 1981), maintains in emphasis on supra-firm variables by concentrating on the assumption that the structure of a given industry drives the conduct of the firms in it. Nevertheless, the importance of the 'entrepreneurial function' to the actual development of the economy of a given country, following more or less Schumpeterian lines, has been studied extensively, starting with Hirschman: 'development depends not so much on finding optimal combinations for given resources and factors of production as on calling forth and enlisting for development purposes resources and abilities that are hidden, scattered or badly utilized' (1958: 5). These points of view open the way for an empirical study of the effects of entrepreneurship in the real economy. Birch (1979, 1987) has analyzed carefully the impact of entrepreneurial activity in the overall economy through the actual creation of jobs.

Thus the study of the *effects* of entrepreneurship has the following characteristics: (1) It abstracts from the individual entrepreneur and his or her actions to focus on the process by which those actions affect the economic environment. (2) It recognizes the entrepreneurial function as responsible for economic improvement in our society, due to its 'innovations,' thus providing a theoretical base for the 'advocacy studies' we shall discuss below. (3) It creates a basis for the distinction between the roles of 'investor,' the 'manager,' and the 'entrepreneur.' Under this third torch of analysis, entrepreneurship would then go well beyond the mere creation of small businesses (Scherer and Ravenscraft, 1984), thus paving the way for the legitimation of the concept of corporate entrepreneurship.

Considering Why Entrepreneurs Act: Studying the Causes of Entrepreneurship

It is not surprising that entrepreneurs themselves have been subjects of interest. If entrepreneurship is at the root of economic improvement, the implication that 'we need more of it' is not difficult to draw. Researchers must, therefore, understand those who provide it. This is consistent with a cultural emphasis upon the individual actor ('the cult of the individual'). It also fits with a need to understand why some depart from the norms of average behavior: the dramatic accomplishments of some entrepreneurs easily leads to the thinking that the individuals behind them must somehow be different and therefore of particular interest.

One level of inquiry into the 'causes' of observed entrepreneurial behavior conceptualizes entrepreneurship as 'a psychological characteristic of individuals, which can be described in terms such as *creativity*, *daring*, *aggressiveness*, and the like' (Wilken, 1979: 58). It was probably started by *The Enterprising Man*, by Collins and Moore (1964), who put at the core of entrepreneurship the 'desire for independence,' and who identified as the causal variable certain Oedipal conflicts and neuroses of the entrepreneur. This early work has had much following, particularly among social scientists with a background in psychology. Brockhaus studied the locus of control belief of entrepreneurs (1975), and their risk-tendency (1980). Marcin and Cockrum (1984), study psychological characteristics of entrepreneurs across different countries. Hochner and Ganrose (1985) analyze the characteristics of entrepreneurs, compared to their non-entrepreneurial fellow co-workers; and a similar psychological study is performed on female entrepreneurs by Rowen and Hisrich (1986). Cooper and Dunkelberg (1986) compare the path to entrepreneurship (inheritance, purchase, start-up) with background attitudes characteristic of a large sample of entrepreneurs. The popular press has also written extensively about the 'special psychological characteristics of the entrepreneur,' generally understood as someone who starts somewhat successfully-his or her own business.

An interesting twist is the study of the relationship between personal characteristics of entrepreneurs and the companies they set up. Smith and Miner (1983) analyzed the adequacy of different 'types' of entrepreneurs along the different stages in the development of a firm, while Webster (1977) and Gartner (1985) focus on the kinds of firms set up by different kinds of entrepreneurs.

A second level of inquiry conceptualizes entrepreneurship 'as a socal role ... that may be enacted by individuals in different social positions' (Wilken, 1979: 58). It was pioneered by McClelland's best-selling *The Achieving Society* (1961). The essence of this approach is that entrepreneurial behavior is dependent upon personal motivations which in turn are dependent on environmental characteristics. McClelland started from a psycho-sociological point of view, asking why some societies, at some points in time, had exhibited high economic and social growth. He attributed that growth to the 'need for achievement (n-achievement)' present in the psychological make up of large parts of the population in those societies. This point of view has been very fruitful in that it has brought all the theoretical resources of sociology to bear on the field of entrepreneurship. Its results

have been well-detailed accounts of how the environment affects practice of entrepreneurship (see, for instance, Greenfield, Stricken and Aubey, 1979; Delacroix and Carrol, 1983; Pennings, 1982a, b). The practical consequences for public policy are obvious, so much of the research undertaken with this 'environment as motivator' approach has clear political overtones. In fact, much of what is being published right now falls into this advocacy approach (see, for instance, Backman, 1983 and Kent, 1984).

Many criticisms have been levelled at these attempts to understand the *why* of entrepreneurship. First, it can be pointed out that it is extremely difficult to link particular psychological or sociological traits causally to patterns of complex behavior, such as entrepreneurship (Cooper, Dunkelberg, and Woo, 1988). Indeed, the literature suggests that no causal link can be established between any of the above-mentioned variables and entrepreneurship. At most, one could speak of correlates or antecedents of particular kinds of entrepreneurial behavior.

An added problem with this approach is that its constant focus on the individual entrepreneur has led, in many cases, to the identification of entrepreneurship with small business management (Carland et al. 1984) and to the failure to differentiate clearly between the individuals and organizations. These two points of view seriously impair the ability to transfer whatever knowledge is gained in entrepreneurship research to broader fields of management, such as corporate entrepreneurship.

On the other hand, the contributions of this 'entrepreneurship from its causes' approach are extremely important, and cannot be forgotten in any serious attempt at understanding corporate entrepreneurship. This approach has reminded us of the following facts: (1) It is individuals who carry out entrepreneurial activities, no matter how they are defined. (2) Their characteristics (personality, background, skills, etc.) matter. (3) Environmental variables are also relevant, not only in that they open up opportunities to exploit market inefficiencies, as in the 'economists' approach,' but also in the sense that different environments are more or less conducive to entrepreneurship, and can be more favorable to the new venture's success. So, apart from the possible social benefits that might have obtained from some of the advocacy approach, emphasis on the individual focuses the study of entrepreneurship on its protagonist – the individual entrepreneur, who was somewhat 'lost' in the previous economic analysis.

Considering How Entrepreneurs Act: Studying Entrepreneurial Management

The two streams of research discussed above, which have been characterized as 'entrepreneurship from its effects' and 'entrepreneurship from its causes,' deals with the '*what*' and the '*why*' of entrepreneurship. It is now left to study the *how*'. Entrepreneurship can be considered from a practical point of view–what do entrepreneurs do, or, normatively, 'how to succeed at being an entrepreneur.' It is, in fact, what is between the 'causes' and the 'results': the 'managerial behavior' of the entrepreneur. Table 1 represents the three major categories entrepreneurial studies can be fitted into.

Table 1. Contributions of disciplines to entrepreneurship

Line of inquiry	Causes	Behavior	Effects
Main question	Why	How	What
Basic discipline	Psychology, sociology	Management	Economics
Contributions	Importance of individual		Entrepreneurship is the function by which growth is achieved (thus not only the act of starting new businesses)
	Environmental variables are relevant		Distinction between entrepreneur and manager

There is a vast popular literature along these 'how-to' lines, from functional studies on aspects of interest to small businesses, to work on startups, venture capital, etc.; as well as many practical, functional studies on how to set up and run a few businesses successfully (see, for instance, Silver, 1983). There is also now emerging academic work focused an considering how entrepreneurs act. The study of strategy formation in entrepreneurial firms is now a legitimate area of inquiry (Mintzberg and McHugh, 1985).

Two important areas of research in this domain are studies concerned with the different life cycles through which new ventures pass and the problems entrepreneurs face as their companies mature (Gray and Ariss, 1985; Quinn and Cameron, 1983); and studies that try to find predictors of success for new ventures. This latter group attempts to identify predictors generally by relating such success (or lack thereof) to either the entrepreneurs' background, the chosen strategy, environmental considerations, or some mixture of these (Dollinger, 1984; Miller, 1983; Cooper and Bruno, 1975). Timmons and Bygrave (1986), Roure and Maidique (1986), and MacMillan, Zemann and Subba Narasimha (1987) have all sought predictors of success in new ventures funded with venture capital. They have found that there are indeed variables other than just the personalities of the individuals involved, such as the existence and nature of management teams, which affect the likelihood of a positive outcome.

It can be argued that this research on 'how' is the most appropriate for a business school, since it focuses on understanding (and, it is hoped, improving) actual managerial practice. An example may help clarify this. The success in business of the overseas Chinese has been well documented (see Limlingan, 1986, for an up-to-date analysis), together with that of other ethnic minority groups (Sowell, 1983). This can be analyzed from the point of view of the 'why,' and resultingly we find answers such as the traditional closeness of the Chinese family or the need for achievement of a barely tolerated minority. But also the 'how' can be studied; then a network of both strong and weak relationships is found (Larson, 1988). That network enables the participants in it to work with much lower transactions costs (Williamson, 1975), thus becoming much more efficient than larger, more

formal competitors (Jarillo, 1988). The first level of analysis provides little guidance for a would-be entrepreneur. The second gives a clue as to how a start-up company can structure itself in order to be more competitive. As will be seen later, this stream of research promises the most relevance for the field of corporate entrepreneurship.

Defining Entrepreneurship in a Useful Way

The extent to which the above studies can be taken to relate to corporate management depends on one critical question, one which we have thus far avoided throughout the literature review: what is an entrepreneur? Does anybody who starts a business qualify as an entrepreneur? Or is an entrepreneur necessarily an innovator, whether in a large or a small firm? If we take the first approach-that is, if we assume that only those who start a business qualify-then Ray Kroc of McDonald's or Thomas Watson of IBM would not qualify as entrepreneurs, although they have been producers of all the 'good things' that entrepreneurs are supposed to do, such as job and wealth creation through the introduction of new products and services. At the same time, only a few of those researchers interested in entrepreneurial studies would consider the opening of a typical 'mom and pop' store an entrepreneurial act worthy of study. The work of Reynolds, Van de Ven, Vesper, Cooper, among others, has provided insights into the start-up process; however, they have not always focused on the difference between high-potential ventures and others.

This dilemma is reflected throughout the literature. Some prominent researchers think that the present explosion in interest should not be diverted to anything other than new venture creation (Vesper, 1985). Others see entrepreneurship as something that is indistinguishable from innovation and as something that should not be circumscribed to new ventures. It is seen by some as the key to economic growth and productivity, and to the diffusion of knowledge (Baumol, 1986). This view of entrepreneurship would then also encompass the struggle of large firms to remain competitive (Kanter, 1989). 'The divergence in points of view is so great that it has been said that even a 'unifying theme' is lacking (Kirzner, 1973: 281). Casson has pointed out that the task of reviewing the literature on entrepreneurship 'is rendered still more difficult by the fact that in most academic studies of entrepreneurs the word "entrepreneur" does not appear in the title, whilst most of the literature with "entrepreneur" in the title is either nonacademic or is not about entrepreneurs at all' (1982: xiii).

Those attempts to pigeon-hole entrepreneurship do not contribute very much to our understanding, for each of the aspects described above focuses upon one important factor of entrepreneurship. Generally speaking, it does not appear useful, *in managerial terms*, to delimit entrepreneurship by defininig some economic functions as 'entrepreneurial' and others as non-entrepreneurial. Nor does it appear particularly helpful to base the decision of what an entrepreneur is upon studies of personality or character. The first exercise appears to be rather more semantic than practical. The second appears to be equally fruitless, for individuals in our society

may attempt entrepreneurship and often succeed even if they do not fit the standards of academic judges as to their entrepreneurial personality or sociological background. In sum, neither function nor character provide a useful basis for understanding entrepreneurship in managerial terms.

Defining entrepreneurship is, nevertheless, an important question, albeit semantic, because a definition too narrow may render much useful research inapplicable to important areas, such as corporate entrepreneurship. On the other hand, too broad a definition may make entrepreneurship equivalent to good management, thus effectively dissolving it as a specialized field of study.

The following view of entrepreneurship is then proposed to help take advantage of previous research on entrepreneurship for the strengthening of the corporate entrepreneurship field: *entrepreneurship is a process by which individuals-either on their own or inside organizations-pursue opportunities without regard to the resources they currently control* (Stevenson, Roberts, and Grousbeck, 1989). 'Opportunity' is defined here as a 'future situation which is deemed desirable and feasible.' Thus opportunity is a relativistic concept; opportunities vary among individuals and for individuals over time, because individuals have different desires and they perceive themselves with different capabilities. Desires vary with current position and future expectations. Capabilities vary depending upon innate skills, training, and the competitive environment. Perceptions of both desires and capabilities are only loosely connected to reality. But, in any case, the essence of entrepreneurship is the willingness to pursue opportunity, regardless of the resources under control. It is typical of the entrepreneur 'to find a way.' Those ways are arrayed on a spectrum from the behavior of a pure promotor to those of stodgy trustees (Stevenson and Gumpert, 1985).

This purely behavioral, situational definition fits well with the common experience that the level of 'entrepreneurship,' however defined, often varies across the life of an individual, or even across the different activities of an individual in a given moment. This approach overcomes the dilemma posed by the question of whether or not entrepreneurs are to be found only in start-up companies; we assume that we are seeing the entrepreneurial phenomenon whenever opportunity which requires resources beyond those controlled is being pursued. The final advantage of this point of view is that it concentrates on practice, thus leading us to study and then teach basic entrepreneurial skills. We understand these skills not as traits of character (hardly transmittable in a class room), but as knowledge that results from training and experience that has been accumulated over the years and that will assist in problem-solving (Simon, 1984). Thus, by concentrating on entrepreneurial behavior-by trying to understand the 'entrepreneurial process'-we may be able to make use of findings of previous research, while gaining insights on a crucial issue: how to foster entrepreneurship, by learning the nature of the entrepreneurial process.

This approach also allows us to deal with both individual and organizational entrepreneurship, thus providing the necessary link between many of the findings mentioned in the literature review (need for innovation; influence of personal characteristics and motivation upon the outcome of entrepreneurial ventures;

objective (although contingent) predictors of success, etc.) and the field of corporate entrepreneurship.

In the remainder of this paper, specific propositions, relevant to corporate entrepreneurship research, practice and teaching, are derived from this view of entrepreneurship, following some ideas found in Stevenson and Jarillo (1986).

Towards the Entrepreneurial Organization

Our definition of entrepreneurship can easily be applied to a corporation, and this application can be summarized in six logical propositions concerning corporate entrepreneurship. Thus the field of corporate entrepreneurship would not limit itself to the study of internal venturing, but also to the ability of corporations to act entrepreneurially. The first proposition is purely definitional. Together with proposition 2, they set the stage for the rest, more testable and research oriented:

> *Proposition 1: An entrepreneurial organization is that which pursues opportunity, regardless of resources currently controlled.*

As has been argued in the previous review of the literature, it is important to distinguish between individuals and organizations. At least in the case of entrepreneurial behavior, this cannot be avoided by equating an organization's direction to the wishes of its top managers: an opportunity is, by definition, something beyond the current activities of the firm, and it is very hard for top managers to 'force' that pursuit through the normal managerial mechanisms of planning and control: it has to come from below. Therefore:

> *Proposition 2: The level of entrepreneurship within the firm (i.e. the pursuit of opportunities) is critically dependent on the attitude of individuals within the firm, below the ranks of top management.*

The crux of corporate entrepreneurship is, then, that opportunity *for the firm* has to be pursued by *individuals* within it, who may have perceptions of personal opportunity more or less at variance with opportunity for the firm. In addition, an opportunity can hardly be pursued, of course, if it has not been spotted. But spotting opportunities is certainly a function of the individual's abilities: his/her intimate knowledge of the market, the technologies involved, customer's needs, etc. As a consequence, the kind of jobs and positions the firm designs, the effort it puts into developing generalists, able to make the necessary mental connections to detect the opportunity, should have a measurable impact. Thus:

> *Proposition 3: The entrepreneurial behavior exhibited by a firm will be positively correlated with its efforts to put individuals in a position to detect opportunities; to train them to be able to do so and to reward them for doing so.*

But, as we have learned from the studies of the 'causes' of entrepreneurship, the individual's motivations are decisive to the emergence of entrepreneurial behavior. By definition, nobody will pursue an opportunity if he/she does not want to,

and we have seen argued that the very exceptional nature of pursuing opportunities without adequate resources makes it very difficult for top management to 'force' that pursuit through the typical managerial mechanisms by prespecifying task goals.

There is a large body of literature on motivation, not only in the field of entrepreneurship (the 'why' question) but also in organization theory and psychology. It is not redundant to remark how important motivation is for the emergence of entrepreneurial behavior within the corporation. In most cases the individuals who must exhibit that behavior if the firm is to succeed have already satisifed most of their basic needs, since they are on a company's payroll. Thus the positive inducements necessary to break the *status quo* may have to be stronger (Baker, 1986). Indeed, several of the studies mentioned above on the background of individual entrepreneurs point out that many of them come from relatively dispossessed families.

But that extra inducement is hard to develop within an organization. For that reason it may be more efficient to lessen the impact of deterrents to entrepreneurial behavior, particularly that of fear of the consequences of failure to the career of the corporate entrepreneur. Given that the would-be entrepreneurs enjoy an acceptable status within the firm, the treatment of failure would appear to be a critical component of the necessary motivation to pursue opportunity. Thus:

> *Proposition 4: Firms which make a conscious effort to lessen negative consequences of failure when opportunity is pursued will exhibit a higher degree of entrepreneurial behavior.*

The third element in the pursuit of opportunity, after its detection and the willingness to pursue it, is the belief that it can, at least with some likelihood, be successfully exploited. Thus:

> *Proposition 5: Not only the success rate, but the very amount of entrepreneurial behavior will be a function of the employees' (subjective) ability to exploit opportunities.*

How is that ability increased? The findings of the ow-to' stream of research in entrepreneurship offer insights. These include the importance of investing the venture with enough managerial and technical ability from the beginning, found in the studies for venture capital-funded start-ups success. Widespread research suggests that different stages in the life of a venture may require different managers. The importance of teams in successful entrepreneurships also follows.

Directly deriving from the above definition of entrepreneurship, a specific skill would appear to be particularly important: that of making use of resources that are outside the entrepreneur's control (Stevenson, 1983; Jarillo, 1989), since entrepreneurial behavior implies pursuing opportunities regardless of the resources under control.

The vast amount of literature on networks can be applied here, from studies that show the usefulness of a social network in order to sustain the new venture (Birley, 1986), to those that analyze how an efficient network can be sustained over the long-term (Jarillo and Ricart, 1987; Birley, 1989; Lawrence, 1988). This

literature now can be seen as relevant to corporate entrepreneurship, for the ability to obtain access to resources widely scattered throughout the organization, with no need to set up a previous, rigorous appropriations procedure, greatly facilitates the pursuit of opportunities. Thus:

> *Proposition 6: Organizations which facilitate the emergence of informal internal and external networks, and allow the gradual allocation and sharing of resources, will exhibit a higher degree of entrepreneurial behavior.*

Conclusions

This paper shows how a particular conception of entrepreneurship, based on the notion of opportunity, may help link the vast and varied research on that topic with the emerging field of corporate entrepreneurship. The proposed view understands corporate entrepreneurship as something wider than just 'corporate venturing,' or setting-up intra-firm 'venture capital' processes. Entrepreneurial behavior would be, following the economists' tradition started by Schumpeter, the quest for growth through innovation, be this technological or purely mangerial. But pursuing opportunity, whether through specific company structures of not, constitutes the core of entrepreneurship, both individuals and corporate.

More research is needed, at all levels, on how that process develops, and on successfully exploiting opportunity. Certainly, the three aspects discussed above-namely detection of the opportunity, willingness to pursue it, and confidence and the possibilities of succeeding-are key components in the process. Much research, from many different fields, can shed light on those issues, but there are still plenty of unanswered questions.

The implications for teaching are quite clear: entrepreneurship is more than just starting up new businesses. It is a process for which some skills are highly relevant. Many of those skills are teachable. In fact, the implications for teaching may well go beyond the field of entrepreneurship, for entrepreneurial management may be seen as a 'mode of management' different from traditional management, with different requirements of control and rewards systems, for instance.

Practitioners of corporate entrepreneurship would be well advised, following the proposed approach, to address all three key parameters of entrepreneurial behavior. Without an environment that fosters the detection of opportunities, no entrepreneurship will emerge. Equally, the motivation to pursue opportunity, and its facilitation, influence the final outcome. And there is much evidence on at least some of the factors that influence these three parameters. The fact, moreover, that they are not strictly independent but, rather, reinforce each other (someone who is willing to pursue opportunities will 'see more' of them, someone who is confident in his/her ability to succeed will be more willing to pursue them; etc.) points out the need for an, entrepreneurial culture' within the firm, i.e. a 'track record' of fair treatment to internal entrepreneurs.

Evidently, it is debatable whether entrepreneurship should be viewed as the pursuit of opportunity or as something else. After all, that is a matter of definitions.

But it is believed that, by taking that approach, much of the previous, separate research on entrepreneurship can be useful for both individual and corporate practice, and that specific avenues for research and teaching are opened.

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The Promise of Entrepreneurship as a Field of Research*

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Abstract

To date, the phenomenon of entrepreneurship has lacked a conceptual framework. In this note we draw upon previous research conducted in the different social science disciplines and applied fields of business to create a conceptual framework for the field. With this framework we explain a set of empirical phenomena and predict a set of outcomes not explained or predicted by conceptual frameworks already in existence in other fields.

For a field of social science to have usefulness, it must have a conceptual framework that explains and predicts a set of empirical phenomena not explained or predicted by conceptual frameworks already in existence in other fields. To date, the phenomenon of entrepreneurship has lacked such a conceptual framework. Rather than explaining and predicting a unique set of empirical phenomena, entrepreneurship has become a broad label under which a hodgepodge of research is housed. What appears to constitute entrepreneurship research today is some aspect of the setting (e.g. small businesses or new firms), rather than a unique conceptual domain. As a result, many people have had trouble identifying the distinctive contribution of the field to the broader domain of business studies, undermining the field's legitimacy. Researchers in other fields ask why entrepreneurship research is necessary if it does not explain or predict empirical phenomena beyond what is known from work in other fields. Moreover, the lack of a conceptual framework has precluded the development of an understanding of many important phenomena not adequately explained by other fields.

One example of this problem is the focus in the entrepreneurship literature on the relative performance of individuals or firms in the context of small or new businesses. Since strategic management scholars examine the differences in and sustainability of relative performance between competitive firms, this approach is not unique (Venkataraman, 1997). Moreover, the approach does not provide an adequate test of entrepreneurship, since entrepreneurship is concerned with the discovery and exploitation of profitable opportunities. A performance advantage over other firms is not a sufficient measure of entrepreneurial performance, because a performance advantage may be insufficient to compensate for the opportunity cost of other alternatives, a liquidity premium for time and capital, and a

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premium for uncertainty bearing. Therefore, although a conceptual framework to explain and predict relative performance between firms is useful to strategic management, it is not sufficient for entrepreneurship.

We attempt an integrating framework for the entrepreneurship field in the form of this note. We believe that this framework will help entrepreneurship researchers recognize the relationship among the multitude of necessary, but not sufficient, factors that compose entrepreneurship, and thereby advance the quality of empirical and theoretical work in the field. By providing a framework that both sheds light on unexplained phenomena and enhances the quality of research, we seek to enhance the field's legitimacy and prevent its marginalization as only "a research setting" or "teaching application."

The note proceeds as follows. First, we define the domain of the field. Second, we explain why organizational researchers should study entrepreneurship. Third, we describe why entrepreneurial opportunities exist and why some people, and not others, discover and exploit those opportunities. Fourth, we consider the different modes of exploitation of entrepreneurial opportunities. Finally, we conclude with brief reflections on the potential value of the framework presented here.

Definition of Entrepreneurship

Perhaps the largest obstacle in creating a conceptual framework for the entrepreneurship field has been its definition. To date, most researchers have defined the field solely in terms of who the entrepreneur is and what he or she does (Venkataraman, 1997). The problem with this approach is that entrepreneurship involves the nexus of two phenomena: the presence of lucrative opportunities and the presence of enterprising individuals (Venkataraman, 1997). By defining the field in terms of the individual alone, entrepreneurship researchers have generated incomplete definitions that do not withstand the scrutiny of other scholars (Gartner, 1988).

The definition of an entrepreneur as a person who establishes a new organization is an example of this problem. Because this definition does not include consideration of the variation in the quality of opportunities that different people identify, it leads researchers to neglect to measure opportunities. Consequently, empirical support (or lack of support) for attributes that differentiate entrepreneurs from other members of society is often questionable, because these attributes confound the influence of opportunities and individuals.

In contrast to previous research, we define the field of entrepreneurship as the scholarly examination of how, by whom, and with what effects opportunities to create future goods and services are discovered, evaluated, and exploited (Venkataraman, 1997). Consequently, the field involves the study of sources of opportunities, the processes of discovery, evaluation, and exploitation of opportunities, and the set of individuals who discover, evaluate, and exploit them.

Although the phenomenon of entrepreneurship provides research questions for many different scholarly fields,[1] organization scholars are fundamentally concerned with three sets of research questions about entrepreneurship: (1) why, when, and how opportunities for the creation of goods and services come into existence; (2) why, when, and how some people and not others discover and exploit these opportunities; and (3) why, when, and how different modes of action are used to exploit entrepreneurial opportunities.

Before reviewing existing research to answer these questions, we provide several caveats about our approach. First, we take a disequilibrium approach, which differs from equilibrium approaches in economics (Khilstrom & Laffont, 1979) and social psychology (McClelland, 1961). In equilibrium models, entrepreneurial opportunities either do not exist or are assumed to be randomly distributed across the population. Because people in equilibrium models cannot discover opportunities that differ in value from those discovered by others, who becomes an entrepreneur in these models depends solely on the attributes of people. For example, in Khilstrom and Laffont's (1979) equilibrium model, entrepreneurs are people who prefer uncertainty.

Although we believe that some dimensions of equilibrium models are useful for understanding entrepreneurship, we argue that these models are necessarily incomplete. Entrepreneurial behavior is transitory (Carroll & Mosakowski, 1987). Moreover, estimates of the number of people who engage in entrepreneurial behavior range from 20 percent of the population (Reynolds & White, 1997) to over 50 percent (Aldrich & Zimmer, 1986). Since a large and diverse group of people engage in the transitory process of entrepreneurship, it is improbable that entrepreneurship can be explained solely by reference to a characteristic of certain people independent of the situations in which they find themselves. Therefore, when we argue that some people and not others engage in entrepreneurial behavior, we are describing the tendency of certain people to respond to the situational cues of opportunities-not a stable characteristic that differentiates some people from others across all situations.[2]

Second, we argue that entrepreneurship does not require, but can include, the creation of new organizations. As Amit, Glosten, and Mueller (1993) and Casson (1982) explain, entrepreneurship can also occur within an existing organization. Moreover, opportunities can be sold to other individuals or to existing organizations. In this note we do not examine the creation of new organizations per se but, rather, refer interested readers to excellent reviews on firm creation in organizational ecology (Aldrich, 1990; Singh & Lumsden, 1990), economics (Caves, 1998: Geroski, 1995), and organizational theory (Gartner, 1985; Katz & Gartner, 1988; Low & MacMillan, 1988).[3]

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[1] For example, economists are interested in the distribution of entrepreneurial talent across productive and unproductive activities (Baumol, 1996).

[2] We also argue that entrepreneurship can be undertaken by a single individual or a set of people who undertake the steps of the process collectively or independently.

[3] Many researchers argue that entrepreneurship occurs for reasons other than for profit (see Roberts, 1991, for a review), but we discuss only for-profit entrepreneurship.

Third, our framework complements sociological and economic work in which researchers have examined the population-level factors that influence firm creation. Stinchcombe (1965) identified societal factors that enhance incentives to organize and organizing ability. Aldrich (1990) and Singh and Lumsden (1990) have provided reviews of factors enhancing firm foundings and have described the effects of such factors as environmental carrying capacity, interpopulation processes, and institutional factors. Similarly, Baumol (1996) has related the institutional environment to the supply of people who are willing to create firms.

Although these other frameworks are valuable to entrepreneurship scholars, they involve a set of issues different from those with which we are concerned. Our framework differs from these in that (1) we focus on the existence, discovery, and exploitation of opportunities; (2) we examine the influence of individuals and opportunities, rather than environmental antecedents and consequences; and (3) we consider a framework broader than firm creation.

Fourth, our framework also complements research on the process of firm creation (e.g. Gartner, 1985; Katz & Gartner, 1988; Katz, 1993). Explaining this process is important, but research on it involves examining a different set of issues from those we explore. Firm creation process researchers examine resource mobilization, firm organizing, and market making, starting with the assumption that opportunities exist, have been discovered, and will be exploited through the creation of new firms. Since we lack the space to review both the processes of entrepreneurship through market mechanisms and through firm creation, we limit our discussion to the conditions under which entrepreneurial opportunities are exploited through firms and markets, and we refer readers to these other frameworks for information on the process of firm creation.

Why Study Entrepreneurship?

Many scholars ask, either implicitly or explicitly, why anyone should study entrepreneurship. Data are difficult to obtain, theory is underdeveloped, and many findings to date are the same as those obtained in other areas of business. In response, we offer three reasons for studying the topic. First, much technical information is ultimately embodied in products and services (Arrow, 1962), and entrepreneurship is a mechanism by which society converts technical information into these products and services. Second, entrepreneurship is a mechanism through which temporal and spatial inefficiencies in an economy are discovered and mitigated (Kirzner, 1997). Finally, of the different sources of change in a capitalist society, Schumpeter (1934) isolated entrepreneurially driven innovation in products and processes as the crucial engine driving the change process. Therefore, the absence of entrepreneurship from our collective theories of markets, firms, organizations, and change makes our understanding of the business landscape incomplete. As Baumol eloquently remarks, the study of business without an understanding of entrepreneurship is like the study of Shakespeare in which "the Prince of Denmark has been expunged from the discussion of Hamlet" (1989: 66).

The Existence, Discovery, and Exploitation of Entrepreneurial Opportunities

The Existence of Entrepreneurial Opportunities

To have entrepreneurship, you must first have entrepreneurial opportunities. Entrepreneurial opportunities are those situations in which new goods, services, raw materials, and organizing methods can be introduced and sold at greater than their cost of production (Casson, 1982). Although recognition of entrepreneurial opportunities is a subjective process, the opportunities themselves are objective phenomena that are not known to all parties at all times. For example, the discovery of the telephone created new opportunities for communication, whether or not people discovered those opportunities.

Entrepreneurial opportunities differ from the larger set of all opportunities for profit, particularly opportunities to enhance the efficiency of existing goods, services, raw materials, and organizing methods, because the former require the discovery of now means-ends relationships, whereas the latter involve optimization within existing means-ends frameworks (Kirzner, 1997). Because the range of options and the consequences of exploiting new things are unknown, entrepreneurial decisions cannot be made through an optimization process in which mechanical calculations are made in response to a given set of alternatives (Baumol, 1993).

Entrepreneurial opportunities come in a variety of forms. Although the focus in most prior research has been on opportunities in product markets (Venkataraman, 1997), opportunities also exist in factor markets, as in the case of the discovery of new materials (Schumpeter, 1934). Moreover, within product market entrepreneurship, Drucker (1985) has described three different categories of opportunities: (1) the creation of new information, as occurs with the invention of new technologies; (2) the exploitation of market inefficiencies that result from information asymmetry, as occurs across time and geography; and (3) the reaction to shifts in the relative costs and benefits of alternative uses for resources, as occurs with political, regulatory, or demographic changes.

Previous researchers have argued that entrepreneurial opportunities exist primarily because different members of society have different beliefs about the relative value of resources, given the potential to transform them into a different state (Kirzner, 1997). Because people possess different beliefs (because of a lucky hunch, superior intuition, or private information), they make different conjectures about the price at which markets should clear or about what possible new markets could be created in the future. When buyers and sellers have different beliefs about the value of resources, both today and in the future, goods and services can sell above or below their marginal cost of production (Schumpeter, 1934). An entrepreneurial discovery occurs when someone makes the conjecture that a set of

resources is not put to its "best use" (i.e. the resources are priced "too low," given a belief about the price at which the output from their combination could be sold in another location, at another time, or in another form). If the conjecture is acted upon and is correct, the individual will earn an entrepreneurial profit. If the conjecture is acted upon and is incorrect, the individual will incur an entrepreneurial loss (Casson, 1982).

Entrepreneurship requires that people hold different beliefs about the value of resources for two reasons. First, entrepreneurship involves joint production, where several different resources have to be brought together to create the new product or service. For the entrepreneur to obtain control over these resources in a way that makes the opportunity profitable, his or her conjecture about the accuracy of resource prices must differ from those of resource owners and other potential entrepreneurs (Casson, 1982). If resource owners had the same conjectures as the entrepreneur, they would seek to appropriate the profit from the opportunity by pricing the resources so that the entrepreneur's profit approached zero. Therefore, for entrepreneurship to occur, the resource owners must not share completely the entrepreneur's conjectures. Second, if all people (potential entrepreneurs) possessed the same entrepreneurial conjectures, they would compete to capture the same entrepreneurial profit, dividing it to the point that the incentive to pursue the opportunity was eliminated (Schumpeter, 1934).

But why should people possess different beliefs about the prices at which markets should clear? Two answers have been offered. First, as Kirzner (1973) has observed, the process of discovery in a market setting requires the participants to guess each other's expectations about a wide variety of things. People make decisions on the basis of hunches, intuition, heuristics, and accurate and inaccurate information, causing their decisions to be incorrect some of the time. Since decisions are not always correct, this process leads to "errors" that create shortages, surpluses, and misallocated resources. An individual alert to the presence of an "error" may buy resources where prices are "too low," recombine them, and sell the outputs where prices are "too high."

Second, as Schumpeter (1934) explained, economies operate in a constant state of disequilibrium. Technological, political, social, regulatory, and other types of change offer a continuous supply of new information about different ways to use resources to enhance wealth. By making it possible to transform resources into a more valuable form, the new information alters the value of resources and, therefore, the resources' proper equilibrium price. Because information is imperfectly distributed, all economic actors do not receive new information at the same time. Consequently, some people obtain information before others about resources lying fallow, new discoveries being made, or new markets opening up. If economic actors obtain new information before others, they can purchase resources at below their equilibrium value and earn an entrepreneurial profit by recombining the resources and then selling them (Schumpeter, 1934).

The informational sources of opportunity may be easier to see in the case of new technology, but they need not be restricted to technological developments. For example, the production of the movie *Titanic* generated new information about who was a desirable teen idol. An entrepreneur could respond to this new

information by acting on the conjecture that posters of Leonardo DeCaprio would sell for greater than their cost of production.

Because entrepreneurial opportunities depend on asymmetries of information and beliefs, eventually, entrepreneurial opportunities become cost inefficient to pursue. First, the opportunity to earn entrepreneurial profit will provide an incentive to many economic actors. As opportunities are exploited, information diffuses to other members of society who can imitate the innovator and appropriate some of the innovator's entrepreneurial profit. Although the entry of imitating entrepreneurs initially may validate the opportunity and increase overall demand, competition eventually begins to dominate (Hannan & Freeman, 1984). When the entry of additional entrepreneurs reaches a rate at which the benefits from new entrants exceeds the costs, the incentive for people to pursue the opportunity is reduced, because the entrepreneurial profit becomes divided among more and more actors (Schumpeter, 1934).

Second, the exploitation of opportunity provides information to resource providers about the value of the resources that they possess and leads them to raise resource prices over time, in order to capture some of the entrepreneur's profit for themselves (Kirzner, 1997). In short, the diffusion of information and learning about the accuracy of decisions over time, combined with the lure of profit, will reduce the incentive for people to pursue any given opportunity.

The duration of any given opportunity depends on a variety of factors. The provision of monopoly rights, as occurs with patent protection or an exclusive contract, increases the duration. Similarly, the slowness of information diffusion or the lags in the timeliness with which others recognize information also increase the duration, particularly if time provides reinforcing advantages, such as occur with the adoption of technical standards or learning curves. Finally, the "inability of others (due to various isolating mechanisms) to imitate, substitute, trade for or acquire the rare resources required to drive down the surplus" (Venkataraman, 1997: 133) increases the duration.

The Discovery of Entrepreneurial Opportunities

Although an opportunity for entrepreneurial profit might exist, an individual can earn this profit only if he or she recognizes that the opportunity exists and has value. Given that an asymmetry of beliefs is a precondition for the existence of entrepreneurial opportunities, all opportunities must not be obvious to everyone all of the time (Hayek, 1945). At any point in time, only some subset of the population will discover a given opportunity (Kirzner, 1973).

Why do some people and not others discover particular entrepreneurial opportunities? Although the null hypothesis is blind luck, research has suggested two broad categories of factors that influence the probability that particular people will discover particular opportunities: (1) the possession of the prior information necessary to identify an opportunity and (2) the cognitive properties necessary to value it.

Information Corridors. Human beings all possess different stocks of information and these stocks of information influence their ability to recognize particular opportunities. Stocks of information create mental schemas, which provide a framework for recognizing new information. To recognize an opportunity, an entrepreneur has to have prior information that is complementary with the new information, which triggers an entrepreneurial conjecture (Kaish & Gilad, 1991). This prior information might be about user needs (Von Hippel, 1986) or specific aspects of the production function (Bruderl, Preisendorfer, & Ziegler, 1992).

The information necessary to recognize any given opportunity is not widely distributed across the population because of the specialization of information in society (Hayek, 1945). People specialize in information because specialized information is more useful than general information for most activities (Becker & Murphy, 1992). As a result, no two people share all of the same information at the same time. Rather, information about underutilized resources, new technology, unsated demand, and political and regulatory shifts is distributed according to the idiosyncratic life circumstances of each person in the population (Venkataraman, 1997).

The development of the Internet provides a useful example. Only a subset of the population has had entrepreneurial conjectures in response to the development of this technology. Some people still do not know what the Internet is or that profitable opportunities exist to exploit it.

Cognitive Properties. Since the discovery of entrepreneurial opportunities is not an optimization process by which people make mechanical calculations in response to a given a set of alternatives imposed upon them (Baumol, 1993), people must be able to identify new means-ends relationships that are generated by a given change in order to discover entrepreneurial opportunities. Even if a person possesses the prior information necessary to discover an opportunity, he or she may fail to do so because of an inability to see new means-ends relationships. Unfortunately, visualizing these relationships is difficult. Rosenberg (1994) points out that history is rife with examples in which inventors failed to see commercial opportunities (new means-ends relationships) that resulted from the invention of important technologies, from the telegraph to the laser.

Prior research has shown that people differ in their ability to identify such relationships. For example, research in the field of cognitive science has shown that people vary in their abilities to combine existing concepts and information into new ideas (see Ward, Smith, & Vaid, 1997, for several review articles). Recently, a few researchers have begun to evaluate empirically the role that cognitive properties play in the discovery of entrepreneurial opportunities (see Busenitz & Barney, 1997; Kaish & Gilad, 1991; Shaver & Scott, 1991). For example, Sarasvathy, Simon, and Lave (1998) have shown that successful entrepreneurs see opportunities in situations in which other people tend to see risks, whereas Baron (in press) has found that entrepreneurs may be more likely than other persons to discover opportunities because they are less likely to engage in counterfactual thinking (i.e. less likely to invest time and effort imaging what "might have been" in a

given situation), less likely to experience regret over missed opportunities, and are less susceptible to inaction inertia.

The Decision to Exploit Entrepreneurial Opportunities

Although the discovery of an opportunity is a necessary condition for entrepreneurship, it is not sufficient. Subsequent to the discovery of an opportunity, a potential entrepreneur must decide to exploit the opportunity. We do not have precise figures on the aborting of discovered opportunities, but we do know that not all discovered opportunities are brought to fruition. Why, when, and how do some people and not others exploit the opportunities that they discover? The answer again appears to be a function of the joint characteristics of the opportunity and the nature of the individual (Venkataraman, 1997).

Nature of the Opportunity. The characteristics of opportunities themselves influence the willingness of people to exploit them. Entrepreneurial opportunities vary on several dimensions, which influences their expected value. For example, a cure for lung cancer has greater expected value than does a solution to students' need for snacks at a local high school. The exploitation of an entrepreneurial opportunity requires the entrepreneur to believe that the expected value of the entrepreneurial profit will be large enough to compensate for the opportunity cost of other alternatives (including the loss of leisure), the lack of liquidity of the investment of time and money, and a premium for bearing uncertainty (Kirzner, 1973; Schumpeter, 1934).

To date, research has shown that, on average, entrepreneurs exploit opportunities having higher expected value. In particular, exploitation is more common when expected demand is large (Schmookler, 1966; Schumpeter, 1934), industry profit margins are high (Dunne, Roberts, & Samuelson, 1988), the technology life cycle is young (Utterback, 1994), the density of competition in a particular opportunity space is neither too low nor too high (Hannan & Freeman, 1984), the cost of capital is low (Shane, 1996), and population-level learning from other entrants is available (Aldrich & Wiedenmeyer, 1993).

Individual Differences. Not all potential entrepreneurs will exploit opportunities with the same expected value. The decision to exploit an opportunity involves weighing the value of the opportunity against the costs to generate that value and the costs to generate value in other ways. Thus, people consider the opportunity cost of pursuing alternative activities in making the decision whether or not to exploit opportunities and pursue opportunities when their opportunity cost is lower (Amit, Mueller, & Cockburn, 1995; Reynolds, 1987). In addition, people consider their costs for obtaining the resources necessary to exploit the opportunity. For example, Evans and Leighton (1989) showed that the exploitation of opportunities is more common when people have greater financial capital. Similarly, Aldrich and Zimmer (1986) reviewed research findings that showed that stronger social ties to resource providers facilitate the acquisition of resources and enhance the probability of opportunity exploitation. Furthermore, Cooper, Woo, and Dunkelberg

(1989) found that people are more likely to exploit opportunities if they have developed useful information for entrepreneurship from their previous employment, presumably because such information reduces the cost of opportunity exploitation. Finally, the transferability of information from the prior experience to the opportunity (Cooper et al. 1989), as well as prior entrepreneurial experience (Carroll & Mosakowski, 1987), increases the probability of exploitation of entrepreneurial opportunity because learning reduces its cost.

The decision to exploit an entrepreneurial opportunity is also influenced by individual differences in perceptions. The creation of new products and markets involves downside risk, because time, effort, and money must be invested before the distribution of the returns is known (Knight, 1921; Venkataraman, 1997). Several researchers have argued that individual differences in the willingness to bear this risk influence the decision to exploit entrepreneurial opportunities (Khilstrom & Laffont, 1979; Knight, 1921). For example, people who exploit opportunities tend to frame information more positively and then respond to these positive perceptions (Palich & Bagby, 1995).

The decision to exploit entrepreneurial opportunities is also influenced by individual differences in optimism. People who exploit opportunities typically perceive their chances of success as much higher than they really are-and much higher than those of others in their industry (Cooper, Woo, & Dunkelberg, 1988). Moreover, when these people create new firms, they often enter industries in which scale economies play an important role at less than minimum efficient scale (Audretsch, 1991). and they enter industries at rates exceeding the equilibrium number of firms (Gort & Klepper, 1982).[4]

However, in most industries, at most points in time, most new firms fail (Dunne et al. 1988), and few firms ever displace incumbents (Audretsch, 1991), suggesting that people who exploit opportunities, on average, are overly optimistic about the value of the opportunities they discover. This overoptimism motivates the exploitation of opportunity by limiting information, stimulating rosy forecasts of the future (Kahneman & Lovallo, 1994), triggering the search for relatively small amounts of information (Kaish & Gilad, 1991), and leading people to act first and analyze later (Busenitz & Barney, 1997).

Other individual differences may be important in explaining the willingness to exploit opportunities. Researchers have argued that people with greater self-efficacy and more internal locus of control are more likely to exploit opportunities, because exploitation requires people to act in the face of skepticism of others (Chen, Greene, & Crick, 1998). Similarly, opportunity exploitation involves ambiguity, and people who have a greater tolerance for ambiguity may be more likely to exploit opportunities (Begley & Boyd, 1987). Finally, the exploitation of opportunity is a setting in which people can achieve, providing a valuable cue for those who possess a high need for achievement (McClelland, 1961). Consequently, those who are high in need for achievement may be more likely than other members of society to exploit opportunities.

[4] The information signals generated by the entrepreneurial process are weak.

Readers should note that the attributes that increase the probability of opportunity exploitation do not necessarily increase the probability of success. For example, overoptimism might be associated with a higher probability of both exploitation and failure. Of the population of individuals who discover opportunities in a given industry, those who are pessimistic may choose not to exploit discovered opportunities because they more accurately estimate what it will take to compete and how many other people will try to do similar things. Overoptimistic individuals do not stop themselves from exploiting these opportunities, because their overoptimism limits information and motivates rosy forecasts of the future.

Modes of Exploitation

Another critical question concerns how the exploitation of entrepreneurial opportunities is organized in the economy. Two major institutional arrangements for the exploitation of these opportunities exist – the creation of new firms (hierarchies) and the sale of opportunities to existing firms (markets), but the common assumption is that most entrepreneurial activity occurs through de novo startups. However, people within organizations who discover opportunities sometimes pursue those opportunities on behalf of their existing organizations and sometimes establish new organizations, whereas independent actors sometimes sell their opportunities to existing organizations and sometimes establish new organizations to pursue the opportunities.

Research shows that the choice of mode depends on the nature of the industrial organization, the opportunity, and the appropriability regime. Research in industrial organization has shown that entrepreneurship is less likely to take the form of de novo startups when capital market imperfections make it difficult for independent entrepreneurs to secure financing (Cohen & Levin, 1989). Entrepreneurship is more likely when the pursuit of entrepreneurial opportunity requires the effort of individuals who lack incentives to do so in large organizations; when scale economies, first mover advantages, and learning curves do not provide advantages to existing firms (Cohen & Levin, 1989); and when industries have low barriers to entry (Acs & Audretsch, 1987). Research on the appropriability of information has shown that entrepreneurship is more likely to take the form of de novo startups when information cannot be protected well by intellectual property laws, inhibiting the sale of entrepreneurial opportunities (Cohen & Levin, 1989). Finally, research on the nature of opportunities has shown that entrepreneurship is more likely to take the form of de novo startups when opportunities are more uncertain (Casson, 1982), when opportunities do not require complementary assets (Teece, 1986), and when opportunities destroy competence (Tushman & Anderson, 1986).

Conclusion

Entrepreneurship is an important and relevant field of study. Although those in the field face many difficult questions, we have presented a framework for exploring

them. We recognize that we may have offered some uncertain assumptions, potentially flawed logical arguments, or have made statements that will prove, ultimately, to be inconsistent with data yet to be collected. Nevertheless, this framework provides a starting point. Since it incorporates information gained from many disciplinary vantage points and explored through many different methodologies, we hope that it will prod scholars from many different fields to join us in the quest to create a systematic body of information about entrepreneurship. Many skeptics claim that the creation of such a body of theory and the subsequent assembly of empirical support for it are impossible. We hope that other scholars will join our effort to prove those skeptics wrong.

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The Cognitive Infrastructure of Opportunity Emergence*

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Abstract

Before we can act on opportunities we must first identify those opportunities. Understanding what promotes or inhibits entrepreneurial activity thus requires understanding how we construct perceived opportunities. Seeing a prospective course of action as a credible opportunity reflects an intentions-driven process driven by known critical antecedents. Based on well-developed theory and robust empirical evidence, we propose an intentions-based model of the cognitive infrastructure that supports or inhibits how we perceive opportunities. We discuss how this model both integrates past findings and guides future research. We also show the practical diagnostic power this model offers to managers.

Some organizations find their pursuit of new opportunities a difficult challenge, yet other similar organizations seem to have little difficulty. Based on well-developed theory and robust empirical evidence, we propose that perceptions of organization members, channeled through intentions, can inhibit or enhance the identification and pursuit of new opportunities. This analysis proposes an intentions-based model of how opportunities emerge. Also offered are suggestions on how to develop an opportunity-friendly cognitive infrastructure.

Consider downsizing: It often arises because firms cannot identify profitable growth opportunities, even in firms that appear to have ample human resources to seek opportunities (Gertz & Baptista, 1996; Krueger & Gertz, 1996). Why is it that these firms cannot find new opportunities, but instead their thinking is dominated by threats? Consider firms that are frustrated by an inability to innovate despite having the requisite resources. Could it be that organization members do not perceive a focus on innovation as an opportunity? In both cases, we know the right questions to ask to understand why firm members do not perceive an opportunity.

An inadequate level of entrepreneurial activity may reflect an inadequate supply of opportunities perceived by organization members, not enough 'entrepreneurial' thinking. If we want to understand how corporate ventures emerge, we need to understand how opportunities emerge. Organizations do not innovate; individuals within those organizations innovate. As Shapero argued, we can increase an organization's entrepreneurial potential by increasing the quality and quantity of potential entrepreneurs within that organization. In turn, we do that by increasing

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the quality and quantity of opportunities perceived by organization members (Shapero, 1982, 1985; Krueger & Brazeal, 1994). Any theory of venturing might wish to consider the process by which individuals identify credible opportunities and the important role of perceptions in that process.

One thing we know about innovative activity is that the adoption of an innovation entails some sort of supporting infrastructure, both tangible and intangible. We focus here on the intangible infrastructure. Individuals need to perceive a prospective new course of action as a credible opportunity, which requires the opportunity to not just be viable, but be perceived as viable.

Thinking 'Entrepreneurially': The Need for Cognition-Based Models

The centrality of perceptions in opportunity identification argues for taking a cognitive approach for insights into the nature of innovative activity and how to nurture it. In particular, social psychology offers the construct of intentions as a consistently useful device to integrate past findings from a theory-driven, empirically robust vantage (Ajzen, 1987; Tubbs & Ekeberg, 1991). From a research perspective, intentions models have proven consistently robust both in explanatory power and in predictive validity (Ajzen, 1987; Tubbs & Ekeberg, 1991). From a managerial perspective, the conceptual framework offers a parsimonious mechanism for diagnosing barriers to entrepreneurial activity.

Entrepreneurship research sorely needs a framework solidly grounded in well established theory (MacMillan & Katz, 1992; Jelinek & Litterer, 1994). Intentions-based models provide us a comprehensive theory-driven conceptual framework. This allows us to explain why (and how) phenomena such as champions operate. We need models that reflect how individuals actually make decisions and take action; these models include scripts and schemata (Lord & Maher, 1990). Intentions models do exactly that.

We can construct a tangible infrastructure to support the pursuit and implementation of existing opportunities. However, what about future opportunities? We do not find opportunities; we construct them. Opportunities are thus very much in the eye of the beholder. This tells us that perceptions and other cognitive phenomena are critical. So again we ask, what enhances the perception of viable, credible opportunities? (Another way of looking at this might be: What inhibits the perception of opportunities? Or even, what increases the perception of threats?).

What sort of infrastructure enables a greater orientation toward seeing opportunities and acting on them? The 'heart of entrepreneurship' is an orientation toward seeing (and acting on) opportunities regardless of existing resources (Stevenson & Jarillo, 1990). In a rapidly changing world organizations need to continually identify new opportunities beyond existing competencies (Hamel & Prahalad, 1989, 1994; Mintzberg, 1994) if they are to survive. This argues that organizations must adopt what Hamel and Prahalad call a "strategic intent" (1989) or what Covin and Slevin describe as an "entrepreneurial orientation" (1991; Lumpkin & Dess,

1996). In short, organizations need to focus strategically on the identification of viable new opportunities.

This note will propose that organizations that successfully identify new opportunities have an intangible infrastructure – a cognitive infrastructure – that supports its members in perceiving opportunities (and acting on them). Fortunately, we already have a strong knowledge base regarding how we learn to perceive opportunities, knowledge that we can use to explain how organizations can build an opportunity-friendly cognitive infrastructure.

What do We Know About Opportunity Perceptions?

First of all, we cannot lose sight of the reality that organizations do not see opportunities, individuals do. In Krueger and Brazeal's words, entrepreneurial potential requires potential entrepreneurs (1994). In other words, an organization with a strong orientation toward seeing opportunities must support individual organization members who have that orientation toward opportunities.

Second, we have a natural tendency to simplify the world around us by categorizing situations. Here, we tend to categorize strategic issues into opportunities and threats, something that is an ongoing, continuous process (Dutton, 1993). More important, we understand what drives this categorization process. Jackson and Dutton (1988) showed that perceptions of opportunity depend closely on perceptions that a situation is positive and that it is controllable. Perceptions of threat depend on perceptions that the situation is negative and uncontrollable.

Third, opportunity perceptions reflect an intentional process. Mental models of what we intend reflect why we intend an action. Dutton and Jackson's antecedents of opportunity perceptions are largely isomorphic with the known antecedents of intentions. In short, intentions are driven by perceptions of feasibility (e.g. controllability) and by perceptions of desirability (e.g. positiveness). Martin Fishbein and Icek Ajzen have developed a theoretically sound, empirically robust framework for understanding intentions that appears applicable to most planned behaviors, whether the action is narrowly or broadly defined or whether it is proximal or distal.

A wide variety of disciplines have independently found this same near-isomorphism (see Ajzen, 1987), suggesting that this framework is at the heart of human decision making. The intentions literature teaches us that information is important, but the impact of that information is even more important.

Fourth, we have some understanding of the mental models that entrepreneurs share, the scripts and schema that differentiate entrepreneurs (Bird, 1988; Mitchell & Chesteen, 1995). It seems probable that we have cognitive access to both an 'opportunity' schema and a 'threat' schema. Which schema is activated first (or activated more strongly) depends on critical cues from the environment. We know that humans process negative situations differently from positive situations: We differ in how we value information; we may even use different parts of our brain. Yet, one individual facing the same cues may see a threat while another sees an opportunity.

Fifth, a review of the literatures on entrepreneurship finds strong arguments for intentionality (Bird, 1988; Katz & Gartner, 1988). Existing applications of intentions models or self-efficacy show consistent support (Krueger & Brazeal, 1994). For example, Shapero's model of the 'entrepreneurial event' (1982) is homologous to the Ajzen-Fishbein framework (Krueger, 1993; Krueger, Reilly, & Carsrud, in press). He argued that the decision to undertake entrepreneurial activity required a pre-existing belief that the activity is both desirable and feasible, coupled with some personal propensity to act on opportunities and some sort of precipitating factor.

Sixth, at the heart of these scripts and schemas are critical perceptions that map elegantly onto the common framework of intentionality. For example, we know that perceptions of competence strongly influence our perceptions of whether a situation is controllable. Perception of self-efficacy is a substantial antecedent of perceived opportunity (Krueger & Dickson, 1994). If we see ourselves as competent we are more likely to see a course of action as feasible, thus we are more likely to see an opportunity.

The critical task for this research note is to go into a bit more detail about the intentional nature of how opportunities emerge in an organization. The perceptual basis of opportunity emergence argues that we carefully consider this intangible infrastructure-this cognitive infrastructure that facilitates (or inhibits) the perception of opportunities by organization members and thus the organization's ability to identify viable, credible future opportunities. Only then can we propose mechanisms for building a supportive cognitive infrastructure.

First, however, let us address why this is important, not just to researchers but to managers.

Strategic Intent, or Why Managers Should Care About Intentionality

Hamel and Prahalad (1989, 1994) argue that organizations need to exhibit some degree of "strategic intent" toward new opportunities. Identifying their core competencies will permit an organization to formulate a coherent strategic intent to explore and guide future strategic action. We also know that building new competencies to address new opportunities is a critical antecedent to capturing rents from innovation (McGrath, Tsai, Venkataraman, & MacMillan, 1996).

However, what influences an organization's readiness for the change required to pursue new opportunities? What is necessary for an organization to learn how to identify new opportunities? Senge focusses on what he labels simply "mental models": Managers' and employees' internalized cognitive schemata that guide much of their daily activity. We all need multiple schemata to adapt to a changing world. In turn, this requires that we learn multiple mental models and that we learn how to learn new schemata (Senge, 1992).

Intentions are at the heart of all this. Intentionality is deeply ingrained in how we process information into action. Any planned behavior is intentional by definition, thus strategic behaviors are inherently intentional. As such, it becomes useful to

understand that intentions depend on a handful of critical antecedents. Personal and situational influences affect intent only by affecting these critical antecedents. For example, role models can help promote entrepreneurial activity, but only if they influence perceptions of desirability or, more likely, perceptions of feasibility.

Consider the notion of "entrepreneurial orientation" (Covin & Slevin, 1991). An entrepreneurial orientation seems useful in supporting strategic intent. We have an increasing understanding of what comprises the dimensions of entrepreneurial orientation (Lumpkin & Dess, 1996), but we know relatively little about its antecedents. Again, for an organization to be more entrepreneurial first requires that its members see more opportunities. Before acting on opportunities they must first see the opportunities. Seeing more possible opportunities increases the chances of finding appropriate ones to pursue. Thus, it is vital to understand how we perceive opportunities. This will help us understand how we can support (or avoid inhibiting) the perception of opportunities. It will help us to diagnose why attempts to innovate fall short. If organization members do not perceive a proposed innovation as an opportunity (or worse, see it as a threat), we can ask intelligent questions to understand why a particular innovation was not perceived as an opportunity.

In sum, models of intentions appear useful and potentially enlightening in diagnosis: how to understand and how to increase an organization's potential for entrepreneurial activity. Let us examine the nature of intentions and their antecedents more closely. To successfully apply this model requires a better understanding of the key conceptual and empirical issues.

The Nature of Intentions

Absent intention, action is unlikely. Intentions represent the belief that I will perform a certain behavior, the belief I will act. Logically, intent thus precedes action. In other words, innovation usually entails taking significant planned (intentional) action. Action requires effort; if we are to try, we must first intend to try. We all have mental models of what we intend to do (and, by extension, what we do not intend). At a deeper level, these mental models reflect why we intend a given action. If we can better understand why, we can better understand what.

The theoretical underpinnings for intentions models are nicely reviewed in Ajzen (1987). Ajzen argues persuasively that intentions-based models capture how individuals actually think. Even routine behaviors are anchored by intentions; the intentionality is simply more deeply placed. The process depicted in Fig. 1 shows how the intentions framework serves as a conduit to channel our interpretations of events into action. This implies that intentions are constructed, even where they appear to arise spontaneously.

The latest version of the framework, Ajzen's 'theory of planned behavior' posits that intentions toward a given target behavior depend on certain fundamental underlying attitudes. These specific attitudes reflect decision makers' attributions about a potential course of action. Decision makers should perceive the course of action as (a) within their competence and control (thus feasible), (b) personally desirable, and (c) consonant with social norms.

Barriers to any of the critical antecedents will represent a substantive inhibition to an organization's intent to seek and act on opportunities. If we inhibit the intent, we inhibit the action.

Critical Attitudes

The theory of planned behavior argues that perceptions of desirability and feasibility explain (and predict) intentions significantly. Intentions are driven by perceptions that outcomes from the behavior are personally desirable and that they are socially desirable. Fig. 1 shows that intentions toward innovation are best predicted by three critical perceptions: that the innovative activity (e.g. a new venture) is (a) perceived as personally desirable, (b) perceived as supported by social norms, and (c) perceived as feasible.

Exogenous Factors

How do intentions models handle other variables, those that are exogenous to the attitude-intention-behavior process? Exogenous factors such as individual differences and purely situational influences operate indirectly on intentions (and thus behavior) by changing these antecedents, not by directly affecting intentions. That is, a change in objective circumstances would thus change intentions if and only if the change altered a decision intiker's attitudes. Path analyses using meta-analysis clearly support the causal linkage from attitudes to intentions to behavior (Kim & Hunter, 1993).

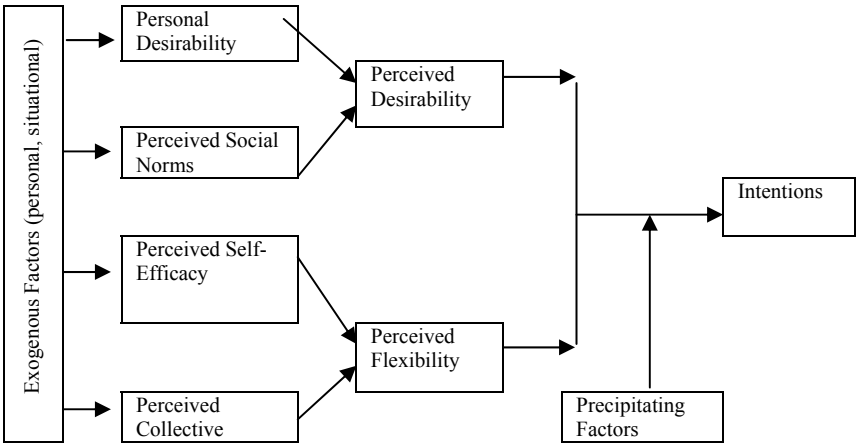

Fig. 1. Intentions model (Shapero, 1982; Krueger, 1993; Krueger & Brazeal, 1994)

Precipitating Factors

Research also suggests that certain exogenous variables can serve to facilitate or 'precipitate' the realization of intentions into behavior (Shapero, 1982; Krueger & Brazeal, 1994; Stopford & Baden-Fuller, 1994).

The Robustness of Intentions Models

Empirically, meta-analyses demonstrate clearly that this framework is remarkably robust with very large effect sizes. While designed to predict specific, proximal behaviors, this class of models appears to apply equally well to behaviors that are distal or less specific (e.g. Kim & Hunter, 1993). Again, this permits us to apply this model to relatively broad (innovation in general) or to relatively narrow phenomena (a specific innovation).

Kim and Hunter (1993) found that personal desirability and social norms explained 76% of the variance in intentions, while intentions explained 67% of the variance in behavior (after adjusting for statistical artifacts). Ajzen (1991) found that adding a measure of perceived feasibility explains an additional 10% of variance in intentions. Such findings compare rather favorably with the 10% of variance typically explained by traits or other dispositional measures (Ajzen, 1987).

More important, the model held in virtually every study, even where researchers took considerable liberties with model specification or measurement. That is, path analysis confirms that the correlation between attitudes and behavior is fully explained by the attitude-intention and intention-behavior links (Kim & Hunter, 1993). Moreover, formal intentions models have already been applied successfully to entrepreneurial behavior (e.g. Davidsson, 1991; Krueger & Brazeal, 1994; Reitan, 1997).

Applying the intentions framework to work motivation proved enlightening (Tubbs & Ekeberg, 1991), thus so should research applying intentions to the processes of corporate venturing. For example, if an organization's members had the requisite skills to launch a new venture that it would deem desirable, but failed to do so, the model would diagnose a potential shortfall in perceived feasibility.

Known Antecedents of Intentions

Perceived Desirability: Personal Attitude

In the Ajzen-Fishbein framework, personal attitude depends on perceptions of the consequences of outcomes from performing the target behavior: their likelihood as well as magnitude, negative consequences as well as positive, and especially intrinsic rewards as well as extrinsic (in short, an expectancy framework). However, the model also argues that these perceptions are learned. Thus, organizations influence those perceptions, often indirectly and often unintentionally.

For example, a successful innovation might lead to a promotion from R&D into management; this need not be perceived as positive (e.g. it might entail a transfer to another location). To increase attitude, increase expectancies by raising perceptions of positive outcomes (or their likelihood) or lowering perceptions of negative events (or their likelihood). Exposure to multiple perspectives (e.g. multiple mentors) and diverse life experiences (developmental experiences) will help individuals to recognize a broader range of desirable options.

Perceived Desirability: Social Norms

Social norms represent perhaps the most interesting component of the AjzenFishbein framework. This measure is a function of perceived normative beliefs of significant others (e.g. family, friends, co-workers) weighted by the individual's motive to comply with each normative belief. Social norms often reflect the influence of organizational culture. That is, the impact of climate and culture on intent operates by its impact on perceptions of desirability (and perhaps feasibility as well). For example, work group relationships do influence individual innovation (Scott & Bruce, 1994).

Measuring social norms requires identifying the appropriate reference groups. A potential corporate entrepreneur's reference group may not be family and friends, but rather the top management and their colleagues (including those who have already started a venture).

Perceptions of Feasibility: Self-Efficacy

Albert Bandura and associates have developed and elaborated a social-cognitive model of human agency (e.g. Bandura, 1986, 1995). This model argues that taking action requires consideration of not just outcome expectancies (i.e. desirability) but also perceived self-efficacy (i.e. feasibility). This becomes particularly critical with significant strategic change (e.g. a new venture).

Bandura defines self-efficacy as an individual's perceived ability to execute some target behavior. Thus, it reflects the perception of a personal capability to do a particular job or set of tasks. Measuring perceived efficacy is relatively straightforward; one can use simple self-report measures (Bandura, 1986; Eden, 1992).

Self-efficacy perceptions play a powerful role in managerial and employee behavior. For instance, gender and ethnicity differences in work interest and performance can often be traced to differences in self-efficacy. This illustrates the vital role of self-efficacy in the empowerment of organization members. Increases in self-efficacy lead to increased initiative and persistence and thus subsequent performance; low self-efficacy reduces effort and thus performance (Eden, 1992).

Increasing self-efficacy requires more than just teaching competencies; students and trainees must fully internalize the competencies by experiencing mastery of the skills in question. Also, psychological and emotional support from management

and peers reinforces perceptions of increased self-efficacy. A common mechanism is to provide credible models of key behaviors through effective mentors and champions.

Even better are developmental experiences that provide opportunities to experience mastery at those competencies (McCall, 1992; Senge, 1992). Exposure to diverse life and work experiences broadens individuals' range of what they perceive as feasible. These offer opportunities for behavioral modeling where organization members can experience mastery. This behavioral modeling can work either vicariously using credible experts or directly by affording members the hands-on experience in 'safe' settings (Bandura, 1986; Weick, 1979). Providing opportunities for diverse mastery experiences is an even better way to increase individuals' evoked set of feasible alternatives.

Perceptions of Feasibility: Collective Efficacy

However, perceptions of personal competence need not translate into perceptions of organizational competence. If fellow organization members are needed to support an intended behavior, perceptions of collective efficacy are likely to be important (Bandura 1986, 1995). This point is crucial: organization members may be perfectly capable of finding and promoting new opportunities and their self-efficacy beliefs may be high. Yet, perceptions that collective efficacy is low can inhibit opportunity seeking. Empowering organization members to be more entrepreneurial thus rests on beliefs about both personal and collective efficacy, just as perceived desirability has personal and social components. Organizations can employ the same behavioral modeling discussed above to enhance perceptions of collective efficacy.

Exogenous Factors

Research often examines variables other than attitudes and intentions, but intentions models posit that these exogenous variables operate indirectly on intentions (and thus behavior). As the model suggests, most exogenous factors influence intentions (and behavior) through influencing one or more critical attitude. The various literatures on innovation management and entrepreneurship offer numerous examples of exogenous factors logically related to innovative or entrepreneurial activity, though often with disappointing results. If effects are actually indirect, then applying this framework may strengthen the findings. For example, the presence of role models may increase entrepreneurial behavior only if the role models actually change a key attitude such as self-efficacy (Krueger & Brazeal, 1994).

Precipitating Factors

As Fig. 1 suggests, exogenous factors may also influence the intention-behavior relationship by precipitating, or facilitating the realization of intentions (Shapero, 1982; Ajzen, 1987; Stopford-Fuller & Baden, 1994). One such factor may be perceptions of resource availability (Triandis, 1967). Another might be a personal propensity to act on opportunities (Shapero, 1982).

Tangible barriers may serve to prevent an intention from coming to fruition, but the subtleness of cognitive barriers can present even greater obstacles. While Shapero notes that purely subjective conditions can precipitate action, such as facing a fortieth birthday, it appears that the typical precipitating event reflects some sort of displacement, a disruption of one's inertia such as getting fired or being offered a big contract. Yet, how we react to displacement depends on our perceptions of the impact of that event; Shapero argues that our reaction also depends on the believable options that we perceive.

External conditions may lie beyond what an organization can influence, but organizations can provide explicit, credible cues that the new circumstances represent an opportunity. Precipitating factors are not well understood, so research in this area is very likely to shed some new light.

Let us now turn the discussion in a more practical direction. Not everyone accepts the role of subjective elements (e.g. Weick, 1979), but if we accept the notion of intentions and their antecedents, how might an organization promote an appropriate cognitive infrastructure?

Building a Supportive Cognitive Infrastructure

Shapero (1982, 1985) argues that for an organization to maintain a reasonable supply of opportunity-seeking individuals requires that organizations provide a congenial environment, from the perspective of the prospective opportunity-seekers. Opportunity-seekers may enact an organizational environment that is personally favorable, but doing so requires a learning-supportive cognitive infrastructure. How do we help organization members perceive more things as desirable and feasible?

Consider the useful metaphor of the antenna. We are much more likely to notice (and take seriously) signals from directions which we are already looking. Intentions contribute to how an organization's antennae are 'tuned.' We are less likely to notice opportunities from directions that do not appear desirable and feasible.

On the other hand, entrepreneurial activity (especially activity that is disruptive of existing products and markets) will generally lack legitimacy with the rest of the organization (Dougherty, 1994). We thus need to set explicit, credible organizational policies that increase both the perceived feasibility and the perceived desirability of entrepreneurial activity.

However, an objectively supportive infrastructure is not enough; organization members must perceive it as supportive. Brazeal finds that supportive reward systems and supportive top management need not be seen as such (199–3). No matter

how supportive an organization may be objectively (e.g. in terms of reward systems), the perceived supportiveness appears crucial. Entrepreneurial organizations appear to provide exactly this kind of supportive cognitive infrastructure (Brazeal, 1993; Krueger & Brazeal, 1994).

Returning to the 'antenna' metaphor, organization members are obviously more likely to respond to highly credible cues. Increasing the credibility of cues may require that the signals be perceived as coming from more credible sources such as top management, a visible champion, or a trusted mentor.

The cognitive infrastructure should enhance perceptions in organization members that opportunity-seeking is personally and socially desirable and that members are personally and collectively competent to pursue new opportunities. Such a cognitive infrastructure would provide the empowerment needed to promote opportunity-seeking.

Increasing Feasibility Perceptions

To promote feasibility perceptions, we need to increase perceptions of personal ("I can do this") and collective ("We can do this") efficacy. Perceived feasibility entails perceptions that resources are available and obstacles are surmountable (including the obstacle of having tried and failed). Fortunately, promoting perceived efficacy is relatively straightforward and reasonably well-understood; we already know how to do this (Eden, 1992). Organizations need to be vigilant in providing the necessary explicit cues and explicit support.

As already noted, providing mastery experiences that increase perceptions of personal (and collective) efficacy are invaluable. For example, providing experiences that demonstrate mastery in even a limited domain can increase efficacy perceptions if the individuals perceive their mastery as generalizable ("If I can launch a minor new product, I can launch a major new product!") This, of course, requires that organizations provide salient, credible cues that the skills are transferable to newer, larger domains by providing multiple low-risk mastery experiences (see Weick's (1979) notion of 'small wins').

Finally, it is just as important to dispel spurious beliefs of infeasibility. One useful mechanism is benchmarking, which can offer concrete evidence that, yes, this opportunity is feasible.

Increasing Desirability Perceptions

However, desirability perceptions may require more complicated interventions. Increasing perceived desirability requires that individuals perceive mostly positive out-comes for their innovative activity, including intrinsic rewards such as a supportive culture. For example, objectively supportive reward systems need not be perceived as such by the person rewarded. Innovation is often its own reward. Extrinsic rewards can interfere with intrinsic motivation. Some innovators even enjoy being 'illegitimate' (Dougherty, 1994).

Also, the most skillfully designed formal reward system may be overridden by informal punishments. We would recommend examining the entire set of rewards (and punishments), both intrinsic and extrinsic, formal and informal. It may also prove more useful to counter spurious beliefs about an innovation's downside. Most important, reward systems must be viewed from the perspective of potential innovators, not those far removed from the trenches. For example, what about the informal rewards from other innovators for developing a cutting-edge technology, even if it's not marketable?

Shapero (1985) proposed that organizations seeking to innovate should provide what he called a 'nutrient-rich' environment for potential innovators. This 'seed-bed' would provide 'nutrients' such as credible information, credible role models, and emotional/psychological support as well as more tangible resources. McGrath (1995) points out that organizations need to support its members in teaming from adversity. Organizations should provide opportunities to attempt innovative things at relatively low risk (i.e. trying and failing is not career-threatening).

Potential Mechanisms

The literature offers some interesting prescriptions that we might consider: providing clear signals from top management, encouraging the role of teams, encouraging the role of mentors and champions (including multiple mentors), and providing explicit developmental experiences.

Explicit Cues

One of the most common recommendations one finds is that top management give clear, unambiguous signals of support for key elements of innovative activity (Guth & Ginsberg, 1990). For instance, senior management should visibly encourage the risk taking associated with the pursuit of new opportunities with clear cues that setbacks can be learning experiences (Shapero, 1985). Many are familiar with the legendary Jack Welch who describes his role as a cheerleader and facilitator. Welch clearly seems bent on promoting the perceived desirability of seeking new opportunities and promoting perceptions of feasibility, removing cognitive as well as more tangible barriers.

Strategic Controls

Yes, even bureaucratic mechanisms can help. Organizations' control mechanisms exert considerable influence over the intensity of R&D spending: long-term strategic controls help much better than short-term financial controls. Long-term controls can reward opportunity seeking while short-term controls inadvertently cause short-term setbacks (Hoskisson, Hitt, & Hill, 1993).

Consider the Enter-Prize Program at Ohio Bell (Kanter & Richardson, 1991) which allows fledgling intrapreneurs to test the waters. This program encourages employees to develop "newstreams" of new products or services that will compete for funding by top management. If the "newstream" proves successful, its developers participate in the profits, sending the clear message that Ohio Bell values both innovation and innovators and that innovation is both feasible and desirable. The strategic controls reward success at opportunity-seeking, but do not punish those whose attempt was unsuccessful.

Information Flows

Similarly, information systems can play a surprising role. If information supportive of innovative activity is relatively unavailable, but data about its downside is easily accessible, innovation may not occur. While this is true of both informal and formal flows of information, making innovation-supportive information readily available through formal channels sends a signal of its true importance to the organization about its mission. For example, how easily can one find external information about markets and competitors? Brazeal (1993) argues for making such a knowledge bank readily available to employees.

Benchmarking and Best Practices

This model tells us why benchmarking and best practices can be so useful. Increasing the visibility of what is truly feasible is central to benchmarking, but it also increases the credibility of what is feasible: "If a competent competitor can do this, so can we." The credible example of a competitor's success may also increase the desirability of the new opportunity. For example, the success of a competitor may spur the perceived need to innovate.

Teams

Teams represent an especially useful means for promoting perceptions of feasibility and desirability. Objectively, teams provide tangible resources for innovation. Teams also provide the multiple perspectives and schemata offered by different team members, thus teams, not 'lone wolves,' are the best internal source of feasible ideas. Teams also provide a cognitive and emotional buffer from the rest of the organization. The social reinforcement of one's team can promote perceptions of collective efficacy and supportive social norms without the perception of negative reinforcements by the bureaucracy. Encouragement and support from team members can also promote perceptions of personal desirability and of personal efficacy.

Most important, a well-constructed team is best suited to help innovators actually implement an idea. A supportive team does not ask "Can we do this?" Rather,

it asks "How do we do this?" The diversity of perspectives in a good team helps defuse the potential negative ramifications, and raises perceptions of feasibility, that might arise from the innovation.

Changing Structure

In the extreme, organizations have chosen to physically separate innovative groups from the rest of the organization (e.g. the 'skunkworks' concept). Such separation has symbolic implications for reducing barriers to opportunity-seeking. For example, the separation can reduce rivalry for resources. This also serves as a de facto flattening of the organization, improving speed of decision making.

Mentors and Champions

Mentoring is often promoted as vital for management development in general and for innovation development in particular. One specific variation on the mentoring process is the concept of 'champions' or 'change masters' (Kanter & Richardson, 1991; Day, 1994; Shane, 1994). The existence of a 'champion,' someone who will fight for a new venture, sends a clear signal that the organization at least tolerates entrepreneurial activity. That signal alone should increase perceptions of supportive social norms. However, mentors and roles affect entrepreneurial intentions only insofar as they first affect key attitudes such as self-efficacy. We should expect that a skillful champion would contribute to stronger perceptions among organization members of an innovation's desirability and feasibility.

Multiple Mentors

Let us propose a notion founded in the practices of academe, that of multiple mentors.[1] Multiple mentors can provide multiple perspectives and multiple schemata that should broaden proteges' perceptions of desirability and feasibility. Multiple influences (particularly those that enhance self-efficacy) are also associated with entrepreneurship (Krueger & Brazeal, 1994). The multiple mentors should include one or more successful innovator. As in academe, multiple mentors are likely to transcend functional boundaries and even organizational boundaries. Successful innovators typically engage in considerable boundary-spanning themselves, practively seeking such multiple influences (Shapero, 1985). An organization may wish to tangibly and visibly encourage successful innovators to mentor others.

For example, recent evidence suggests that successful innovators can be committed to both their profession and their organization. "Serving two masters" is actually associated with high performance, contrary to many organizations' norms

[1] Thanks to Gayle Baugh for this useful insight.

(Baugh & Roberts, 1994), perhaps by multiple mentors providing multiple behavioral models (Bandura, 1995).

Developmental Experiences

Any organization can profit by providing its members with a diverse range of developmental experiences (McCall, 1992). Here, experiences can provide explicit cues that the organization supports innovation and members can internalize those into appropriate attitudes, thus intentions. The more that we expose organizational members to innovation and the more they understand its nature, the more likely they are to see innovation as feasible and desirable. McCall notes that for managers, there is no substitute for having 'bottom-line' responsibilities in charge of a new or turnaround venture.

Moreover, promoting the ability of organization members to identify a broader range of alternatives as desirable and feasible yields an increased ability to learn new mental models. This ability to learn offers value beyond any particular innovation in question, helping organization members perceive the ability to learn and implement new competences (Senge, 1992). Organizations should consider such development as an integral part of their strategy (McCall, 1992) and thus provide the right kind of cognitive infrastructure.

Implications

The robust empirical track record of intentions models and their firm theoretical grounding both argue that we do have a sound grasp of the critical antecedents of opportunity perception. We also know how to overcome inhibitions to opportunity perception by influencing these critical antecedents. The perception-driven nature of intentions implies that a healthy cognitive infrastructure will change as circumstances (and our perceptions) change. Thus, there are no specific universal prescriptions. Instead we must continually maintain a healthy cognitive infrastructure by keeping a close eye on the perceptions of organization members. An organization that wishes to innovate must accept that it needs to empower its members to help them see a broader range of new opportunities. Meanwhile, it should minimize activities that inhibit opportunity seeking.

Exploring questions such as these should prove both interesting and useful.

Integrating Past Research

One useful exercise might be to test these propositions by examining past research efforts that explored the dimensions of successful (and unsuccessful) innovation. For instance, the work of Eisenhardt and Schoonhoven (1990) illustrates the importance of initial decisions, a fundamental characteristic of intentional behavior. We might examine the specific activities of leaders such as Welch to assess their

impact on perceptions of desirability and feasibility. We can see how initial strategies and intentions depend upon perceptions of desirability and feasibility in other well-executed studies of the innovative process (e.g. Jelinek & Schoonhoven, 1993). We can explore how existing inventories of barriers to innovation or corporate venturing reflect (or not) perceptions of desirability and feasibility (MacMillan, Block, & Narasimha, 1986; Kuratko, Montagno, & Hornsby, 1990).

We have a number of existing constructs (e.g. champions) that successfully explain facets of entrepreneurial behavior. We can test whether the intentions model explains their success. We can test whether successful champions influence entrepreneurial behavior indirectly through changing attitudes and intentions, as the model would predict. We can test the precipitating factors proposed by Shapero (1982, 1985) and Stopford and Baden-Fuller (1994). We can test whether the critical success factors of learning organizations (e.g. Senge, 1992) influence attitudes and intentions. That is, what aspects of the cognitive infrastructure supports or inhibits organizational learning? Would it be valuable for organization members to perceive organizational learning itself as an opportunity?

We often argue that innovative firms exhibit an innovation-friendly climate. If we examine existing inventories that measure barriers to innovation we find that many items directly reflect perceptions of personal desirability, social norms, personal efficacy and collective efficacy, as well as possible precipitating or inhibiting factors (MacMillan et al. 1986; Kuratko et al. 1990; Scott & Bruce, 1994). This suggests that the exploratory research that generated these inventories implicitly captures the intentional nature of entrepreneurial activity.

This model suggests that 'barriers' and 'climate' are also in the eye of the beholder. For example, we would predict that organizations that are both highly innovative and entrepreneurial would have a climate where organization members see 'red tape' as "paying dues" rather than as a mechanism of intimidation.

Guiding Future Research

Intentions models such as the theory of planned behavior are already widely used in many settings. The intentions approach tells us that the effects of exogenous factors such as individual differences (e.g. personality, demographics) are indirect. This knowledge can help us identify stronger, more consistent effects from exogenous factors, enriching the explanatory and predictive power of our research.

Exploring Limitations

However, we should also explore the limits of this type of model. Does the scope of its applicability extend, for instance, to 'really new' products? We may find even more valuable insights from applying other formal models of human cognition (e.g. Lord & Maher, 1990; Jelinek & Litterer, 1994).

For example, if the conventional wisdom is correct that teams are critical for innovation (e.g. Senge, 1992), then we need to explore ways to apply this framework to the team level of analysis.

Unanswered Questions

From Intent to Action. Even more important is the critical issue of how intentions become reality. Fig. 1 argues that exogenous factors can also precipitate, facilitate, or inhibit the realization of intentions. We have already noted Triandis's (1967) perceptions of resource availability and Shapero's (1982) propensity to act. Shapero (1982), Ajzen (1987), and Stopford-Fuller & Baden (1994) also offer other 'likely suspects' for testing.

What catalyst serves to crystallize beliefs and attitudes into a salient intention? Shapero suggested the existence of some sort of personal propensity to act. However, does this propensity help attitudes coalesce into intentions or facilitate the realization of intentions? This would contribute to a broader understanding of intentions in general.

Intentions Toward Implementation. We also need to examine the specific path by which intentions are realized. To achieve the implementation of a new opportunity typically requires at least several steps along the way. The choice of intermediate actions is also an intentional process; thus we can examine why certain choices were made. That is, the intentions model should also help us understand specific aspects of a new venture. For example, consider a new perceived opportunity involving a new consumer product there is still a choice of marketing channels and that choice should be influenced by intentions and the critical antecedents.

Changing Intentions. We can also track how changing perceptions change the opportunities (or lack thereof) perceived by organization members over time (e.g. Ropo & Hunt, 1995). We know surprisingly little about changing intentions; the study of intrapreneurial activity might thus contribute to our overall knowledge about intentions. We might gain a better understanding of how we re-categorize strategic issues and how we cognitively convert threats into opportunities (an activity that we often prescribe to students and trainees).

A Deeper Look. We can look more deeply into how our beliefs influence our perceptions through how we process cues from the environment. For example, what individual differences (demographics, personality, etc.) appear to moderate relationships in this model? Parallel to this, we should look closely at how information is presented (e.g. framing effects, anchor-and-adjust processes, and other cognitive phenomena).

For another example, social cues may prove more important for perceived feasibility (through effects on collective and personal efficacy) than for perceived desirability. Each of these represents a useful contribution to the broader overall literature on intentions.

Qualitative Tests. This model also merits a formal qualitative test. One specific approach that we propose is action research to identify whether influencing attitudes does indeed influence opportunity perceptions (and thus behavior). Research should also explore the links between the attitudes and intentions of organization members and their organizations' entrepreneurial orientation (Lumpkin & Dess, 1996). What dimensions of cognitive infrastructure influence which dimensions of entrepreneurial orientation?

Practical Issues. The literature often prescribes perfusing the entire organization with a supportive corporate culture, but what if we can work with only one group – who should it be? Do we need to influence the intentions of the rank and file? Middle managers? Top managers? Perhaps the role of leadership (as with Jack Welch) here is to promote a desired cognitive infrastructure, not just with internal stakeholders, but also with external stakeholders. For example, this model suggests that the team level may be critical. Finally, what else will be required to help managers to adopt and skillfully use this framework to promote and diagnose innovation in their organizations?

Collective Efficacy. Finally, this model suggests that an opportunity-friendly organization requires high levels of collective efficacy. The scarcity of research into collective efficacy further suggests that this will be a fruitful opportunity to advance both practical and theoretical knowledge.

Implications for Practice and Teaching

If, as Weick, Senge, and others argue, managers and leaders guide the sensemaking of their colleagues and subordinates, the most important implication is that this model offers guidelines for doing so. For example, a leader can frame even a large setback as simply "paying dues." Consider the example of Thomas Watson and the story of an executive who lost IBM $10 million. The manager offered his resignation, but Watson reputedly said, "Not a chance, not after I just invested $10 million in training you!" Even if apocryphal, such stories send a clear signal throughout the organization that top management supports a gallant failure. An organization that faces downsizing can use this model to help its members identify and pursue opportunities for growth.

Supportive Cognitive Infrastructure. If we accept the model, the most obvious implication is that enhancing, its components should pay off in a higher level of entrepreneurial activity. Organizations must develop a cognitive infrastructure among its members, which increases and broadens what members see as desirable and perceive as feasible. The model can also be used to diagnose potential reasons why (and especially why not) organization members seek new opportunities and which specific opportunities are (and are not) identified. Was it a deficit in perceived desirability? In perceived feasibility?

A Possible Downside. However, the model also suggests the absence of panaceas; we must not assume that we fully understand how the perceptions of organization

members change. We must avoid creating new dysfunctions such as replacing one blind spot with another (e.g. Zahra & Chaples, 1993). We might also risk being too successful. We might generate an obsession with innovation. We might generate over-optimistic perceptions of feasibility and desirability, setting the organization up for a rude awakening. The 'can-do' spirit is a two-edged sword; the very spirit that facilitates change could lead an organization and its members to take needless risks.

Re-thinking SWOT. However, this same intentions process gives us ample evidence to consider inverting the usual process of environmental analysis (e.g. SWOT). If perceptions of feasibility are critical, they can bias an organization's information search. Almost by definition, needs assessments are likely to anchor perceptions of feasibility. The very nature of intentionality argues that strategy formulation should be driven as much by external issues as it is by perceived capabilities, by learning and exploration as much as by existing capabilities. Thus, managers and entrepreneurs should benefit from looking first at potential opportunities before risking any biases introduced by assessing current strengths and weaknesses. That is, change the question from "Can we do it?" to "How can we do it?"

Hamel and Prahalad (1989) may argue for a focus on core competencies, but they also argue for an organization working hard to envision radical new opportunities (1994). Both Senge (1992) and Mintzberg (1994) would argue that strategic planning must fully incorporate learning. To do so also requires an appropriately supportive cognitive infrastructure to encourage an "opportunity-first" approach.

Conclusion

Perhaps the most critical antecedent of organizational action is the categorization of strategic issues into opportunities and threats. As with intentions, opportunities are constructed, not found (Mintzberg, 1994; Dutton & Jackson, 1987; Dutton, 1993). An organization that wishes to promote entrepreneurial activity must establish conditions where its members see the prospect of seeking new opportunities (and the uncertainty associated with it) itself as an opportunity, not as a threat.

Understanding what inhibits entrepreneurial activity in an organization requires understanding how intentions toward a prospective course of action are constructed. Mental models of what we intend reflect why we intend an action. Intentions-based models capture how individuals really formulate mental models. Based on well-developed theory and robust empirical evidence about intentions, we have proposed a social psychological model of how opportunities emerge.

Perceptions of desirability (personal and social) and perceptions of feasibility (personal and organizational) are critical to the construction of intentions toward important behaviors. An organization's cognitive infrastructure should enhance, not impede, these critical perceptions.

The pursuit of entrepreneurial opportunities appears quite amenable to the use of such models in teaching and practice as well as research. We look forward to further testing the model and its components.

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The Entrepreneurship of Resource-based Theory*

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Abstract

This paper examines the relationship between resource-based theory and entrepreneurship and develops insights that advance the boundaries of resource-based theory and begin to address important questions in entrepreneurship. We extend the boundaries of resource-based theory to include the cognitive ability of individual entrepreneurs. Entrepreneurs have individual-specific resources that facilitate the recognition of new opportunities and the assembling of resources for the venture. By focusing on resources, from opportunity recognition to the ability to organize these resources into a firm and then to the creation of heterogeneous outputs through the firm that are superior to the market, we help identify issues that begin to address the distinctive domain of entrepreneurship.

Introduction

Early work on Resource-Based Theory (RBT) acknowledged that entrepreneurship is an intricate part of the resource-based framework (Conner, 1991; Rumelt, 1987). However, while RBT has become a dominant paradigm for strategic management research (Peteraf, 1993), the interface between RBT and entrepreneurship has amounted to little more than providing a "research setting" for empirical work (e.g. Chandler & Hanks, 1994). Because of the lack of consideration given to entrepreneurship by most resource-based research, current RBT largely fails to integrate creativity and the entrepreneurial act (Barney, 2001). An understanding of how entrepreneurial actions, the creation and combining of resources that create new heterogeneous resources, can inform RBT by suggesting alternative uses of resources that have not been previously discovered leading to heterogeneous firm resources. It is the firm's unique bundle of resources that is different from competitor firms that are potentially valuable and contribute to a firm's competitive advantage.

Much prior research on entrepreneurship can be characterized as either work that describes the phenomena or work that borrows theories ad hoc from other disciplines. While an entrepreneurship context provides an excellent setting for

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much empirical research, the field of entrepreneurship needs to move further to create specific boundaries to establish the field's legitimacy and distinctive contribution (Busenitz et al. 2001). One of several challenges with entrepreneurship scholarship is that research settings often span several units of analysis leading to fragmentation of the field.

Entrepreneurial opportunities exist primarily because different agents have different beliefs about the relative value of resources when they are converted from inputs into outputs (Schumpeter, 1934; Kirzner, 1979; Shane & Venkataraman, 2000). Indeed, heterogeneity is a common attribute of both resource-based and entrepreneurship theory, – although resource based logic has tended to focus on heterogeneity of resources while entrepreneurship theory has tended to focus on heterogeneity in beliefs about the value of resources. However, when it is recognized that beliefs about the value of resources are themselves resources, apparent conflicts between the two theories are resolved.

Put differently, entrepreneurship and RBT adopt precisely the same unit of analysis – the resource. These resources may manifest themselves in several different ways. For example, firm-specific resources may reflect cognitive differences between managers in these firms. The different ways that resources, and the opportunities to exploit these resources, manifest themselves have resulted in different units of analysis and has hindered good theory development in the field of entrepreneurship. In this paper we examine entrepreneurship from individual opportunity recognition, to the firm's organizational capabilities, to the market, however in all three instances the resource is the unit of analysis. Through the integration of resources, from cognitive differences to opportunity recognition to the ability to organize these resources into a firm, we may begin to address the issue of the distinctive domain of entrepreneurship.

This paper has two primary purposes. First, we extend the boundaries of RBT by introducing two entrepreneurial concepts: 1) *entrepreneurial recognition*, which we define as the recognition of opportunities and opportunity seeking behavior as a resource and 2) the process of combining and organizing resources as a resource. The second goal is to build theory for the field of entrepreneurship that can potentially span micro to marco issues by focusing on resources as the unit of analysis. This effort is organized around the four conditions of RBT: resource heterogeneity, ex post limits to competition, imperfect factor mobility and ex ante limits to competition (Peteraf, 1993). By examining entrepreneurship, which we define as the recognition and exploitation of opportunities that result in the creation of a firm that seeks to obtain entrepreneurial rents, through the four conditions of RBT we theoretically inform and extend current research in both RBT and entrepreneurship.

Resource Heterogeneity

Resource heterogeneity is the most basic condition of resource-based theory and it assumes at least some resource bundles and capabilities underlying production are heterogeneous across firms (Barney, 1991). Resource-based theory suggests that

heterogeneity is necessary but not sufficient for a sustainable advantage. For example a firm can have heterogeneous assets, but not the other conditions suggested by resource-based theory, and those assets will only generate a short-term advantage until they are imitated.

Similar to RBT, heterogeneous resources are also a basic condition of entrepreneurship (Kirzner, 1997). Entrepreneurial opportunities are thought to exist when different agents have insight into the value of resources that other agents do not, and the agents with the insight act upon these un-exploited opportunities (Kirzner, 1979; Casson, 1982). If these agents are correct, an entrepreneurial rent will be earned; if not an opportunity loss will occur (Rumelt, 1987; Alvarez and Barney, 2000).

Since the 1991 *Journal of Management* special issue on the resource-based model, strategy researchers have become increasingly aware of the importance of heterogeneous firm assets (relative to competitor firms) in achieving a firm's sustainable competitive advantage. Barney (1986) and Dierickx and Cool (1989) were the first to draw attention to the importance of tacit socially complex assets. Paradoxically, while the importance of resource heterogeneity among firms has been acknowledged, strategists have given scant attention to the process by which these resources are discovered, turned from inputs into heterogeneous outputs, and exploited to extract greater profits. Thus, we argue that entrepreneurship is about cognition, discovery, pursuing market opportunities, and coordinating knowledge that lead to heterogeneous outputs.

Entrepreneurial Cognition and Heterogeneity

There is probably no group of individuals that have received more discussion and have been assumed to be more heterogeneous from the rest of the population than entrepreneurs. The notion that entrepreneurs were somehow different from the rest of the population provided the impetus for substantial research on the subject in the 1960s and 1970s. Most of this research focused on a host of traits such as risk-taking and the need for achievement, but unfortunately, the findings have been disappointing (for a review, see Low & MacMillan, 1988). Recently, the emergence of cognitive approaches to understanding how entrepreneurs think and make strategic decisions is showing much promise (Busenitz & Barney, 1997; Baron, 1998; Forbes, 1999). If entrepreneurs do indeed have a unique mindset or orientation (Lumpkin & Dess, 1996), then it follows that their cognitive approaches are likely to have strengths and weaknesses in various competitive environments and are a potential source of competitive advantage (Barney, 1991).

In clarifying how entrepreneurs think, Busenitz and Barney (1997) found that entrepreneurs use heuristics more extensively than managers in larger organizations. The term "heuristics" refers to simplifying strategies that individuals (entrepreneurs in this case) use to make strategic decisions, especially in complex situations where less complete or uncertain information is available. Entrepreneurial cognition is defined here as the extensive use of individual heuristics and beliefs that impact decision-making (Busenitz & Lau, 1996; Wright, Hoskisson, Busenitz & Dial, 2000). Managerial cognition is referred to

as more systematic decision-making where managers use accountability and compensation schemes, the structural coordination of business activities across various units, and justify future developments using quantifiable budgets. In sum, managerial cognition is more factual-based while entrepreneurial cognition builds from limited or key experiences and beliefs.

Most of the research on cognition has generally assumed that individuals tend to make decisions (and the use of heuristics) in a similar fashion and are susceptible to common errors. However, recent research on cognition indicates that entrepreneurs use heuristics in their decision-making more than their managerial counterparts in large organizations (Baron, 1998; Busenitz & Barney, 1997). Consequently, they often make significant leaps in their thinking leading to innovative ideas that are not always very linear and factually based. This research stream is now starting to recognize that entrepreneurs' more extensive use of heuristics in their decision making is at least a partial extension of who they are as individuals (e.g. Baron, 1998; Wright et al. 2000). Without attention to these cognitive processes, our understanding of entrepreneurs is significantly limited. This has particular implications for entrepreneurs because they regularly find themselves in situations that tend to maximize the potential impact of various heuristics (Baron, 1998).

In probing these cognitive processes, it is important to first understand the utility of such decision-making. Given the high ambiguity and uncertainty that entrepreneurs typically face in the pursuit of a new venture, the willingness and confidence to readily rely on heuristics to piece together limited information to make convincing decisions may be virtually the only way to progress forward (Busenitz & Barney, 1997). The use of a more factual-based logic in the pursuit of new opportunities becomes too overwhelming and very costly if not impossible. The decision-making contexts facing entrepreneurs also tend to be more complex. The heuristic-based logic can have a great deal of utility in enabling entrepreneurs to make decisions that exploit brief windows of opportunity (Tversky & Kahneman, 1974) whereas the elaborate policies, procedural routines and structural mechanisms common to those with more of a managerial cognition (managers in large organizations) are likely to erect barriers in the pursuit of innovative activities.

Central to most models of learning is the issue of achieving new understandings, interpretations and insights (Daft & Weick, 1984). Learning in the context of entrepreneurship may also have some important links to the use of heuristics in decision-making. Sources of competitive advantage are thought to potentially evolve around knowledge-creation and decision-making capabilities (Barney, 1991). Lower-level learning tends to follow the more rational model by focusing on repetitious observations and routinized learning. Such learning tends to be short-term and temporary (Fiol & Lyles, 1985). Consistent with the notion of single-loop learning, there are few changes in underlying policies or values (Argyris & Schon, 1978). Such learning modes tend to be slower and more imitable (Lei, Hitt & Bettis, 1996), in part because decision-makers usually build on results from repeated outcomes of success or failure to reach their decisions.

Higher-level learning involves the formation and use of heuristics to generate new insights into solving ambiguous problems (Lei et al. 1996). Such learning tends to create new insights and direction for emerging paths to solve specific

problems. While the heuristic-based logic may use less information and be less accurate, use of individual-specific clusters of knowledge facilitates quick adjustments to emerging trends (Krabuanrat & Phelps, 1998).

Taken together, the more frequent presence of heuristic-based logic in decision making by entrepreneurs (Busenitz & Barney, 1997) suggests that they think differently leading them to make decisions in fundamentally different ways from those that approach things in a more factual manner such as managers in large organizations. This heuristic-based logic enables entrepreneurs to more quickly make sense out of uncertain and complex situations. Such decision approaches can lead to forward-looking approaches (Gavetti & Levinthal, 2000) perceiving new opportunities, faster learning and unorthodox interpretations (innovations). In essence, this closer look at the potential advantages and disadvantages of a heuristic-based logic sheds important light on how entrepreneurial cognition can be a source of competitive advantage. If the insights and decisions reached with heuristic-based logic are potentially *valuable* in the market, if they are indeed *rare*, if they are *difficult to imitate*, and if the generated ideas are *exploited* by the entrepreneurs, then these entrepreneurial insights and decisions are a resource that can potentially lead to a competitive advantage.

In sum, it appears that those who use a heuristic-based logic cannot only make faster decisions, but they also learn more quickly. We argue here that those with an entrepreneurial cognition can facilitate a potential competitive advantage in at least two important ways. The first area has to do with the discovery of new opportunities. An entrepreneurial cognition perspective provides a way for us to better understand why some individuals are able to see new opportunities where most others see either a benign environment or emerging threats. The second area involves the development of a firm in the initial stages of organizational development. A heuristic-based decision style may allow them to readily navigate through a wide array of problems and irregularities inherent in the development of new firms. We now discuss these two areas.

Entrepreneurial Discovery and Heterogeneity

One of the fundamental reasons for the fascination with entrepreneurs and the inventions that they develop seems to center around why and how they see and create new opportunities. An entrepreneurial opportunity invariably involves the development of a new idea that others have overlooked or chosen not to pursue. In the context of environmental change, those with an entrepreneurial cognition orientation often see new opportunities where others tend to be concerned with protecting themselves from emerging threats and changes. The cognitive ability of entrepreneurs to frame situations in an opportunistic manner is a heterogeneous resource that can be used to organize other resources.

Explanations for entrepreneurial discovery have evolved primarily around two perspectives: 1) the searching for and obtaining of information leading to new inventions and 2) the recognition process by which new discoveries are made. From the search perspective, discoveries are generally modeled to be the result of an extensive search targeted in the direction where the discovery is to

be made (Stigler, 1961; Caplan, 1999). This stream of research generally assumes that entrepreneurs know a priori where the invention needs to be made and can accurately weight the cost and benefits of acquiring new information relevant to the invention.

In arguing that the search for discovery cannot be accurately modeled as a rational search process, Austrian economists have posited that the focus should be on the process side of discovery. More explicitly, Kirzner (1979) developed the term "entrepreneurial alertness" as the ability to see where products (or services) do not exist or have unsuspectedly emerged as valuable. Alertness exists when one individual has an insight into the value of a given resource when others do not. From this perspective, entrepreneurial alertness refers to "flashes of superior insight" that enable one to recognize an opportunity when it presents itself (Kirzner, 1997). In distinguishing between entrepreneurial alertness and the knowledge expert, Kirzner (1979) argues that the knowledge expert does not fully recognize the value of their knowledge or how to turn that knowledge into a profit or else the expert would be an entrepreneur. The entrepreneur may not have the specific knowledge of the expert (such as technological expertise) but it is the entrepreneur who recognizes the value and the opportunity of the expert's knowledge. While the entrepreneur may have specialized knowledge it is the tacit generalized knowledge of how to organize specialized knowledge that is the entrepreneur's critical intangible resource.

In the case of entrepreneurship the specialized knowledge is often knowledge about opportunities created by the environment or a new product or even the opportunities of a potential new product. As we uncover the phenomenon surrounding entrepreneurial cognition, it is becoming clearer why entrepreneurs see new discoveries more readily than their counterparts. Their heuristic-based logic appears to give them a competitive advantage in quickly learning about new changes and what the implication of those changes are for the development of specific discoveries.

Market Opportunities and Heterogeneity

Debate in the field of entrepreneurship has sometimes focused on whether or not the perfect competition model applies in explaining entrepreneurial behavior (Kirzner, 1997; Shane & Venkataraman, 2000). However, a second, albeit related, question has received less attention: under what conditions can entrepreneurial opportunities be most efficiently realized through market exchanges, and under what conditions can they most efficiently be realized through nonmarket forms of exchanges.

Entrepreneurs can use market forms of governance to coordinate many resources necessary to realize an economic opportunity; they also can use a firm, as a form of hierarchical governance, to realize these opportunities. The conditions under which these alternative forms of governance will be more or less effective have yet to be described in the entrepreneurship literature. Put differently, this question becomes when is it less costly for the entrepreneur to coordinate the resources and disparate knowledge needed to realize an economic opportunity through a firm and when is it less costly for the market to coordinate these

resources? The answer to these questions would constitute a theory of the entrepreneurial firm.

When the completion of a transaction requires specific investments, more hierarchical forms of governance will be preferred over less hierarchical governance (Williamson, 1975). In the context of the realization of entrepreneurial opportunities, when these opportunities require economic actors to make highly specific investments, firms will be preferred over markets as a way to realize an economic opportunity.

Resource-based logic identifies the kinds of resources and capabilities that require specific investment in order for their full economic value to be realized– resources and capabilities that are socially complex, path dependent, tacit, and so forth (Barney, 1995). Thus, when the realization of the economic value associated with an entrepreneurial opportunity depends on the use of socially complex, path dependent, or tacit resources and capabilities, it is more likely that hierarchical governance, a firm, will be used to realize this value than non-hierarchical governance.

These ideas suggest that conditions which require the efficient coordination of and integration of knowledge are those in which entrepreneurial firms are likely to arise in an economy (Coase, 1937; Hayek, 1945; Kirzner, 1997). Schumpeter (1934) distinguished between invention and innovation, with invention being the discovery of an opportunity and innovation the exploitation of a profitable opportunity. The importance of the distinction between invention and innovation is that it focuses on the firm as a problem solving institution (Demsetz, 1991). Instead of concentrating on the market, the focus is on the role of entrepreneurship as the integration of disparate specialized knowledge (as suggested by both Schumpeter and Coase). Firm formation is essentially an entrepreneurial act because to coordinate and transmit tacit knowledge the coordination of the firm is required.

The entrepreneur's ability to convert creative insights and often homogenous inputs into heterogeneous outputs make the firm a superior choice over the market. The classic story is that profit maximization and efficiency require the substitution of firms for markets if the cost of using markets becomes large relative to the cost of the entrepreneur forming a firm (Coase, 1937). In its simplest form, if the market transaction cost is zero and the entrepreneurial firm cost is greater than zero the entrepreneurial firm will not exist. However, it is not a trivial task to distinguish purchase prices across markets from firm production prices because firm production involves the use of inputs that are purchased. Therefore, the transformation of inputs into outputs by the firm must also result in homogeneous firms in-order for markets to be substitutes for firms. Up until now we are assuming that the production costs of firms do not take into account differences in knowledge or knowledge costs. However because knowledge is not free and it does differ across firms, firms are heterogeneous and the entrepreneur's coordination of specialized disparate knowledge makes the heterogeneous firm a superior choice over markets. Firms are a bundle of commitments to technology, human resources, and processes all blanketed by knowledge that is specific to the firm. It is this bundle, and how the entrepreneur coordinates this bundle, that allow firms to be heterogeneous and thus these firms cannot be easily altered or imitated.

Hayek (1945) further expands on the importance of learning and knowledge in the entrepreneurial process. In this view the entrepreneur experiences both partial ignorance and learning at the same time. The ignorance is a result of uncertainty about the future. The learning however, is a result of buyers and sellers learning to adjust their behavior over time to conduct their transactions at the optimal level. The entrepreneurial process in this sense is about information discovery of the market and the coordination of disparate tacit knowledge. What distinguishes this view of the entrepreneur as a pure buyer and seller (markets) and the entrepreneur as the exploiter of opportunities (firms), is the incorporation of learning and knowledge. If the application of knowledge requires coordinating many types of specialized knowledge then the firm is required for the integration of knowledge.

Coordinated Knowledge and Heterogeneity

Entrepreneurial knowledge is the ability to take conceptual, abstract information of where and how to obtain undervalued resources, explicit and tacit, and how to deploy and exploit these resources. Both Kirzner (1979) and Schumpeter (1934) describe the entrepreneurial role as the decision to direct inputs into certain processes rather than into other processes. Entrepreneurship involves what Schumpeter termed "new combinations" of resources. Schumpeter (1934) described the entrepreneur as the one who combined productive factors in some new way, a product, production method or a market. He further maintained that innovation was driven by the entrepreneur (who is at the heart of the firm) and not consumer driven (markets). Schumpeter suggested five situations where the phenomena of bundling resources by entrepreneurs to produce new resources occurs. The entrepreneur "reforms or revolutionizes the pattern of production by exploiting an invention or an untried technology for producing a new commodity or producing an old one in a new way, by opening up a new source of supply of materials, or a new outlet for products, or by reorganizing an industry" (Schumpeter, 1934, p. 132).

The focus of most current entrepreneurship research into opportunities has been on markets (Kirzner, 1997). This is true whether the market is a product market or a factor market (Shane & Venkataraman, 2000). However, once the discussion turns to factor markets and thus production (the creation of value through the transformation of inputs into outputs) there becomes a need for the coordination of numerous types of specialized knowledge (Grant & Baden-Fuller, 1995).

Knowledge comprises information, technology, know-how, and skills (Grant & Baden-Fuller, 1995) and can either be explicit such as in technology or tacit which is personal and more difficult to communicate (Polanyi, 1962) or imitate (Barney, 1991). Individuals acquire knowledge and individuals store tacit knowledge. However until it is coordinated, knowledge is often dispersed, fragmented, and sometimes even contradictory. The entrepreneurial problem is how to secure the best use of resources to obtain a profit. Thus entrepreneurial knowledge is an abstract knowledge of where and how to obtain these resources. When the market is unable to organize distributed knowledge the entrepreneur understands this and capitalizes upon the opportunity resulting in a new firm. Therefore, it is not the market that organizes tacit knowledge, in fact it is often the case that markets are

inefficient at knowledge transfer and integration, it is the firm that efficiently organizes knowledge. The primary role of the firm is the integration of specialized knowledge (Demsetz, 1991; Conner & Prahalad, 1996).

Because the primary role of the firm is the integration of specialized knowledge, we then go back to our question, "when are markets more efficient at organizing knowledge and when are entrepreneurial firms more efficient at organizing knowledge?" Since individuals have cognitive limitations the acquisition of knowledge is often specialized. Specialized knowledge is usually achieved at the expense of generalized knowledge. However, to apply knowledge the need is not just for specialized knowledge but perhaps more importantly for generalized knowledge. Therefore, if efficiency is the acquisition of specialized knowledge, the application of knowledge requires generalized knowledge and a means for the integration of knowledge.

Markets are inefficient at integrating knowledge because explicit knowledge can be easily imitated and tacit knowledge cannot be articulated (Grant & Baden-Fuller, 1995). Explicit knowledge has the character of a public good it can be transferred at low cost. Once explicit knowledge is made known, it is easily imitated and it becomes incapable of generating rents for the original knowledge producer. Tacit knowledge by definition cannot be articulated and thus cannot be transferred at arms-length.

Kirzner (1979) distinguishes between entrepreneurial knowledge and the knowledge expert, suggesting that it is the entrepreneur that hires the later. The knowledge expert does not fully recognize the value of their knowledge or how to turn that knowledge into a profit or else the expert would act as an entrepreneur. The entrepreneur may not have the depth of specific knowledge that the specialist has (such as technology expertise) but it is the entrepreneur who recognizes the value and the opportunity of the specialist's knowledge. While the entrepreneur may have some specialized knowledge of a resource (i.e. technology), what makes the entrepreneur unusual is the entrepreneur's function relies more on their ability to organize specialized knowledge. Thus the knowledge expert has specialized knowledge and the entrepreneur has generalized knowledge and it is through the firm that the two types of knowledge are joined to produce rents.

Ex Post Limits to Competition

Regardless of the nature of the firm heterogeneity, sustained competitive advantage requires that heterogeneity be preserved. If heterogeneity is not durable it will not add sustained value. This is the case when there are ex post limits to competition. Subsequent to a firm gaining a superior position there must be forces that limit competition (Peteraf, 1993), otherwise heterogeneous advantages dissipate. Ex post limits to competition can reflect cognitive differences, strategic complementarity, causal ambiguity, uncertainty, information asymmetries, all of which are particularly important in entrepreneurial settings.

Entrepreneurial Cognition and Competition

Thinking on ex post limits to competition has typically been focused at the firm-level and whether competing firms can readily acquire the necessary resources to return the market to competitive parity (Barney, 1991; Conner & Prahalad, 1996). We focus here on the cognitive make-up and beliefs of individual entrepreneurs. Rather than the focus being on the long-term outcome of an entrepreneurial firm, we are interested in better understanding how those with an entrepreneurial cognition see opportunities that others have overlooked and how they are able to bootstrap together the necessary resources to start firms that attempt to exploit entrepreneurial opportunities.

After a new firm is launched with some initial success, those from the outside often question why they did not think of the idea first. Still others may indicate that they had thought of the idea but never attempted to exploit it. In either case, the issue remains that the idea has been identified and initially developed into a business concept by an entrepreneur, not by those on the sidelines. Meanwhile, while those who wished that they had seen and acted on the concept first, the entrepreneur is often busy working and thinking about additional inventions and business concepts. Most individuals tend to be concerned with protecting themselves from emerging threats and changes, particularly in uncertain environments, while those with an entrepreneurial cognition continue to probe for new opportunities. The competition for thinking of new firm opportunities tends to remain stable even though many individuals seem to wish that they had had the foresight to capitalize on the entrepreneurial opportunities once they become visible.

Ex post limits and entrepreneurial cognition provide a theoretical rationale for recent research that has identified habitual entrepreneurs as an important group of entrepreneurs (Westhead & Wright, 1998). Rosa and Scott (1999) found that the greatest growth occurred in companies that were embryonic business clusters rather than a single one-dimensional business. This suggests that the greatest source of new high-growth potential businesses tends to come from entrepreneurs with existing businesses. Their unique ways of thinking and experience with earlier ventures seems to provide a corridor for additional entrepreneurial pursuits. Want-a-be entrepreneurs without an entrepreneurial cognitive makeup along with the lack of entrepreneurial experience are significantly restrained from competing in the development of future innovations.

Opportunity Recognition

As indicated above in the theory of entrepreneurial cognition, the way some people think and make decisions allows them to function effectively in the pursuit of new inventions. Given that individual characteristics and decision styles cannot be readily transferred to want-a-be entrepreneurs, it becomes apparent that they are sources of competitive advantage in the entrepreneurial domain. We argue that this is true with opportunity recognition for the following reason. Those with an entrepreneurial cognition perspective tend to use heuristic-based rather than factual-based logic often leading them to develop and assemble resources in new

ways. Information is certainty important to those with a heuristic-based logic, however, it is often assembled in a nontraditional nonlinear manner. More factually oriented logic builds from proven information and the rationale for a new opportunity needs to progress in a logical manner. Since new inventions and opportunities rarely evolve in a logical manner, those with a factually oriented logic tend to become very frustrated by the nonlinearity of opportunity recognition while those with a heuristic-based logic tend to thrive on it.

Strategic Complementarity

Schumpeter theorized that innovation proceeded in a jerky rather than an even fashion. After the initial entrepreneur has introduced a breakthrough innovation with some initial success, other less capable entrepreneurs emerge with new businesses and incremental innovations that "swarm" the new enterprise with similar look-alike imitations. The appearance of the first (more qualified) entrepreneurs facilitate the appearance of others by making innovation easier for less qualified entrepreneurs, in essence innovation becomes increasingly familiar and we now have a "new processes" of innovation. The innovative success of the lead entrepreneurs result in an increase in the price of the means of production. Physical units of production are produced under conditions of constant returns to scale, characterized by falling average cost but constant marginal cost. Resources that were once scarce and now profitable tend to become less scarce and heterogeneous advantages held by the lead entrepreneurs dissipate.

Schumpeter suggests that new combinations of resources are new ways of competing and that these new ways of competing do not as a rule come from existing firms but rather from new firms that develop alongside established firms. This is consistent with the notion of strategic complementarity1 that suggests that when quantities of capital goods that are complements go up because of increased demand, the marginal productivity of the good is raised and the demand goes up. If a firm currently exists it increases its output during this time, this is also the time when new firms enter markets because of the increased demand created by the lead entrepreneur. Strategic complementarity is consistent with Schumpeter's argument that the early entrepreneur appears alongside existing firms and then the swarm-like appearance of other (less qualified) entrepreneurs leads to many small firms forming en mass in a concentrated area. A familiar form of monopolistic competition characterizes the resulting equilibrium, though now instead of one large firm there is a large number of small firms. What has occurred is that total profits have likely minimized at the lowest level of uncertainty and we now have firms functioning efficiently where as before there might have been waste which occurred as a result of reorganizing resources. The more imitative entrepreneurs that enter during the monopoly stage the more uncertainty is minimized and profits are redistributed possibly diluting total wealth. During this stage of the innovative process endogenous innovation motivated by the leader entrepreneurs is sufficient to generate robust, endogenous fluctuations in aggregate investment in new innovations (Evans, Honkapohja & Romer, 1996). In other words, the innovative entrepreneurial act of once again recombining new resources start a new cycle

(Schumpeter, 1934). The entrepreneur's ability to continuously innovate is the primary competitive advantage of the entrepreneurial firm, leading to sustainable entrepreneurial firms and sustainable wealth creation (Alvarez & Barney, 2001).

However, as firms get larger the costs of organizing additional transactions within the firm may rise and the returns to the entrepreneurial function decrease (Coase, 1937). Once a firm reaches the point where the cost of organizing an extra transaction becomes equal to the market costs either the market will organize the transaction or a new entrepreneur will enter and organize the new knowledge. The entrepreneurial knowledge of resource reorganization that is critical to the transformation of inputs into heterogeneous outputs becomes lost as the firm grows (Coase, 1937) and the now large firm begins to resemble the market. If, the explanation of entrepreneurship stops at this point, we have nothing more than a transaction cost story of entrepreneurship. What stops the cycle is the isolating mechanism of causal ambiguity (Lippman & Rumelt, 1982).

Causal Ambiguity

Causal ambiguity is the uncertainty regarding the causes of efficiency differences among firms. It prevents potential imitators from knowing exactly what to imitate and how to imitate. If as Schumpeter assumed that a firm must incur a fixed research and development cost before it can produce a new type of good, then these sunk costs along with the uncertainty of how to imitate may limit competition and preserve heterogeneity. Causal ambiguity muddles the link between the resources controlled by a firm and a firm's sustained competitive advantage is not understood or understood only very imperfectly. The host firm does not always clearly understand this linkage, let alone its competitors or potential competitors.

A central assumption of the knowledge-based view of organizations is that knowledge accumulates through the process of creativity and exploration and is implemented through organizational exploitation. As an individual firm uses its existing knowledge in exploration and exploitation, it (firm knowledge) grows and multiplies into new knowledge. Entrepreneurial firms are often built around the founding entrepreneur who identifies the opportunity and moves to exploit it commercially. Often it is the founder (or founding team) who possesses much of the technical and managerial knowledge that make-up the tangible and intangible assets of the firm. In sum, an entrepreneur's expanding knowledge base and absorptive capacity becomes an entrepreneurial firm's competitive advantage.

The entrepreneurial firm's absorptive capacity determines how successful the entrepreneurial firm will be in obtaining entrepreneurial rents. Based on Cohen and Levinthal's (1990) definition, "absorptive capacity is the ability to recognize external information, assimilate this information, and apply it to commercial ends" (p. 128). Cohen and Levinthal's definition assumes that an organization's absorptive capacity is "absolute." In other words, the absorptive capacity of the organization is the same regardless of the situation or timing. However, several researchers (Lane, 1997; Lane & Lubatkin, 1998) have observed that the absorptive capacity of the organization might be relative to the organization's current

context or situation. Similar to a sponge that is slightly damp as opposed to one that is bone dry, the damp sponge absorbs water faster.

Cohen and Levinthal's original work on absorptive capacity only addressed issues of technological capabilities, but it also appears to have implications for managerial capabilities. Lane, Lyles and Salk (1998) suggest that managerial capabilities are acquired through experience and tend to be firm specific. Thus, firms differ in their level of "managerial absorptive capacity" and by extension entrepreneurial absorptive capacity. The more entrepreneurs and their firms have previously absorbed in terms of entrepreneurial capabilities such as opportunity recognition and the continuous innovation that transforms inputs into heterogeneous outputs, the greater their absorptive capacity. Greater amounts of an entrepreneurial firm's specific experience and learning contribute to the entrepreneurial firm's absorptive capacity creating causal ambiguity preventing other firms from imitating. Increased learning and growing absorptive capacity tends to create higher levels of causal ambiguity and growing difficulty for potential imitators.

Causal ambiguity may be the essence of entrepreneurship because when the reasons for firm heterogeneity are poorly understood these reasons are often entrepreneurial in nature and thus difficult to imitate. However, when the reasons for heterogeneity are understood, even within the firm itself, the entrepreneurial knowledge becomes common knowledge that can be imitated by less qualified entrepreneurs.

Imperfect Factor Mobility

In discussing the imitation of valuable but nontradable asset stocks, Dierickx and Cool (1989), argued that the imitability of assets depends on the process by which it was accumulated. They identify the following conditions under which imitation may be limited: time compression dis-economies, asset mass efficiencies, interconnectedness of asset stocks, asset erosion, and causal ambiguity. The importance to resource based theory is that these assets are inimitable because they have a strong tacit dimension and are socially complex. In the entrepreneurship domain, tacit socially complex assets are often specific to the founder and the organizations they create. These are idiosyncratic assets that are more valuable when used in the firm than outside of the firm. These assets which are often intangible tend to be difficult to observe, describe, and value but have a significant impact on a firm's competitive advantage (Itami, 1987). For example some of these assets may include an entrepreneurial cognition that recognizes and generates new opportunities, build trusting relationships with other individuals and firms, and bootstrap together the necessary resources for a venture to successfully launch. Two characteristics of these and other related assets is that they tend to be characterized by social complexity and path dependence.

Entrepreneurship and Social Complexity

When a firm's resources and capabilities are socially complex they are likely to be sources of sustained heterogeneity (Barney, 1995). Socially complex resources

may be difficult to imitate because they are complex phenomena that are hard to systematically manage and influence. Since new ventures typically start with a founder, the socially complex phenomena by definition occur outside the firm. While this has received little attention, the interaction between those with entrepreneurial cognition and the broader society creates an interesting context in which to understand how learning transpires reflecting a socially complex asset.

Many resources that lead to heterogeneity are socially complex such as firm culture (Barney, 1986) firm reputation (Hill, 1990), and human capital (Carpenter, Sanders & Gregersen, 2001). Similar to these other assets entrepreneurial ability, the accumulated practical skill or expertise that allows the entrepreneur to exploit opportunities efficiently, is socially complex. While it is possible to specify how this socially complex asset of entrepreneurial ability adds value to the firm, it is not easy to imitate and other firms cannot just create entrepreneurial ability. We suspect that it may be the social complexity of entrepreneurship that has hindered theoretical work on entrepreneurship.

The condition of social complexity is important to entrepreneurship because it reminds us that complex technologies are not imperfectly imitable. It is the exploitation of these complex technologies that involve the use of socially complex resources that is important. An entrepreneurial firm with a complex technology needs additional exploitation knowledge (such as entrepreneurial knowledge) to fully exploit its specialized knowledge (the technology) and sustain heterogeneity.

Opportunity Awareness and Resource Acquisition

As discussed above, entrepreneurial cognition provides important insights for understanding why entrepreneurs often see and act on opportunities that others fail to recognize. Given the differences in the way entrepreneurs think and make decisions, these differences may lead to the development of some unique social interactions as well. More specifically, we suspect that they use their "strength of weak ties" (Granovetter, 1978) to expose themselves to a broader cross-section of people and situations that they in turn gives them the opportunity to extrapolate and make extensions regarding new venture opportunities. While the nature of their social interactions tend to remain somewhat of an enigma, we suspect that part of who they are (a resource) and a potential advantage in new venture creation. This interaction provides them with substantial exposure to unusual and different ideas and resources.

Information is an important part of the new venture process, and as noted above, information that entrepreneurs use in the discovery process and in starting new ventures is often nonlinear in nature. We suspect that involvement by entrepreneurs in distant and varied social interactions facilitates the gathering of diverse, unusual, and sometimes specific information. Their strengths of weak ties gives them exposure to chaotic bits of information that sometimes get combined in usual ways and sometimes lead to new endeavors.

Furthermore, starting a new venture generally requires the accumulation of a variety of resources with very limited financial capability (Brush, Greene & Hart, 2001). Here again we suspect that the unique ways in which entrepreneurs think

and expose themselves to a varied cross-section of social interactions allow them to accumulate the necessary and sometimes rare resources. Rare resources that an entrepreneur uses to create heterogeneous outputs may often comprise of rarely used assets and their availability becomes known through the entrepreneur's diverse cross-section of acquaintances. Stated differently, the bootstrapping of resources in an economical fashion that is so often necessary for a startup on a limited budget, is in itself a rare and valuable resource that can be brought together through an entrepreneurs diverse social connections.

The Combining of Resources

If we assume that entrepreneurship is as Schumpeter suggested, new production functions, then firm heterogeneity is an outcome rather than a given (Rumelt, 1984). In a market view throughout the process of resource rebundling information asymmetries are removed and "no perceived opportunity for improving the allocation of resources is left ungrasped" (Kirzner, 1979, p. 235). Resource-based theory extends the product market view to include factor markets and suggests that firms wishing to obtain expected above normal returns from implementing factor market strategies must be consistently better informed about the future value of those strategies than other firms in the same market (Barney, 1986).

During the process of rebundling resources waste occurs through knowledge imperfections. In the bundling of resources, entrepreneurs use their available information to make decisions to produce a product that utilizes the available resources in a superior and more efficient manner. The information and its application and know-how are available to the entrepreneur through previous learning. The information owned by the entrepreneur is deeply embedded, socially complex know-how of how to recombine resources and this know-how combined with entrepreneurial decision-making is a source of firm heterogeneity.

Entrepreneurship and Path Dependency

Resource based distinctive assets in an entrepreneurial context may also be evolutionary. In Schumpeter's business cycle theory firms disrupting the cycle select new production functions from a known bundle of current production functions. In other words the new discoveries are path dependent. In this view heterogeneous assets may depend upon past entrepreneurial decisions and these decisions made by founders and future firm entrepreneurial managers may be the DNA composition of the firm. Sustainable advantage is thus a history (path) dependent process (Barney, 1991; Nelson & Winter, 1982). Barney (1987) suggested that the role of chance and luck lead to the attainment of different superior knowledge. We however contend that entrepreneurs are likely to develop different knowledge bases for coordinating their stocks of distributed knowledge because of their different ability to learn and understanding of how things work. It is the different paths that firms take that account for differential capabilities, and potentially firm heterogeneity. In entrepreneurial firms, because they are often newly founded and small in nature the decisions made will have an impact on the future of the firm. Important sources of

firm differences may surface at this time in a firm's history, sources such as patented technology and learning curves. Because of the unique conditions under which entrepreneurial decisions are made, firm specific skills and resource combinations may result in long-term path dependent implications for the firm.

In firms different people have different habits, thoughts, and models of the world that present obstacles to the efficient coordination of their actions (Foss, 1999). Therefore, a collective knowledge base is required for coordination (Penrose, 1959). This collective knowledge base coordinates existing distributed knowledge but also coordinates intrafirm learning processes. Indeed, coordinated knowledge bases help the firm organize a localized discovery process. These choices are not necessarily obvious choices but instead are choices that are determined by the initial founding conditions of the firm.

Still, if firms produce certain outputs using a given set of inputs over a long period of time, these firms will not survive. To be successful for any length of time a firm must innovate (Rumelt, 1987). Since innovation requires a certain amount of pre-existing capabilities (Schumpeter, 1934), firms need to be able to learn. In order for firms to innovate the skills and resources to sustain innovation must be present. Finally, innovation often leads to certain other types of innovation that build on previous learning.

Ex Ante Limits to Competition

The last condition for a sustainable advantage is that there must be *ex ante* limits to competition. In other words for a firm to enjoy a sustainable advantageous position there must be limits to competition. As discussed above, Schumpeter's business cycles start with equilibrium and then the entrepreneur disrupts the cycle through innovation. Other less capable entrepreneurs imitating the innovation and dissipating the competitive advantage of the first firm then follow this disruption. Schumpeter (1934) called the down time a time of depression.

However, if the entrepreneurial firm has resources that are causally ambiguous these resources will be costly and difficult to imitate and the advantage enjoyed by this first firm will not be dissipated. Causal ambiguity is a barrier to entry for potential competitors because it is almost impossible to imitate a product that has ambiguous factors. In a Schumpeterian competitive environment, firm survival is the capability to innovate, and to make that innovation profitable again and again.

However, as firms get larger the costs of organizing additional transactions within the firm may rise and the returns to the entrepreneurial function decrease (Coase, 1937). Once a firm reaches the point where the cost of organizing an extra transaction becomes equal to the market costs either the market will organize the transaction or a new entrepreneur will enter and organize the new knowledge. Despite the survival problem with smaller firms, Coase (1937) theorized that innovation and entrepreneurship are particular to the small firm.

Conclusion

We have examined the role of entrepreneurial resources within the RBT and advance entrepreneurship theory by suggesting how these resources might be unique to entrepreneurship. By focusing on resources, from opportunity recognition to the ability to organize these resources into a firm and then to the creation of heterogeneous outputs through the firm that are superior to the market, we help identify issues that begin to address the distinctive domain of entrepreneurship. We can also now begin to probe when the entrepreneurial firm a superior choice to the market for the exploitation of new opportunities.

Within the field of entrepreneurship, Shane and Venkataraman (2000) have criticized the work on small and new businesses and a focus on either the performance of individuals or of the firm. They argue that a focus on firm performance is unique to strategic management research and thus cannot be unique to entrepreneurship. Furthermore, they suggest that performance approaches do not adequately test entrepreneurship because, "entrepreneurship is about the discovery and exploitation of profitable opportunities" (Shane & Venkataraman, 2000, p. 217) and a focus on performance may exclude the analysis of the opportunity costs of other alternatives.

While firm performance is an excepted paradigm in strategic management, performance is also a nontrivial part of entrepreneurship research. Wealth creation, which in the case of the firm is driven by firm performance, appears to be central to both entrepreneurship and strategic management (Hitt, Ireland, Camp & Sexton, 2001). Recent research illustrates how entrepreneurship and strategic management inform each other and their overlapping interests, such as firm adaptation to environmental change, modes of organizing and the exploitation of opportunities (Venkataraman & Sarasvathy, 2001). Therefore to try to define the distinctive domain of entrepreneurship by excluding that which also is studied by strategic management is like a production of Romeo and Juliet with only one of them in the production (Venkataraman & Sarasvathy, 2001). This is not to say that entrepreneurship and strategic management should not continue seeking to clarify their specific domains. Indeed, some entrepreneurship scholars are seeking to better identify the distinctive domain of entrepreneurship (e.g. Shane & Venkataraman, 2000; Busenitz et al. 2001). Still, entrepreneurship scholars should not "shy" away from an area of research simply because some researchers are examining a question or theory in another discipline. Instead we in entrepreneurship need to apply our own unique lens to the examination of these questions and theories.

This paper extends the efforts to better clarify the domain of entrepreneurship in two important ways. First, we show how theory (RBT in this case) from another area of inquiry can be a very helpful exploration tool for probing and better understanding entrepreneurship related phenomena. We use RBT to show how entrepreneurship generally involves the founder's unique awareness of opportunities, the ability to acquire the resources needed to exploit the opportunity, and the organizational ability to recombine homogeneous inputs into heterogeneous outputs. Looking at these from a multiple levels of analysis perspective involves significant truncation or problems with theory development. By analyzing these different

aspects of entrepreneurship as unique resources we resolve the level of analysis problem and should facilitate better theory development. Furthermore, our development of the entrepreneurship in RBT paves the way for addressing important research questions. For example, one such question might be under what conditions is the firm the most efficient way of exploiting economic opportunities identified by entrepreneurs?

Second, by looking at RBT through an entrepreneurial lens, we have extended the boundaries of and enriched RBT. While others have made the connection between entrepreneurship and RBT (e.g. Chandler & Hanks, 1994; Brush et al. 2001), we have deliberately set out to develop the entrepreneurship side of RBT. In doing so, we shed new light on how resources come into existence and how individuals sometimes embody bundles of heterogeneous resources that allow them to repetitiously create new entrepreneurial opportunities through the firm.

Entrepreneurship researchers have sometimes pointed towards and hoped for a single theory of entrepreneurship. Without a unified theory, it is assumed that the field of entrepreneurship will continue to be disjointed and a melting pot of diverse research positions. We do not think that entrepreneurship necessarily needs a single theory because theory is not the end but rather the means to an end. The focus of entrepreneurship researchers should be to address interesting and important research questions that better explain and predict currently vague phenomena. If a specific theory, regardless of its field of origin, is a tool that enables us to better probe and explain a phenomenon of interest, then so be it. However, that when using specific theory from outside the domain of interest, the boundaries frequently get challenged or extended or the theory enriched, all of which can be important contributions. We think that taking an entrepreneurial lens to the RBT as we have done in this paper illustrates this two-way contribution.

As a result of taking an entrepreneurial perspective, one contribution to RBT is that we are now able to identify resources such as entrepreneurial alertness, insight, entrepreneurial knowledge, and the ability to coordinate resources, as resources in their own right. Moreover, distinctions have been made between RBT and knowledge theories of the firm and dynamic capability theories, a characterization that RBT is Ricardian and not Schumpeterian (Carpenter, Sanders & Gregersen, 2001). However, we argue in this paper these distinctions are artificial, knowledge and dynamic capabilities are an extension of the boundaries of RBT. We take a Schumpeterian perspective to RBT by suggesting that the act of combining homogenous and heterogeneous resources is a resource.

Notes

1. Strategic complementarities arise when the optimal strategy of an agent depends positively upon the strategies of the other agents. Multiple equilibria and a multiplier process may arise when strategic complementarities are present. Strategic complementarities arise from production functions, matching technologies, and commodity demand functions in a multisector, imperfectly competitive economy (Cooper & John, 1988).

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Is There an Elephant in Entrepreneurship? Blind Assumptions in Theory Development*

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Abstract

This article uses the six key specification decisions for entrepreneurship research (purpose, theoretical perspective, focus, level of analysis, time frame, and methodology) outlined in Low and MacMillan (1988) to explore unstated assumptions in entrepreneurship theory development. An article by Shane and Venkataraman (2000), "The Promise of Entrepreneurship as a Field of Research," is analyzed and recommended as a model for clarity. A recommendation is made that the field of entrepreneurship needs to develop communities of scholars identified with specific research questions and issues.

> *In the farthest reaches of the desert there was a city in which all the people were blind. A king and his army were passing through that region, and camped outside the city. The king had with him a great elephant, which he used for heavy work, and to frighten his enemies in battle. The people of the city had heard of elephants, but never had the opportunity to know one. Out rushed 6 young men, determined to discover what the elephant was like.*

The intention of this article is to reflect and speculate on the status and uses of theory in entrepreneurship research using Low and MacMillan's (1988) review of the entrepreneurship field as a starting point. Their review covered six key specification decisions that scholars should consider when conducting entrepreneurship research: purpose, theoretical perspective, focus, level of analysis, time frame, and methodology. One key insight from their article is that "These design specification decisions are interrelated, and cannot be made independently" (p. 140). Apropos this insight, this paper will explore how the choice of theoretical perspective in entrepreneurship hinges on assumptions made about these other specification decisions.

As a way to begin this exploration, my point of departure for discussing entrepreneurship theory begins with Low and MacMillan's advice for scholars in entrepreneurship that "the field will be better served in the future if the issue of theoretical perspective is addressed directly and unstated assumptions avoided" (1998, p. 146), I concur. The thesis of this article is that theory development in entrepreneurship research depends on whether we are conscious of the assumptions we make about this phenomenon. Some evidence suggests that entrepreneurship scholars are not

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conscious of their assumptions. Gartner (1990) found that entrepreneurship scholars held very different beliefs about the nature of entrepreneurship, and that they had very different views of what entrepreneurship, as a phenomenon, consisted of. Implicit in those findings was a fear that research based on these different views would result in a cacophony of results and ideas. Synthesizing different results without some common conscious sense of the fundamental attributes of entrepreneurship would merely add another layer of confusion. At that point, I believed that "Only by making explicit what we believe can we begin to understand how all of these different parts make up a whole" (Gartner. 1990, p. 28). I am not sure that the entrepreneurship field has reached some sense of theoretical clarity during the past decade.

Since the Low and MacMillan (1988) article, there has been a bonanza of efforts at generating theory in entrepreneurship. The Interdisciplinary Conference on Entrepreneurship Theory held in January, 1991, at the University of Baltimore resulted in a two-volume set of articles published in Entrepreneurship Theory and Practice (1991, 1992a). The Theory Building Conference on Entrepreneurship held at the University of Illinois in October, 1991, resulted in a one-volume set of articles in the Journal of Business Venturing (1993) as well as an edited book (Bull, Thomas, & Willard, 1995). Other theory-development efforts included a "virtual conference" on models of organization formation in Entrepreneurship Theory and Practice (1992b, 1993), and some of the Gateway Conferences (Katz & Brockhaus, 1993, 1995; Katz, 1997). In addition, Don Sexton continued to bring scholars together to discuss and review research in entrepreneurship in conferences at the University of North Carolina in 1990 (Sexton & Kasarda, 1992) and at the Kauffman Foundation in Kansas City in 1996 (Sexton & Smilor, 1997). And. to top it off, there was the publication of the results of a forum held at Carnegie Mellon University in 1997 of internationally distinguished scholars who thoughtfully ruminated on the future of entrepreneurship research (Sarasvathy, 2000). These citations are by no means comprehensive (see Brazeal & Herbert, 1999).

Despite the creation of more theory in entrepreneurship, entrepreneurship scholars have noticed the difficulty of integrating entrepreneurship theory-development efforts into any coherent scheme. The following quotes are representative of these concerns:

> One interesting observation that emerged from this exercise is that each discipline has its own unique way of viewing entrepreneurship which remains relatively unaffected by the perspectives of other disciplines. In other words, we see evidence that many "uni-" rather than one or more "multi-" disciplinary views of our field currently exist" (Herron, Sapienza, Smith-Cook, 1991, p. 7)

> Despite the number of published papers that might be considered related to the theory of entrepreneurship, no generally accepted theory of entrepreneurship has emerged. ... Despite the potential for richness and texture that such a diverse mix of disciplines brings, a major weakness is that, in many cases, researchers from one discipline have tended to ignore entrepreneurship studies by researchers in the other disciplines (Bull & Willard, 1993, p. 184, citing Wortman, 1992).

I believe that entrepreneurship scholars need to recognize the very significant differences in the beliefs we hold about entrepreneurship. Recognizing that there are differences in beliefs might be a way for entrepreneurship scholars to begin to see how these differences might be aspects of the same whole. Alternatively, there may be irreconcilable differences among our views of entrepreneurship that might result in the entrepreneurship field splintering into more parsimonious and coherent research foci. There may not be a theory of entrepreneurship that can reflect all entrepreneurship scholarship, as currently practiced.

It seems to me that efforts at theory development in entrepreneurship have some similarity to the "Blind Men and the Elephant" story. Six blind men touch different parts of the elephant and come away with very different descriptions of an elephant's characteristics. The story offers a syllogism for thinking about the problems of integrating differing views of a large and complex phenomenon. I have included this story as a part of this article for two reasons. First, in attempts to locate the story, I have encountered many permutations and versions (e.g. Adams, 1994; Brazeal & Herbert, 1999; Waldo, 1961, 1978). Rather than assuming that readers of this article are thinking of the same "Blind Men and Elephant" story, I have included the version that I am referring to. Second, the "Blind Men and Elephant story presents some koans (i.e. paradoxes to enlighten) about discovery and synthesis. The story offers a form of commentary on my effort to discuss attempts to integrate diverse theoretical perspectives in entrepreneurship research.

I plan to explore the way that assumptions are made in entrepreneurship theory development by reviewing Shane and Venkataraman's "The Promise of Entrepreneurship as a Field of Research" (2000). I will use the six specification decisions from Low and MacMillan (1988) as the framework for this discussion. Each specification decision will be defined and used to investigate key issues in the Shane and Venkataraman (2000) article. I believe that the Shane and Venkataraman article is a significant theoretical contribution to the entrepreneurship area, and that it has important implications for entrepreneurship scholarship that cannot be ignored. Not only is it the work of two very gifted scholars, but the work might also be seen as the continuing reflections of the editor of one of the major journals in the entrepreneurship area about where the field might be headed (Venkataraman, 1994, 1997). I think that discussion and debate about Shane and Venkataraman (2000) can help shape the direction of entrepreneurship research, and enable scholars in our field to make conscious decisions about the efficacy of their research contributions. I hope we can critically look at the direction of our field and continue to maintain the collegiality and friendliness that has been a hallmark of our research community.

> *The first young man, in his haste, ran straight into the side of the elephant. He spread out his arms and felt the animal's broad, smooth side. He sniffed the air, and thought. "This is an animal, my nose leaves no doubt of that, but this animal is like a wall." He rushed back to the city to tell of his discovery.*

Specification of Purpose

Low and MacMillan (1988) indicate that specification of purpose involves exploring "the specific as well as larger purpose of the study" (p. 140). Much of their discussion of purpose involves determining the attributes of entrepreneurship by investigating previous entrepreneurship definitions (e.g. Knight, 1921; Gartner. 1985; Schumpeter, 1934; Stevenson, Roberts & Grousbeck, 1985) and proposing the following purpose for entrepreneurship research: "seek to explain and facilitate the role of new enterprise in furthering economic progress" (p. 141). They suggest that research in entrepreneurship would be advanced if studies were explicitly liked to this overall purpose. How has this purpose changed in the intervening twelve years?

Shane and Venkataraman (2000) lay out the purpose of entrepreneurship research by describing what entrepreneurship research should focus on, as well as indicating what it should not. They define the field of entrepreneurship as

> the scholarly examination of how, by whom, and with what effects, opportunities to create future goods and services are discovered, evaluated, and exploited (Venkataraman, 1997). Consequently, the field involves the study of sources of opportunities; the processes of discovery, evaluation and exploitation of opportunities; and the set of individuals who discover, evaluate and exploit them ... scholars of organizations are fundamentally concerned with three research questions about entrepreneurship; (1) why, when, and how opportunities for the creation of goods and services come into existence; (2) why, when, and how some people and not others discover and exploit these opportunities; and (3) why, when, and how are different modes of action used to exploit entrepreneurial opportunities (Shane & Venkataraman, 2000, p. 218).

This specification of purpose significantly narrows the field of entrepreneurship research, as currently practiced. For example, they propose that entrepreneurship research should not focus on "the relative performance of individuals or firms in the context of small or new business" (Shane & Venkataraman, 2000, p. 217) and they indicate that this type of research is more appropriate within the domain of strategic management.

The specification of purpose in Shane and Venkataraman (2000) is very different from the multitude of topics and issues that appear to encompass current entrepreneurship scholarship as described in the Academy of Management Entrepreneurship Division Domain Statement for the National Academy of Management Meeting Call for Papers:

> Specific Domain: the creation and management of new businesses, small businesses and family businesses, and the characteristics and special problems of entrepreneurs. Major topics include: 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.

Can there be a theory of entrepreneurship that could encompass such diverse organizational forms as new, small, and family businesses? Can there be a theory of entrepreneurship that could encompass such diverse occupational settings as self-employment, owner-management, and management succession? Are these parts, as described in the domain statement, aspects of some kind of whole of entrepreneurship? Or, are these various topics, just that-different topics with no underlying connections? I do not believe that scholars in the entrepreneurship field (i.e. scholars that convene in such places as the Academy of Management Entrepreneurship Division, the Babson/Kauffman Entrepreneurship Research Conference or RENT) are exploring topics that have a similar theoretical underpinning. There is, simply, no theoretical way to connect all of these disparate research interests together.

It would be difficult to ascribe the Shane and Venkataraman (2000) definition of entrepreneurship to the majority of the research currently undertaken by scholars in the entrepreneurship field. While Low and MacMillan (1988) suggest a focus on "new enterprise," a label that might encompass both emerging and established firms. Shane and Venkataraman (2000) are looking at individuals and opportunities. By implication, one would surmise that they believe that a focus on established firms (new or small) is not critical for understanding entrepreneurship. Indeed, it is interesting to note that Shane and Venkataraman do not cite the literature on entrepreneurial orientation (e.g. Lumpkin & Dess, 1996; Miller & Friesen, 1982) at all.

My position on the focus of entrepreneurship research is that entrepreneurship is about "organizing," and this phenomenon has a greater likelihood of being understood through the study of firm creation (Gartner, 1985, 1988, 1990, 1993). I approach entrepreneurship from a social psychological perspective (Weick, 1979, 1995), and I am willing to celebrate studies of firm creation from other disciplinary perspectives (Gartner & Gatewood, 1992), as well. I agree with Shane and Venkataraman (2000) that their focus on individuals and opportunities is complementary to the study of firm creation (p. 219). What seems less complementary to both of these views is the study of new, small, and growing firms.

> *The second young blind man, feeling through the air, grasped the elephant's trunk. The elephant was surprised by this, and snorted loudly. The Young man, startled in turn, exclaimed, "This elephant is like a snake, but it is so huge that its hot breath makes a snorting sound." He turned to run back to the city and tell his tale.*

Specification of Theoretical Perspective

Low and MacMillan (1988) view the development of theory in entrepreneurship from two perspectives: strategic adaptation and population ecology. They suggest that the strategic adaptation perspective in entrepreneurship emphasizes the

freedom of individuals to make decisions involving the identification of opportunities, the assembly of resources to exploit those opportunities, and the strategies inherent in pursuing those opportunities through firms. In contrast, the population ecology perspective emphasizes environmental factors as both precursors to entrepreneurial activity and as mechanisms for selecting new firms that more appropriately conform to the dynamics of a particular niche. In both perspectives, Low and MacMillan imply that entrepreneurship researchers take a more dynamic view of entrepreneurship as a process that occurs over time.

The theoretical roots of Shane and Venkataraman (2000) are spread among a broader base of disciplinary perspectives, though their logic tends to come from theoretical perspectives in economics (e.g. Arrow, 1962; Baumol, 1989; Casson, 1982; Hayek, 1945; Kirzner, 1997; Schumpeter, 1934) and in language taken from ecological views (Aldrich, 1990; Singh & Lumsden, 1990) that celebrate the dynamic processes of firm formation. Shane and Venkataraman, while recognizing the contributions of other disciplines and perspectives, point out that the field of entrepreneurship, to be considered useful as a unique field of social science, must have "a conceptual framework that explains and predicts a set of empirical phenomena that are not explained or predicted by the conceptual frameworks already in existence in other fields" (p. 217). Implicit in this statement is a belief that the entrepreneurship field will develop its own theory.

There does seem to be a shift in theoretical perspectives, but mostly, it seems, in terms of level of analysis. Low and MacMillan (1988) are looking at theories on organizations (strategic adaptation) and environments (population ecology), while Shane and Venkataraman (2000) seem to focus on theories that are more likely to explain individual behavior from the perspective of economics. I do not perceive any inherent bias in Shane and Venkataraman that would suggest that they would not include any theoretical perspective that would help in understanding individuals and opportunities.

> *The third young blind man walked into the elephant's tusk. He felt the hard, smooth ivory surface of the tusk, listened as it scraped through the sand, then as the elephant lifted the tusk out, he could feel its pointed tip. "How wonderful!" he thought. "The elephant is hard and sharp like a spear, and yet it makes noises and smells like an animal!" Off he ran.*

Specification of Focus

Low and MacMillan (1988) indicate that the specification of focus deals with identifying the specific phenomena that should he investigated in entrepreneurship research. They review prior research on the personality and social context of entrepreneurs and stress the importance of studying entrepreneurship in a contextual and process-oriented way. Implicit in their review is an emphasis on the entrepreneur as the focus of entrepreneurship, though they recognize that the activities of entrepreneurs are not only based on the characteristics of the entrepreneurs

themselves, but on the influences of organizational, environmental, and creation processes as well (Carsrud, Olm, & Eddy, 1986; Gartner, 1985).

Shane and Venkataraman (2000) are explicit in describing their specification of focus for entrepreneurship research:

> We differ from these frameworks in (1) our focus on the existence, discovery, and exploitation of opportunities; (2) our examination of the influence of individuals and opportunities, rather than environmental antecedents and consequences; and (3) our consideration of a broader framework than firm creation (p. 219).

I believe that Shane and Venkataraman are attempting to address Low and MacMillan's suggestions for a greater contextual and process-oriented focus. I interpret the specification of focus in Shane and Venkataraman as requiring research that must recognize opportunities *and* individuals, not just individuals, and that the exploitation of opportunities is a process that can be seen in situations beyond firm creation. The critical difference in Shane and Venkataraman's view of entrepreneurship compared to the focus of prior entrepreneurship scholarship is the emphasis on opportunity (their characteristics and how they are discovered and exploited). Yet, one might assume that opportunity is an aspect of the context of entrepreneurship (Gartner, 1985; Low & MacMillan, 1988; Vesper, 1990), so that prior scholarship recognized opportunity, but did not emphasize it.

> *The fourth young blind man reached low with his hands, and found one of the elephant's legs. He reached around and hugged it, feeling its rough skin. Just then, the elephant stomped that foot, and the man let go. "No wonder this elephant frightens the king's enemies," he thought. "It is like a tree trunk or a mighty column, yet it bends, is very strong, and strikes the ground with great force." Feeling a little frightened himself, he fled back to the city.*

Specification of Level of Analysis

Low and MacMillan (1988) see entrepreneurship occurring across five levels of analysis: individual, group, organization, industry, and society. They suggest that important insights about entrepreneurship can be gained when researchers are able to conduct studies that are multi-level in nature. Shane and Venkataraman (2000) do not appear to offer a specification of level of analysis in their arguments, though their use of citations to other scholarship would seem to imply that they would concur with a view of entrepreneurship that was multi-level in nature (pp. 225–226). While their discussion of the discovery and exploitation of opportunities centers on arguments that appear to require the actions of individuals (pp. 221–224), they expand their insights from individuals to firms and institutions via modes of exploitation (p. 224).

The fifth young blind man found the elephant's tail. "I don't see what all the excitement is about," he said. "The elephant is nothing but a frayed bit of rope." He dropped the tail and ran after the others.

Specification of Time Frame

Low and MacMillan (1988) indicate that entrepreneurship is a process that occurs over time, and that researchers should attempt "wide time frame research" to account for the broadest range of factors affecting this process. Their examples of the time frame used in entrepreneurship research range from a focus on the start-up process (Gartner, 1985; Stevenson et al. 1985) to stages of growth in fully launched organizations (Churchill & Lewis, 1983; Greiner, 1972). There appears to be no direct way to ascertain how Shane and Venkataraman (2000) consider time frame in the context of their theoretical framework. I would assume that an appropriate time frame would account for the generation of opportunities, their discovery, and exploitation. The life of the opportunity (its inception, evolution, and eventual demise), therefore, would seem to be the boundaries for time in their framework.

The sixth young blind man was in a hurry, not wanting to be left behind. He heard and felt the air as it was pushed by the elephant's flapping ear, then grasped the ear itself and felt its thin roughness. He laughed with delight. "This wonderful elephant is like a living fan." And, like the others, he was satisfied with his quick first-impression and headed back to the city.

Specification of Methodology

Low and MacMillan (1988) suggest a variety of methods for entrepreneurship research that would lead to the use of hypothesis testing and theory development. Given earlier recommendations about the necessity of a process-oriented approach to entrepreneurship research, they extol longitudinal studies. As a way to test hypotheses, they recommended more efforts towards experimental designs. In general, their goal is to "pursue causality more aggressively. The field must move to the stage where exploratory case analyses or cross sectional census taking studies that are not theory driven and do not test hypotheses are no longer acceptable" (1988, p. 155). Shane and Venkataraman (2000) suggest that many different methodologies will be needed to explore the questions raised in their framework. With regard to theory development, I would assume that many methods would be appropriate for theory creation and testing, and that the study of entrepreneurship is not dependent on any one method.

But finally, an old blind man came. He held left the city, walking in his usual slow walk, content to take his time and study the elephant thoroughly. He walked all around the elephant, touching every part of it, smelling it, listening

to all of its sounds. He found the elephant's mouth and fed the animal a treat, then petted it on its great trunk. Finally he returned to the city, only to find it in an uproar.

Each of the six young men had acquired followers who eagerly heard his story. But then, as the people found that there were six different contradictory descriptions, they all began to argue. The old man quietly listened to the fighting. "It's like a wall!" "No, it's like a snake!" "No, it's like a spear!" "No, it's like a tree." "No, it's like a rope!" "No, it's like a fan!"

Is Entrepreneurship an Elephant?

Shane and Venkataraman (2000) are courageous to demarcate the boundaries of entrepreneurship research as "the scholarly examination of how, by whom, and with what effect, opportunities to create future goods and services are discovered, evaluated, and exploited" (p. 218). Their framework does appear to address the concerns of Low and MacMillan (1988) to avoid unstated assumptions regarding the six key specifications for entrepreneurship research. I believe that their article indicates that a theory of entrepreneurship that could encompass the variety of research efforts and ideas that reflect current entrepreneurship scholarship is unlikely. Is there an elephant in current entrepreneurship scholarship? Can the study of the parts of current entrepreneurship scholarship lead to a comprehensive theory in entrepreneurship?

No.

The conundrum, as I see it, is that the totality of current academic entrepreneurship research does not espouse (nor can it espouse) an entrepreneurship theory, per se; rather entrepreneurship research espouses a diverse range of theories applied to various kinds of phenomena. There is no theory of entrepreneurship that can account for the diversity of topics that are currently pursued by entrepreneurship scholars. I challenge scholars in the entrepreneurship field to present a theory that could embrace all of the topics in the current Academy of Management Entrepreneurship Division Domain Statement. There is no elephant in entrepreneurship. The various topics in the entrepreneurship field do not constitute a congruous whole.

I do not see a way for scholars to generate a theory of entrepreneurship based on so many different research topics that seem to constitute the field of entrepreneurship. All of the disparate findings that compose our field are unlikely to be connected into a coherent whole. Rather than attempt to generate a comprehensive theory of entrepreneurship, I suggest efforts towards more modest goals, similar to what Shane and Venkataraman (2000) have undertaken.

The old man turned and went home, laughing as he remembered his own foolishness as a young man. Like these, he once hastily concluded that he understood the whole of something when he had experienced only a part. He

laughed again as he remembered his greater foolishness of once being unwilling to discover truth for himself, depending wholly on others' teachings.

Theory as Community

Questions about how scholars develop and advance entrepreneurship, as a legitimate field of study (Amit, Glosten, & Muller 1993; Brazeal & Herberg, 1999; Bull & Willard, 1993; Herron, Sapienza, & Smith-Cook, 1991; Shane & Venkataraman man, 2000; Venkataraman, 1997), are very similar to discussions of the development of academic fields in the social sciences. For example, one can find similar concerns and debates about the development of organization theory (Martin & Frost, 1996; McKinley & Mone, 1998; Pfeffer, 1994, 1995; Van Maanen, 1995a, 1995b), political science (Green & Shapiro, 1994; Ordeshook, 1993), and strategic management (Camerer, 1985; Mahoney, 1993; Montgomery, Wernerfelt, & Balakrishnan, 1989). In addition, since 1988, there have been thoughtful efforts at exploring the nature of theory development within organization studies, as a whole (Academy of Management Review, 1989, 1999). Developing the field of entrepreneurship, and more specifically, developing theory in entrepreneurship, needs to be seen within the wider scope of these debates and efforts within the social sciences. We are not alone.

I believe that the development of theory involves the creation of a community of scholars in dialogue about a specific set of problems and issues, and who hold similar beliefs about the relevance of certain methods for solving these problems (Latour, 1987, Pfeffer, 1994, 1995). The development of theory involves the identification of "why" regarding a specific phenomenon (Sutton & Staw, 1995; Whetten, 1989). Fundamental to this process is the identification of the boundaries of the phenomenon to be studied. The Shane and Venkataraman (2000) article offers such boundaries for the study of entrepreneurship (p. 218).

In developing entrepreneurship as a field of research, it is very important to consider the value of pursuing a strong paradigm (Aldrich & Baker, 1997; Vander Werf & Brush, 1989). I believe that the creation of an identifiable community of scholars, who pursue similar research interests will result in the creation of a strong paradigm. I believe the Shane and Venkataraman (2000) article is a conscious attempt to develop a community based on similar research interests. This community may be more likely "to create a systematic body of information about entrepreneurship" (Shane & Venkataraman, 2000, p. 224).

What is the alternative? I believe that an unwillingness to discuss the entrepreneurship field's unstated assumptions and an unwillingness to define the boundaries of the field will continue to promote a weak paradigm for entrepreneurship scholarship. The result for scholars in entrepreneurship will continue to be collegiality without community. Scholars in entrepreneurship will continue to be a collection of diaspora from other fields of organization science that use "entrepreneurship" as a label to study whatever they want. What is the "why" in current entrepreneurship scholarship? What are the fundamental issues that the

entrepreneurship field seeks to address? The Shane and Venkataraman (2000) article offers some direction.

Can a systematic body of knowledge about entrepreneurship be developed without a willingness among all entrepreneurship scholars to state, specifically, their assumptions about what constitutes entrepreneurship, as a field of study? Once these assumptions are stated, can entrepreneurship scholars recognize that the entrepreneurship field is not cohesive? And, is the entrepreneurship field willing to consciously devolve into different topics of interest?

It might seem bit brash to openly suggest that scholars in the entrepreneurship field need to "choose sides" and actively divide into more homogeneous groups. Yet, I believe that informal communities of entrepreneurship research scholars already exist. Broad topic areas such as new venture creation, firm growth, venture capital, corporate entrepreneurship, management succession, family business, technology transfer and development are the kinds of subjects that certain entrepreneurship scholars already have strong interests in. Few entrepreneurship scholars would appear to be allied to all of these topic areas, and few entrepreneurship scholars appear to have research efforts in all of these topic areas. It would not be difficult to undertake an analysis of citations of key articles in each of these topic areas to identify the scholars with strong research affinities to these topics. Making these affinities visible, through conferences, symposia, edited books, special issues of journals, would be one approach towards creating a community of researchers that can actively engage in the creation of a systematic body of information.

I believe that theory development in entrepreneurship depends on this. The six key specification decisions for entrepreneurship research in Low and MacMillan (1988) can be seen as a framework for helping scholars in the entrepreneurship field choose specific topics and then develop theories, methods, ideas, and questions that are appropriate. The six key specification decisions are interrelated. The successful development of theory in entrepreneurship will occur when scholars are willing to concurrently identify purpose, focus, level of analysis, time frame, and methodologies.

Theory development in entrepreneurship research will require a willingness to discuss and debate our conscious and unconscious assumptions. Indeed, vigorous debate might help us all see more clearly what our unconscious assumptions about entrepreneurship are. I believe that the Shane and Venkataraman (2000) article is a courageous step in the right direction. I hope others will be willing to join them in developing a community of scholars to explore the questions and issues they have laid out.

> *But he laughed hardest of all as he realized that he had become the only one in the city who did not know what an elephant is like*[1].

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[1] The story of the "Blind Men and the Elephant" is taken from a number of Sufi and Indian sources: Backstein, Karen. (1992). *The Blind Men and the Elephant.* New York City: Scholastic; Quigley, Lillian. (1959). *The Blind Men and the Elephant*. New York City: Charles Scribners Sons; Sax, John Godfrey. (1963). *The Blind Men and the Elephant.* New York City: McGraw-Hill; Shah, Idries. (1967). *Tales of the Dervishes.* New York City: E.P. Dutton.

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Part III

Perspective

Levels of Analysis in Entrepreneurship Research: Current Research Practice and Suggestions for the Future*

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In their path-breaking article, Low and MacMillan (1988) suggest that entrepreneurship be defined as the "creation of new enterprise." The purpose of entrepreneurship research should be to "explain and facilitate the role of new enterprise in furthering economic progress" (p. 141). Such a delineation, they hold, would encourage researchers to consider both micro- and macro-perspectives. They argue that researchers must acknowledge that entrepreneurship studies could and should be carried out at multiple levels of analysis and that these analyses complement each other. The reasons for studying entrepreneurship on multiple levels of analysis lie in the characteristics of the entrepreneurial phenomenon itself. Entrepreneurship takes place and has effects on different societal levels simultaneously. Schumpeter (1934) already linked the entrepreneurial initiatives of individuals to the creation and destruction of industries as well as to economic development. Several other scholars have contributed to increasing our understanding about entrepreneurship on different levels of analysis, ranging from the individual to the economy-at-large. The following paragraph highlights some of the levels of analysis that have been identified. In doing so it illustrates the richness of approaches.

It is individuals who carry out entrepreneurial initiatives (Schumpeter, 1934). These initiatives take place in organizational contexts (Moran & Ghoshal, 1999; Shane & Venkataraman, 2000), often resulting in the formation of new firms (Gartner, 1988; Schumpeter, 1934) or the rejuvenation and improved performance of established firms (Covin & Slevin, 1991; Lumpkin & Dess, 1996; Wiklund, 1999; Zahra, 1991). Entrepreneurial initiatives often result in innovations, which in turn may alter existing industries (Schumpeter, 1934), or create new ones (Aldrich & Martinez, this issue). The belief that such processes have profound effects on employment and economic growth on the societal level (Baumol, 1993; Birch, 1979; McGrath, 1999) is one of the major reasons for the increased interest in entrepreneurship.

The above summary does not only illustrate that studies on different levels of analysis can be valuable, but clearly shows that these levels are intimately entwined. Therefore, as Low and MacMillan suggested (1988, p. 152), there may be reason to integrate different levels of analysis in empirical research.

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Low & MacMillan made their recommendations over a decade ago. Given the rapid expansion of the entrepreneurship field it is valuable to examine to what extent their views have influenced subsequent research. The first purpose of this article is to examine what levels of analysis, or combinations thereof, are favored by entrepreneurship researchers, and whether this has changed over the past decade. Our second purpose is to give specific examples of progress related to the different levels of analysis. These examples illustrate that valuable knowledge can be obtained on different levels of analysis and we hope that they can inspire future research.

The choice and definition of level of analysis is not only important in relation to the design of empirical studies. It is also essential for the appropriateness of the utilization of different theories and the suitability of different conceptualizations of entrepreneurship (Davidsson & Wiklund, 2000; Gartner & Brush, 1999). Theories have been specifically developed to address, for instance, organizational or individual issues and are therefore not equally well suited for all levels of analysis. Our third purpose, therefore, is to discuss how future progress can be made through more frequent use of appropriate but largely overlooked levels of analysis and combinations of different levels of analysis. We hold that key to further progress is close correspondence between the conceptualization of entrepreneurship and level(s) of analysis.

In the remainder of the article, level of analysis refers to the hierarchy of aggregation of data. We make a principal distinction between micro and macro levels of analysis. More fine-grained categorizations of micro (e.g. individual, team firm) and aggregate (e.g. region nation) levels are possible as well as alternative hierarchies (e.g. firm → industry → economy-at-large vs. firm → region → nation). The level on which the principal research questions are posed and analyses carried out rather than the level at which data are collected determines the level of analysis. It is, for instance, common to first collect and then aggregate data from individuals in regional studies of entrepreneurship. If the analyses compare regional differences in entrepreneurial activity based on the aggregation of individuals, this would be a study at the regional level even though data were collected from individuals.

Levels of Analysis in Published Entrepreneurship Research

In order to assess what levels of analysis entrepreneurship researchers favor, we analyzed the contents of the two leading (Romano & Ratnatunga, 1997) U.S.-based entrepreneurship journal *Entrepreneurship Theory and Practice* (ETP) and *Journal Business Venturing* (JBV), as well as the leading European journal in the field, *Entrepreneurship and Regional Development* (ERD). In order to he able to see trends over the past decade, the 1998 contents were contrasted with the contents of the 1988 (BV) or 1989 (ETP; ERD[1]) volumes of the same journals. The total number of articles for each period was very similar; 64 articles from 1988/89 and 63 from 1998. Both empirical (101) and conceptual (26) articles were included, whereas ETP leaching cases were excluded. A listing of the articles and their classification can be found in Höglund, Lundgren, and Songsong (1999).

[1] ERD was launched in 1989 and ETP changed to its current name and focus the same year.

Three research assistants made the classifications of the articles into single or multiple categories according to the main analytical focus of the research. Although most authors did not explicitly state what was their level of analysis or were inconsistent in their use of implicit levels, quantitative articles were in most cases relatively easy to classify. Both the independent and dependent variables utilized in the analyses guided the classifications. Qualitative and conceptual articles were in some cases more difficult to assess. Ambiguous cases were resolved through deliberations among the raters and the principal investigators. In every case a final classification into one or multiple categories could be agreed upon.

Our analysis concerns the distribution of articles across levels as well as changes in that distribution over time. As we only investigate the endpoints of the ten-year period there is some risk that our results concerning change arise from stochastic variation rather than trends. However, Chandler and Lyon, (this issue), who included all issues of JBV and ETP over the decade, confirm several of our results. With that, let us now turn to the results displayed in Table 1.

Table 1. A comparison of levels of analysis over time in three leading entrepreneurship journals

	1988/89	**1998**
Micro levels	59.4%	77.2%
	(38)	(49)
Individual	26.6%	20.6%
	(17)	(13)
Firm	26.6%	36.5%
	(17)	(23)
Other (single) micro-level	1.6%	1.6%
	(1)	(1)
Individual & firm	1.6%	11.1%
	(1)	(7)
Other multiple micro-level units[a]	3.1%	7.90 %
	(2)	(5)
Aggregate levels	21.9%	11.1%
	(14)	(7)
Industry	7.8%	3.2%
	(5)	(2)
Region	6.2%	3.2%
	(4)	(2)
Other simple or multiple aggregate levels[b]	7.8%	4.8%
	(5)	(3)
Micro/aggregate mix[c]	12.5%	11.1%
	(8)	(7)
Other/unclassifiable	6.2%	0.0%
	(4)	(0)
Total	100.0%	100.0%
	(64)	(63)

[a] 1988/89: Firm & innovation (1) individual & group (1)
1998: Firm & management (3); other combinations (2)
[b] 1988/89: Nation (2); other combinations (3)
1998: Other combinations (3)
[c] 1988/89: Firm & industry (2); firm & region (2); other combinations (4)
1998: Firm & industry (3); firm & network (2); other combinations (2)

The results can be summarized as follows:

1. Entrepreneurship research is dominated by micro-level analysis, predominantly using the *firm* or the *individual* as the level of analysis.
2. This micro-level dominance seems to have increased over the years. Accordingly, the share of aggregate level studies has declined.
3. The use of the individual as level of analysis in entrepreneurship research remains stable. While the share of "individual [only]" has dropped, "firm & individual" rose from one (1.6%) to seven (11.1%).
4. The number of studies using alternative micro-levels such as the *team* or the *innovation*, either alone or in combination with other levels, remains minimal.
5. There seems to have been little heeding Low and MacMillan's (1988) call for micro/aggregate mix approaches. The share of studies using such a combination is small and appears to be stable.

Low and MacMillan's recommendation for approaches combining units on micro and aggregate levels of analysis, then, seems to have received limited following. In other respects change is traceable. One apparent trend is towards dominance for the firm as the level of analysis, either alone or in combination with the individual or other micro or aggregate levels. All in all, the firm level is represented in no less than 62% of the 1998 articles, as compared with 36% of the 1988/89 articles. Another apparent trend is the relative decline for all types of aggregate levels of analysis. This may, however, be due to selection bias. As specialized journals appear, research based on aggregate levels finds other outlets, e.g. the *Small Business Economics* journal.

Another observation is that rather "conventional" levels of analysis totally dominate the picture. As noted by Cooper (1995), researchers have a preference for collecting data that are easily obtainable rather than data that are important. Levels for which sampling frames or secondary data are not readily available, such as "team," "network," "cluster", or "project" have very limited representation in Table 1.

In at least one sense the trend may have been in the direction Low and MacMillan suggested. They complained that many early works were confined largely to "documenting the occurrence of entrepreneurs or their personality characteristics, with little attempt to recover causal relationships ... " (Low & MacMillan, 1988, p. 141). The tendency for "individual & firm" to increase as "individual" declines may be a positive sign if it means that individual characteristics are systematically related to firm-level behavior and outcomes rather than just describing the individuals who start and run independent businesses. However, as we will explain later, trying to explain venture outcomes solely with individual characteristics is not a wise strategy.

Examples of Progress Related to Different Levels of Analysis

Although the above overview may indicate that little has happened over the past decade in entrepreneurship research, it is in fact not difficult to find examples of progress when we look instead for exemplary research employing different levels of analysis. In this section we will comment briefly on some such developments. In doing so we draw upon a broad range of entrepreneurship literature published during the last decade. Obviously, the knowledge, interests, and preferences of the present authors will bias such an exercise. The selection of studies is admittedly not based on a thorough review of all entrepreneurship research. Neither is it based on stringent application of objective criteria of what constitutes "good" research. However, without any aspirations to claim completeness we have focused on studies judged to contribute to knowledge development through comprehensiveness, comparison, accumulation, frontier-pushing, and well-designed empirical theory-testing.

Individual and Team Levels

As noted above, Low and MacMillan (1988, p. 141) criticized the "psychological traits" approach to entrepreneurship. Most entrepreneurship researchers today would agree that the focus on stable psychological characteristics of (successful) entrepreneurs is unsatisfactory (e.g. Aldrich & Zimmer, 1986, pp. 45). One promising alternative is the application of more modern psychological theory in research comparing entrepreneurs to other groups. Busenitz and Barney (1997) chose such an approach in a study on biases and heuristics in strategic decision making among entrepreneurs and large-firm managers. They found strong support for their hypotheses that entrepreneurs show more overconfidence and rely more heavily on the representativeness heuristic. Another example of a high-potential study of entrepreneurial decision making is Sarasvathy (1999), who concluded that expert entrepreneurs' decision process was characterized by "effectuation" rather than analytical or bayesian processes, and therefore "an inversion of what we teach students in marketing classes." Research of this kind may provide a rationale for seemingly "irrational" behaviors on the part of entrepreneurs. It could provide a teachable and learnable alternative to normative, textbook decision making that seems neither to be applicable in genuinely uncertain situations nor characteristic of how successful entrepreneurs actually make decisions.

Research focusing on the individual need not necessarily be psychological. Given the early emphasis on entrepreneurs' psyche it is somewhat ironic that socio-demographic variables seem to discriminate better between business founders and other groups (Reynolds, 1997; Stanworth, Blythe, Granger, & Stanworth, 1989). An important task here is to build a theoretical understanding of *why* these socio-demographic differences emerge and what they mean. This has barely begun. A promising start is Aldrich, Renzuli, and Langton (1998), who investigate alternative reasons why those who had self-employed parents are more likely to

become business founders themselves. While there are sociological theories of "relative deprivation" (Hagen, 1962) or "social marginality" (Stanworth & Curran, 1973) that makes predictions about the socio-demographics of entrepreneurs, these theories seem at best to deliver partial truths (Shapero & Sokol, 1982).

Other studies are more directly in line with Gartner's (1988; 1989) call for focus on behavior. Bhave (1994) was among the first to attempt to describe what entrepreneurs actually do through the process of launching a new venture. Although his study is based on a small sample, it provides a richness of ideas to test in more broadly based studies. The distinction between novice, serial, and portfolio entrepreneurs is an example of a potentially important behavior-based categorization (see Ucbasaran, Westhead, & Wright this issue). Other examples are the (related) studies by Carter, Gartner, and Reynolds (1996), and Alsos and Kolvereid (1998) on start-up event sequences. Their methodology to assess what actions "nascent entrepreneurs" take, and in what sequence, in order to get their ventures up and running has recently been implemented and further developed by the Entrepreneurial Research Consortium (ERC) (Reynolds, forthcoming). This means that we will soon see large-scale, real time data from different countries on what more and less experienced-and more and less successful-business founders do during the start-up process. This is perhaps the most promising development to be expected on the individual level of analysis.

Notwithstanding the fact that no articles on entrepreneurial teams were found in our review, recent research suggests that a large share of all new ventures are started by teams rather than individuals acting alone. Teams may be particularly common within new industries (Kamm, Shuman, Seeger, & Nurick, 1990). Despite this fact, research on entrepreneurial teams is still in its infancy. However, research on entrepreneurial teams need not start from scratch. It can draw on research on top management teams, group dynamics, conflict and performance from strategic management, social psychology, and organizational behavior (Birley & Stockley, 2000).

Firm Level

During the last decade, management researchers have emigrated to or extended the scope of their interests to entrepreneurship issues. This influx has brought more theory driven approaches to the field. For example, the popularity of the resource-based view of the firm in strategic management has been paralleled in entrepreneurship research (e.g. Brown, 1996; Brush & Chaganti, 1997; Brush, Greene, Hart, & Edelman, 1997; Chandler & Hanks, 1994; Greene & Brown, 1997; Mosakowski, 1998).

It has also led to a broader acceptance of entrepreneurship as a phenomenon not restricted to independent small firms, but present also in large and established organizations. For instance, *Entrepreneurship Theory and Practice* recently devoted two full issues to corporate entrepreneurship (1999, Vol. 23, Spring and Fall). The editors' opening line was "The study of corporate entrepreneurship (CE) has become an integral part of the literature" (Zahra, Karutko, & Jennings, 1999, p. 5).

The growing emphasis on entrepreneurship in different organization contexts is one important development. But most firm-level entrepreneurship research still focuses on new and small firms. One effort in this area that has been comprehensive and methodologically sound enough to have lasting value and attract some following is Arnold Cooper's longitudinal work on prediction of new venture performance (Cooper, 1995; Cooper & Gimeno-Gascon, 1992; Cooper, Gimeno-Gascon, & Woo, 1994). One lesson here is that it is difficult to account for a large share of the variance in performance, even if a study covers many potential types of influence. This calls for more dynamic designs, following up not only performance variables but also the development of explanatory factors.

Low and MacMillan (1988, p. 144) noted that "it is still surprising that so little work has been done in the area of entrepreneurial strategy." Researchers have responded to this remark and several studies related to entrepreneurial strategies have since been conducted. The possibility of conducting such research was facilitated by the development of measures of firm-level entrepreneurial orientation by Miller (1983) and subsequently refined by Covin and Slevin (1986, 1989). Wiklund (1999) lists no fewer than eleven empirical studies that have employed some variant of this measure, albeit under different labels (e.g. "entrepreneurship," "entrepreneurial behavior," and "strategic posture") and several have appeared since. As a result, we now have a meaningful pool of results concerning how entrepreneurial strategy, operationalized as entrepreneurial orientation, influences various dimensions of performance either independently or in interaction with other variables. In addition, its relationship with other operationalizations of entrepreneurial management has been investigated (cf. Brown & Davidsson, 1998).

Industry/Population Level

Low and MacMillan (1988, p. 186) considered the population ecology perspective as having the potential to provide theory-driven new insights into entrepreneurship phenomena at an aggregated level. Aldrich (1999) has shown in his evolutionary approach that it is possible to apply the theoretical stringency of ecological theory to entrepreneurship studies in a meaningful way. Parts of his review and synthesis of theoretical and empirical progress regarding research on the level of industries or organizational populations can be found elsewhere is this issue (Aldrich & Martinez, this issue).

Aldrich (1999, pp. 257–258) calls for investigations of entire industries from their emergence arid through their subsequent developments. Such research requires rather heroic efforts and are, predictably, rare. But they do exist, and they have great potential for sound theory development when the researcher or his/her readers have the ability to go beyond description to abstracted sense making. One example of a study of this kind is Walsh's thorough investigation of the semiconductor industry over a fifty-year period (Walsh, 1995; Walsh & Kirchhoff, 1998). Another high-tech industry whose development has been analyzed in detail from an entrepreneurship perspective is the Swedish mobile phone industry (Mölleryd, 1999).

An even more fascinating research feat is Gratzer's complete reconstruction of the Automat restaurant industry in Sweden during its entire life cycle, from 1899 to 1938 (Gratzer, 1996). Within a Schumpeterian theoretical framework and employing prosopographic method ("picking small pieces from many different sources") Gratzer, an economic historian, tracks the new industry's emergence, growth, and decline. Interesting details in this study are that none of the significant actors in the Automat industry came from conventional restaurants or the hospitality industry, and that none of them became significant in its successor, self-service restaurants (some had success in other industries). Unfortunately, only parts of this rich study are available in English (Gratzer, 1999). The same is true for another unusually comprehensive research effort. In Italy, Raffa and his collaborators have followed a sample of software firms for more than a decade, through series of structural and strategic transitions. A fraction of this intriguing research is reported in Raffa, Zollo, and Caponi (1996).

Regional Level

Bruno and Tyebjee (1982), as well as Keeble, Potter, and Storey (1990), noted that little empirical evidence existed on how regional environments affect entrepreneurship. This is one area where considerable progress has been made. Forerunners reporting results from Germany (Fritsch, 1992), the U.S. (Reynolds, Miller & Maki, 1991), and the U.K. (Westhead & Moyes, 1992) were topped in 1994, when systematic studies on the influence of regional characteristics on new firm formation rates conducted in France, Germany, Ireland, Italy, Sweden, the U.K. and the U.S., were published in a special issue of the *Regional Studies* journal (Vol. 28, no. 4). Summarizing the results, Reynolds, Storey, and Westhead (1994, p. 453) conclude that three generic factors on the regional level have a positive impact on new firm formation rates. These are: a) growth in demand, indicated by population growth and growth in income; b) a population of business organizations dominated by small firms; and c) a dense, urbanized context. It is all too rare that conclusions from empirical entrepreneurship research have as solid backing as this.

Another important development regarding the regional level of analysis is the research on so-called "industrial districts," much of which was inspired by Piore and Sabel's (1984) book *The Second Industrial Divide*. Despite the accumulating number of studies, it is our opinion that based on the district research available in English, the field still largely lacks abstracted theoretical analyses of the many fascinating descriptions of the inner workings of districts (see, e.g. Staber, 1996). There has also been research that has seriously questioned the "rosy" image of industrial districts (Curran & Blackburn, 1994; Harrison, 1994). In summary, it would appear that although interesting and comprehensive empirical entrepreneurship research on the regional level has been undertaken, it would benefit from developing or adopting coherent theoretical frameworks such as the evolutionary approach discussed above.

National Level

Within a country, factors like culture, legislation, tax systems, educational system, infrastructure and the like may appear as constants or near-constants. Therefore, cross-national studies (or long time frames) are needed for studying the influence of such factors. Empirical studies of this kind are difficult to carry out. Baumol (1990) relies on cases representing different countries and historical eras. His basic thesis is that the supply of entrepreneurs can be regarded as constant, but that the societal value of their self-interested ingenuity varies depending on the structure of rewards. The conclusion from this institutional view is that the proper way to encourage entrepreneurship is to create conditions that make entrepreneurial pursuit of self-interest accord with societal wealth creation.

The above-mentioned ERC research and research on the relationship between regional characteristics and firm start-up rates have also yielded cross-national comparisons (Delmar & Davidsson, 2000, Reynolds et al. 1994). Davidsson and Henreksson's (forthcoming) work represents an initial attempt to relate national differences in entrepreneurial activity to institutional and cultural differences. The Global Entrepreneurship Monitor (GEM) is an on-going, research collaboration between ten national teams in Europe, Asia, and North America, which employs a multi-method approach that has great potential for increasing our understanding of the influence of institutional, demographic, and cultural factors on entrepreneurial activity. Some early results are reported in Reynolds, Hay, and Camp (1999).

As regards culture, Shane (1992) investigated how Hofstede's (1980) cultural dimensions were related to national levels of inventiveness, as measured by patent statistics. His hypotheses that high individualism and low power distance positively influence inventiveness gained support. Another example is Lynn (1991). Much in the tradition of McClelland (1961), he related cultural values to relative growth in national income and concluded that the emphasis on "competitiveness" and "valuation of money" in a country was positively related to growth in national income. However, Lynn's type of study does not explain the micro-level processes by which cultural values translate into GDP growth. As we will argue later, explicitly addressing the micro-level value-creating mechanisms is essential for entrepreneurship research.

How Choices of Level of Analysis can Further Economic Progress

The Prospect of Further Progress

In the previous section we tried to demonstrate that important progress has been made in the field since Low and MacMillan (1988) published their article. Fruitful research on entrepreneurship can be, and has been, conducted on several levels. In the remainder of this article we will discuss how further progress can be achieved if entrepreneurship researchers pay more careful attention to their choice of levels of analysis. Our suggestions are based on the following observations:

1. The skewed distribution as regards levels actually used in empirical research. A very high percentage focus on the firm while there is almost no representation for other possibly more relevant levels.
2. The limited usage multi-level approaches and in particular the relative lack of explicit interest in societal level effects in micro-level studies.

The Conceptualization of Entrepreneurship as Related to Levels of Analysis

In order to determine which are relevant but overlooked levels of analysis and suitable multi-level approaches, it is necessary to use the conceptualization of entrepreneurship as the point of departure. Our choice of levels of analysis must in the end be informed by our definition of the phenomenon that we wish to study.

We Would, with Low and MacMillan (1988), Stevenson and Jarillo (1990), and Venkataraman (1997), favor a perspective on entrepreneurship that is focused on discovery and new combinations irrespective of organizational context. Opportunities may be exploited within existing or newly created firms or through trading them on the market (Shane & Venkataraman, 2000). As a tribute to Low and MacMillan, we will refer to this admittedly loosely defined domain as *creation of new enterprise* (cf. Low & MacMillan, 1988, p. 141) where "enterprise" is understood as economic activity and not as the label for a formal organizational unit or structure. Like Gartner (1988), we think the main focus of entrepreneurship should be on emergence, but what emerges is new economic activity and not necessarily a new organization. We would also like to emphasize the quality of what emerges in terms of how radical new combinations the new enterprise represents and how much value it creates on micro- and aggregate levels. Hence, new enterprise is a continuous rather than a dichotomous phenomenon. With this view of entrepreneurship, there is reason for concern about the dominance of the firm-level and the lack of multi-level studies that was reported above.

According to the perspective of entrepreneurship we have outlined, the focal phenomenon is the emergence of the new enterprise itself, i.e. the new business activity. From this it follows that the emergence of new enterprise should be at the heart of entrepreneurship studies, which, in turn, has consequences for the appropriateness of different levels of analysis. In the following we will discuss three different alternatives for studying new enterprise. First we examine new enterprise as the level of analysis for the independent and dependent variable. We then turn to multi-level designs where the effects of new enterprise are assessed at aggregate levels. Finally we examine how flew enterprise can be studied at other levels of analysis.

New Enterprise Level of Analysis

We agree with Venkataraman (1997) that with new enterprise itself as the level of analysis entrepreneurship can carve out a distinct research domain. Given this position, the strong and increasing dominance for firm-level analysis coupled with

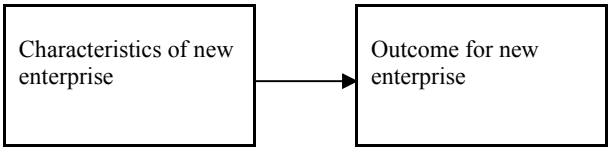

Fig. 1. New Enterprise level design

the absence of the new enterprise level (cf. Table 1) is an indication of many fruitful research contributions foregone. Put differently, researchers who want to make a unique and worthwhile contribution to entrepreneurship research should seriously consider making the effort to study new enterprise efforts, although collecting this kind of data is far from easy. Finding the relevant cases may be difficult, as readily available databases on individuals and firms involved in new enterprise efforts do not exist.

If chosen as the level of analysis, new enterprise efforts would be studied over time regardless of their organizational context and their human champion(s), both of which may change over time. Fig. 1 depicts the principal design of studies at the new enterprise level. Focusing solely on the left-hand box of the model, examining the characteristics of the new enterprise process would make valuable contributions. Relative to studies of the characteristics of individuals and firms, the characteristics of the new enterprise process have previously been vastly underresearched. Case studies describing and interpreting the process in detail (cf. Van de Ven, Polley, Garud, & Venkataraman, 1999), as well as surveys comparing the characteristics of different new enterprise processes, could be appropriate for such studies. As indicated in the figure, it is also important to study the outcomes of new enterprise efforts, whether successful or failed, and to do so in real time. If only successful efforts were studied, censoring would lead to a biased view of entrepreneurship as an economic phenomenon (Aldrich & Martinez, this issue). Real-time studies are valuable because retrospective approaches are likely to be flawed by memory decay, hindsight bias, and rationalization after the fact.

Multi-Level Designs

Many types of multi-level designs are conceivable (cf. DiPrete & Forristal, 1994). We will confine our discussion here to designs that make an attempt to assess the outcomes of new enterprise on higher levels of analysis, especially on the societal level. We do so because we share with Low and MacMillan an interest in the question of how new enterprise at the micro level contributes to economic progress.

Quite frequently research is conducted on the individual, the firm, or some other micro level while the authors' following discussion deals with unsubstantiated claims about the societal benefits of the new enterprise under scrutiny

(cf. Thornton, 1999). Entrepreneurship researchers often seem to assume that micro-level outcomes translate directly to the aggregate level. However, as pointed out by Baumol (1990), this is an oversimplification; new enterprise may under certain conditions reduce rather than enhance economic progress. This would be the case for illegal enterprising such as drug dealing, but also when entrepreneurial talent is spent on rent-seeking activities such as litigation (Baumol, 1990). Further, as observed by Low and MacMillan (1988, p. 141, footnote) one venture's failure may be the result of competitors' reactions. If this competitive response enhances the industry's overall performance, then economic progress has still been achieved at the societal level. In other words, it is fully conceivable that successful new enterprise at the micro level translates into economic regress at the societal level and that failed entrepreneurship at the micro level contributes to economic development. Fig. 2 summarizes the four possible combinations of positive and negative outcomes of new enterprise at micro- and aggregate levels.

"Hero enterprise" in quadrant 1 is typified by the "big-time" entrepreneurs we read about in the newspapers who create value for society through the introduction of new combinations while simultaneously creating personal wealth. The "robber enterprise" in quadrant 2 creates personal wealth but no value for society. We may think of the introduction of new innovative pyramid schemes or new distribution methods for illegal drugs as examples. "Catalyst enterprise" (quadrant 3) fails, but the ideas and methods developed in the enterprise process are picked up and successfully exploited by others. It is also possible that the potential threat of the new enterprise leads competitors to innovative responses that benefit society while keeping the new enterprise out of the market. Quadrant 4, finally, refers to genuine failures, i.e. enterprise attempts that fall and lack positive spillover effect on other actors.

In the terminology of the figure, most research assumes that new enterprise is either of the "hero" or "failed" type. However, there is reason to believe that neither "robber enterprise" nor "catalyst enterprise" are marginal phenomena that could be disregarded. Baumol (1990; 1993) provides convincing evidence for the negative economic effects of robber enterprise. The fact that economic growth is

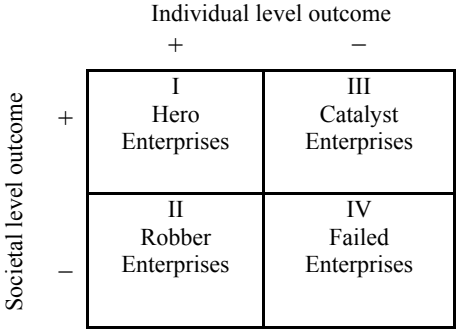

Fig. 2. New enterprise outcomes on different levels

associated with new venture volatility, i.e. the sum of new firm establishments *and* closures (Reynolds, 1999), suggests that catalyst enterprise may have a significant impact on the economy. We would therefore hold that the execution of multiple-level studies that explicitly address the relationship between micro- and aggregate-level outcomes is critically important, in particular for researchers adhering to views of entrepreneurship similar to Low and MacMillan's (1988). The principal design of a study that links the new enterprise level to societal-level outcomes is depicted in Fig. 3.

As noted above, studies conducted at the new enterprise level would follow new enterprise efforts over time regardless of their organizational context and their human champion(s), both of which may change over time. In multi-level designs we add the requirement that the venture's impact on the economy be assessed and not only its micro-level performance. This is in line with Venkataraman's (1997, p. 2) argument that the absolute performance of ventures on micro and aggregate levels, and not relative performance of firms, is the more relevant outcome measure in entrepreneurship studies.

Needless to say, studies of the suggested kind are extremely demanding. Satisfactory statistical studies are almost certainly impossible to carry out except perhaps for very small populations under very particular circumstances such as an island economy. In survey-based studies, complete assessment of external effects will not be attainable, but steps in that direction may nevertheless be valuable. Comprehensive case studies of satisfactory quality would not he an easy task, either. Estimating with certainty the total impact of one new enterprise process would be hard indeed, but nevertheless much more possible than pursuing that goal in a survey-based study. Comprehensive case studies may prove invaluable for understanding the implications of the results of more broadly based studies at aggregate levels of analysis. If the community of entrepreneurship researchers is serious about the aggregate-level effects of new enterprise, such studies ought to be carried out.

An additional type of cross-level study is of great importance. In many countries very substantial amounts of money are spent on various national or regional programs aimed at encouraging entrepreneurship, e.g. increasing the firm start-up rate or the growth of small firms. From the regional point of view, a relevant study would investigate whether money spent regionally on such programs had–after controlling for other factors – a positive effect on new enterprise, and whether new enterprise in turn had a positive effect on regional economic well being. That is, a single-level study (regional characteristics → regional new enterprise activity → regional outcomes) would suffice. From the point of the national government,

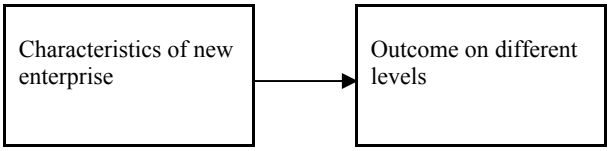

Fig. 3. Multi level design

however, there may he concern that a cannibalizing zero sum game is going on, where one region's gain is another region's loss. Therefore, the relevant level for outcome assessment is the economy-at-large, which requires a cross-level design.

Single Level Designs

Apart from approaches actually using new enterprise as the explicit level of analysis, new enterprise can be meaningfully studied across a range of levels. In addition to research examining the new enterprise process, new enterprise can be studied as an outcome (dependent variable), or as an explanatory (independent) variable (cf. Stevenson & Jarillo, 1990).

Figure 4 depicts the layout for single-level designs. The 'level,' in question could be thought of as the individual, the team, the firm, the industry, the cluster, the region, the nation, or some other more or less aggregate level. Regardless of level, new enterprise would always be at the heart of the analysis. One type of study would consider the left and the middle boxes, using new enterprise as a dependent variable. Other designs would focus on the right side, investigating for a particular level what the outcomes of new enterprise are for that same level. Finally, comprehensive designs are conceivable which would attempt to analyze the whole model within one and the same study, albeit with regard to just one particular level of aggregation.

To exemplify the latter we can think of a study at the firm level. This would relate characteristics of the firm (including its human capital and aspects of the environment it currently operates in, which we regard as attributes of the firm) to its quantity and quality of new enterprise (how many and how radical new combinations it conducts. and by which processes). It would then continue to relate these aspects of new enterprise to firm-level outcomes such as survival, growth, and profitability. In an example of the regional level, the characteristics would refer to structural, cultural, and institutional factors that signify the regions. New enterprise could be measured as rates of new firm formation and change in the sector composition of the regional economy towards expanding industry sectors. Outcomes would in this case be aggregate regional income and other indicators of economic well being and quality of life.

Figure 4 is useful for addressing the problem of design mismatch. The schema suggests that, in order to qualify as good entrepreneurship research, a study would have to deal explicitly and properly with new enterprise. It is evident that studies

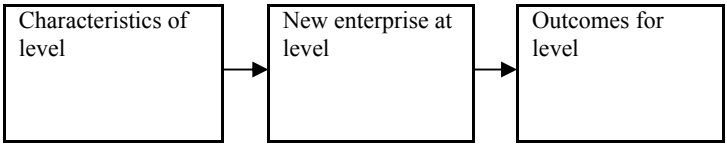

Fig. 4. Single-level design

on the characteristics of established small businesses and their owner-managers as related to relative business performance, valuable as they may be, do not consider new enterprise and thus do not qualify as entrepreneurship research. If we relate human and organizational characteristics to business outcomes without consideration of the middle box in Fig. 4, there is no telling whether anything we would like to call entrepreneurship was involved. This type of mismatch-the leaving out of the explicit consideration of the new enterprise unit-should be relatively easy to detect and avoid.

The schema also suggests that research should pay close attention to the consistency of level of analysis across dependent and independent variables. A study on the individual level of analysis would relate characteristics of individuals to their new enterprise behaviors, either as founders of independent businesses or as champions of internal ventures. In order to be able to single out what was truly attributable to the individual from the idiosyncrasies of the particular opportunity, the individuals would have to be studied across several new enterprise efforts (cf. Venkataraman, 1997). The assumption that individual characteristics can explain much of the process and outcomes of a single event is something psychologists are aware is a naive belief (Ajzen & Fishbein, 1977; cf. Aldrich & Zimmer, 1986) but which entrepreneurship researchers in many cases have learned the hard way. More appropriate outcome variables to use in individual-level studies would thus be "entrepreneurial career performances" in terms of the number and proportion of successful new enterprise processes, the total net worth created, or at least something approaching that ideal.

Finally, new enterprise should not only be included in entrepreneurship studies, it should also be appropriately operationalized. As our view of entrepreneurship focuses on the emergence of new economic activity regardless of organizational context, it reaches beyond new independent start-ups, and admits that some independent start-ups to a very limited extent create new economic activity. To illustrate the consequences of this, consider again the region level example above. If such a study relied entirely on the number of business foundings as the operationalization of entrepreneurship and did not consider growth of employment in new industries we might get results that were biased or at least hard to interpret. This would be the case if individuals with low education in disadvantaged regions start low-potential businesses for subsistence reasons whereas in vibrant regions highly educated teams start high-potential ventures for market-based reasons. A similar problem applies to the evolutionary approach when applied to entrepreneurship defined as new enterprise.[2] It may well be that in some industries new enterprise is mainly introduced by newly founded firms, whereas other industries can be equally dynamic with the only exception that existing firms are the agents that introduce new enterprise (cf. Shane & Venkataraman, 2000). If so, operationalzing entrepreneurship as rate of organizational foundings is dubious practice.

[2] It should be noted that Aldrich & Martinez (this issue) include all business founders in their definition of entrepreneur, admitting that most of them do not create much "new enterprise" as we here use the term. Hence, their definition is consistent with their theoretical perspective.

Conclusion

The first purpose of this article was to analyze what levels of analysis entrepreneurship researchers actually use. While examples of many different levels and combinations thereof can be found, there is a strong and growing dominance for firm-level analysis. Other observations were that the use of more aggregate levels such as the region and the industry had declined in the investigated journals and that there has been little heeding of Low and MacMillan's (1988) call for multiple-level approaches.

Our second purpose was to describe examples of progress during the last decade as regards entrepreneurship research at different levels of analysis. Evidence of clear progress could be found for all levels considered. However, entrepreneurship research is still young and the door is wide open for researchers to make additional contributions.

Saving that, we come to our third purpose, which was to discuss the appropriateness, of using different levels of analysis and combinations thereof. We did so from the perspective of Low and MacMillan's (1988) definition of entrepreneurship as "new enterprise." Concerning the dominant levels of analysis, most notably the firm, we would urge researchers who aim at making a contribution to cumulative knowledge on entrepreneurship to carefully make sure that their study really addresses pursuit of opportunity and new combinations. i.e. *new enterprise.* Research on small business, for example, is well worth doing but neither that research nor the emerging scholarly field of entrepreneurship benefit from attaching the entrepreneurship label to it unless it deals with new enterprise in small business (Hornaday, 1990). We also suggested for single-level studies that great care be taken to achieve consistency in the level of analysis used for the dependent and the independent variables. For instance, we pointed out that characteristics of individuals are unlikely to explain very much of the outcomes of single ventures.

In addition to the explicit consideration of new enterprise in all entrepreneurship studies, we would welcome an increased use of new enterprise, i.e. the new business activity itself, as the level of analysis. Following the new enterprise efforts over time, through possible changes of human champions and organizational affiliations, and trying to assess its outcomes on both micro- and aggregate levels is a design that accords well with Low and MacMillan's (1988) entrepreneurship definition. Although research at the new enterprise level may be difficult to carry out, as data are not readily available and it calls for longitudinal real-time studies, our conclusion is that it may have substantial impact on the entrepreneurship field and is well worth the effort.

Low and MacMillan (1988) explicitly called for more multiple-level designs. In connection with this point, we put particular focus on the need for linking new enterprise at the micro level to societal-level outcomes. This, we find, is important not only from a purely knowledge-producing point of view. It may be argued that the field of entrepreneurship as a scholarly field exercised in business schools is at a crossroads (cf. Low, this issue). One option is to restrict itself in research and teaching to be, roughly, about "the art of enriching oneself by starting and growing one's own business." By so doing, it would also restrict itself to a more, manageable

domain. Alternatively it would include. as Low and MacMillan (1988) and Venkataraman (1997) suggest, how the discovery and exploitation of profitable opportunities for private wealth. i.e. new enterprise, translates into societal wealth creation.

We would strongly suggest that entrepreneurship as a scholarly field retains its interest in societal-level outcomes. This is not based solely on personal interests or moral sentiments on our part. In order to establish and retain academic credibility beyond the current hype, entrepreneurship researchers need to prove rather than assume the positive societal effects of new enterprise. They also need to have an open-minded attitude towards the possibility, as pointed out by Baumol (1990), that under some circumstances new enterprise on the micro level is not beneficial to society (cf. Low, this issue).

Finally, in our suggestions concerning levels of analysis for entrepreneurship we have suggested what collectively amounts to a very broad domain. Acknowledging the risk of overextension we would suggest that researchers regard entrepreneurship as a broad research domain concerned with novelty and value creation in the economy. Theory and empirical studies in that domain should deal with more precisely defined issues, concepts, and levels of analysis. It is also important to attract disciplinary specialists into the field, to cooperate with them, and to specialize within the domain, thus making it possible to closely follow the theoretical and methodological advances within the disciplines. The future is full of opportunities-also for entrepreneurship researchers!

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Entrepreneurship Research in Emergence: Past Trends and Future Directions*

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Abstract

This article evaluates the emergent academic field of entrepreneurship to better understand its progress and potential. We apply boundary and exchange concepts to examine 97 entrepreneurship articles published in leading management journals from 1985 to 1999. Some evidence was found of an upward trend in the number of published entrepreneurship articles, although the percentage of entrepreneurship articles remains low. The highly permeable boundaries of entrepreneurship facilitate intellectual exchange with other management areas but sometimes discourage the development of entrepreneurship theory and hinder legitimacy. We argue that focusing entrepreneurship research at the intersection of the constructs of individuals, opportunities, modes of organizing, and the environment will define the field and enhance legitimacy. Decision theory, start-up factors of production, information processing and network theory, and temporal dynamics are put forward for entrepreneurship scholars to explore important research questions in these intersections.

The nature of entrepreneurship research and the emergence of entrepreneurship as a legitimate academic pursuit have begun to attract the interest of scholars. Aldrich and Baker (1997) claim that the field of entrepreneurship has made only limited progress toward disciplinary status in a normal science framework. Others think that entrepreneurship remains in a theory-building stage (Wiseman & Skilton, 1999) and is a "multidisciplinary jigsaw" characterized by accumulative fragmentalism (Harrison & Leitch, 1996: 69). Examining whether or not scholarship on the topic of entrepreneurial activity is worthwhile and legitimate has both practical and theoretical importance. Since entrepreneurial activity is increasingly relevant to economic output and labor employment in both developed and developing nations, new

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knowledge about entrepreneurship can speed the outcomes desired by enterprising individuals, rms, and societies. For academics involved in developing this new knowledge, decisions on faculty promotion, tenure, and merit-pay increases depend in part on an assessment of the worth and relevance of research conducted (Pfeffer, 1993). Worth and relevance in turn depend on collegial and administrative appraisal of the legitimacy and value of the individual's targeted field of study.

Theory on emerging organizations defines *boundary* and *exchange* properties that provide a clear distinction between existing and emergent organizations (Aldrich, 1999). Together, the concepts of boundaries and exchange help build others' perception that entrepreneurship offers a unique understanding of organizational phenomena and is therefore a legitimate research endeavor. By legitimacy we mean the extent to which research in entrepreneurship advances useful knowledge and is substantively endorsed by powerful external collective actors.[1] The issues of emergence and legitimacy prompt us to ask the following research questions: How is entrepreneurship emerging? Are entrepreneurship scholars obtaining increased legitimacy? Where should research be directed to build the field? We explore this issue by analyzing entrepreneurship research published in major management journals from 1985 to 1999. We also investigate the exchange of scholarship between the general management domain and the entrepreneurship area as evidenced by article citation. We are fundamentally interested in the status of entrepreneurship scholarship in terms of volume of publication, which helps to establish a domain; tendency to bridge to other management domains, which may help to establish its uniqueness or may limit its acceptance as an independent field with appropriate boundaries; and the contribution entrepreneurship scholars can make to the broader Academy.

The article proceeds as follows. Based on earlier studies, we develop the concept of emergence as it relates to the field of entrepreneurship. Since we view entrepreneurship as a field of study within management, an analysis of entrepreneurship research appearing in major management journals is presented. Lastly, we propose directions for entrepreneurship research in its pursuit of distinctive boundaries and legitimacy. Given the emergent status of the discipline, we argue that the distinctive domain of entrepreneurship research is the nexus of business opportunities, individuals and teams, and modes of organizing within the overall context of market environments.

Studies about Entrepreneurship Research

Several studies in recent years have referenced or discussed entrepreneurship research in terms of its development and can provide background on the legitimacy issue central to this article. In his survey of tenured entrepreneurship scholars at major universities, MacMillan (1991, 1993) found that publications indicative of

[1] Pfeffer similarly describes paradigm development. Paradigms are recognized when there is wide agreement that attention to certain research questions, methods, and programs of study will "advance training and knowledge" (1993: 600). Developed paradigms result in outcomes that include greater resource provision, lower journal rejection rates, less time to publication, increased governance in academic departments, and greater presence in broader academic organizations, among others. Thus cognitive legitimacy and socio-political legitimacy for an emerging field are closely related (Aldrich & Fiol, 1994).

the highest scholarly competence included the *Academy of Management Journal (AMJ), Administrative Science Quarterly (ASQ), Academy of Management Review (AMR), Strategic Management Journal (SMJ), and Journal of Business Venturing (JBV)*. Harrison and Leitch (1996) found that entrepreneurship research published in management journals from 1987 to 1993 represented a very small percentage of all published entrepreneurship research, and that the vast majority of such research is published in journals dedicated to entrepreneurship and small business. They warned that entrepreneurship scholars may become increasingly self-referential and inward-directed because of the field's reliance on dedicated entrepreneurship journals, at the expense of the intellectual development achieved through external legitimization of its tenets in publications of the various management fields.

In comparing management and entrepreneurship research published from 1990 to 1995, Aldrich and Baker (1997) concluded that progress toward coherence in paradigm development in entrepreneurship research has been limited. No powerful unifying paradigm exists, nor do multiple coherent points of view. Entrepreneurship studies tend to be less sophisticated in sampling frames, hypothesis development, statistical analysis, and dynamic longitudinal analysis than are organizational studies in the more established disciplines (Aldrich & Baker, 1997).

These studies highlight the important issues about legitimacy for the field of entrepreneurship. First, significant questions are raised about the scope and depth of the field. The apparent "chaotic pre-paradigmatic state of development" (Aldrich & Baker, 1997: 396) suggests that distinctive boundaries for the field must yet be established. The concept of boundaries suggests a defining breadth that, together with adequate depth of research, provides distinctiveness for the field. Second, poorly defined or poorly understood boundaries present significant challenges to the perceived legitimacy of work by entrepreneurship researchers. Entrepreneurship research submitted to major management journals must either seek to define such boundaries distinctively, or must rely on other theoretical frameworks already understood and accepted by the Academy. Proposing new theory for a new field with a wide range of intellectual roots and perspectives is a daunting task. However, if researchers rely on established theory from other fields, then the field of entrepreneurship research may continue to be viewed as lacking legitimacy. Thus exchange between the community of entrepreneurship researchers and the broader Academy is fundamentally related to the boundaries and the legitimacy of the field.

Given our analysis of 15 years of entrepreneurship research, we argue that conclusions about the field tend to be couched as a false dichotomy: either it is or is not a legitimate field with its own paradigm, or it has or has not "arrived." Alternatively, consideration of *boundary* and *exchange* characteristics suggests that entrepreneurship may exhibit emergent properties and movement toward increased legitimacy.

Boundaries and Exchange in Progress Toward Legitimacy

An academic field represents a community of scholars with a common research interest de defined by an accepted set of assumptions. For example, Shane and Venkataraman characterize the field of entrepreneurship in terms of "scholarly examination" (2000: 218) of relevant phenomena. The assumptions of scholars in

a field include the philosophy, aim, central focus, methods of research and instruction, and relevant literature streams (Ogbor, 2000; Summer et al. 1990). "These assumptions are necessary to give focus and discipline for those in the field and to draw boundaries around the field so it can be distinguished from other fields of study" (Summer et al. 1990: 370). For the field of entrepreneurship, as with emerging organizations, *boundary* and *exchange* properties help maintain legitimate activity systems (Aldrich, 1999; Katz & Gartner, 1988). *Boundaries* establish the identity of a field of research as a distinct entity in the environment. *Boundaries* precipitate role changes for individuals and the field itself, since the combination of distinct intentions and organized resources implies unique activity sets. The creation of boundaries also creates the need for systems that maintain the boundaries and the distinctiveness of the entity. Exchange refers to communications between the entity and its environment and to communication among its members. Through exchange, emerging entities compete against and cooperate with external parties to procure essential resources for future growth; through internal exchange among its members, an entity further refines routines and knowledge about efficient and effective practice (Aldrich, 1999, Katz & Gartner, 1988). Value-adding exchange, which confers legitimacy on an entity, is most dif cult and volatile during the emergent stage (Aldrich, 1999). The balance of this section applies boundary and exchange concepts to the field of entrepreneurship.

Achieving academic legitimacy has much to do with the creation of a distinct position in the context of existing structures (Harrison & Leitch, 1996). Entrepreneurship becomes a more distinct field of research when new theory is articulated, which is then recognized by scholars in other fields of research. Distinctiveness is better established when questions, concepts, and relationships are proposed that are different from those proposed by scholars in other disciplines and are unanswerable by them using their research lenses. Such theoretical contributions serve to identify and bracket new concepts and relationships (Bacharach, 1989), and thus create unique boundaries. An emerging field must establish its own ontological and epistemological base. Accomplishing this requires that scholars create and refine new understandings, developing a solid theoretical base as part of the overall scholarly effort.

Once the boundaries of entrepreneurship become clearer, the focus of scholarship should begin to shift. Theoretical discussions about what these boundaries are (and about the paradigm in general) give way to more empirical work. Empirical studies test and validate important questions about the theoretically-defined boundaries and relationships. Empirical studies also serve to develop a finer-grained view of various aspects of the phenomenon.

Together, theory development followed by empirical testing and validation serve to generate increasing consensus on the boundaries of the field and its relevance (Pfeffer, 1993). With growing consensus and the coherence that consensus generates (Pfeffer, 1993), we expect to see greater visibility of entrepreneurship research in key management journals. Furthermore, adhering to a pattern of theory development followed by empirical testing, we expect to see a decrease over time in the allocation of entrepreneurship articles focused on theory and a corresponding increase in empirical studies. These arguments lead to the following propositions:

Proposition 1: The number of entrepreneurship research articles published in major management journals will increase over time.

Proposition 2: While theoretical and empirical entrepreneurship research will emerge in tandem in the major management journals, theoretical articles will appear more frequently in the early stages of entrepreneurship research.

As the field of entrepreneurship emerges, exchanges should increase within the field as well as between its scholars and the broader academic community. At the true gestation of the field there are no scholars dedicated to entrepreneurship, so early authors must perforce originate from groups of scholars dedicated to research in other academic fields. These authors will bring to bear theoretical frameworks, concepts, and ideas from their base disciplines, in an attempt to explain entrepreneurship phenomena. However, such exchanges between entrepreneurship academics and the broader academic community would reveal that some phenomena cannot be explained or predicted using other disciplinary lenses. This recognition serves to create and strengthen the knowledge boundaries of an emerging entrepreneurship field. Subsequently, increasing exchanges among academics who choose to focus their efforts on entrepreneurship would serve to refine understandings within those boundaries.

Applying these ideas in a more tangible fashion, we would expect that common citation sources for entrepreneurship research in the early stages are likely to be non-entrepreneurship journals and other outlets such as conference proceedings and books. For example, Romano and Ratnatunga (1996) found that earlier entrepreneurship researchers largely depended on citations from core management journals to establish a theoretical base (67% of citations). As the field emerges, dedicated entrepreneurship publications have been introduced and are expected to become an increasingly important source of thought and formulation for scholars. Paralleling earlier arguments about scholars' interest in academic legitimacy, we would expect to observe increasing use of refereed journals dedicated to entrepreneurship as emergence continues. Thus,

Proposition 3: Entrepreneurship research published in the major management journals decreasingly relies on citations from major management journal sources over time.

Proposition 4: Entrepreneurship research published in the major management journals increasingly relies on citations from the leading entrepreneurship journals over time.

Proposition 5: Entrepreneurship research published in the major management journals decreasingly relies on citations from non-journal entrepreneurship sources over time.

Method

To examine these propositions, we identified and analyzed a set of entrepreneurship articles published in management journals. Using the *ABI-Inform* database, we searched for articles that met three criteria: (1) publication in one of seven major academic journals in the field of business management: Academy of Management Journal, Academy of Management Review, Strategic Management Journal, Journal of Management (*JOM*), Organization Science (*OS*), Management Science (*MS*), and Administrative Science Quarterly;[2] (2) use of one or more key words related to entrepreneurship in the article title or abstract, i.e. entrepreneur (entrepreneurial, entrepreneurship), small business (emerging business), new venture (emerging venture), and founder(s); and (3) publication between 1985 and 1999, inclusive. All editor notes, book reviews, review articles on the entrepreneurship domain, and replies to published articles were omitted so that the data would contain only articles and research notes that were non-invited and peer reviewed. Ninety-seven articles (listed in the Appendix by journal, author and year) met the selection criteria. Articles were categorized as either empirical (data collection and statistical analysis) or theoretical (no data collection and analysis). In addition, the reference section of each article was used to count the number of citations from five types of sources: (1) seven major management journals, (2) three leading entrepreneurship journals (Journal of Business Venturing; Entrepreneurship, Theory and Practice (*ETP*); and Journal of Small Business Management (*JSBM*), (3) the proceedings from a prominent entrepreneurship conference, Frontiers of Entrepreneurship Research (*FER*), (4) other miscellaneous sources of entrepreneurship research (books and other entrepreneurship journals), and (5) all other non-entrepreneurship sources.

Results

Table 1 reports the number of entrepreneurship articles by management journal for the years 1985–1999 (per year and in total). Of the total 5291 articles published in the seven management journals during the time frame of this study, 97 addressed entrepreneurship (1.8%). By journal for all years included in the study, the number varied from a low of 10 articles in the *AMR* to a high of 24 articles in the *SMJ*. *ASQ* had the highest percentage of entrepreneurship articles for the 15-year period at 3.9% of all published articles. Comparatively, the overall 1.8% publication rate of entrepreneurship-related articles did not keep pace with the membership percentage of the Entrepreneurship division within the Academy of Management (an average 12% per year of total Academy members since the division's inception in 1987).

[2] This list was based on a number of studies that rated and ranked journal quality using either expert opinion (Barman, Tersine & Buckley, 1991; Coe & Weinstock, 1984; Franke, Edlund & Oster, 1990; Gomez-Mejia & Balkin, 1992) or citation counts (Johnson & Podsakoff, 1994; Salancik, 1986).

Table 1. Entrepreneurship articles in major management journals 1985–1999[a]

Journal year	Total[a]	AMJ[a]	AMR[a]	ASQ[a]	JOM[a]	MS[a]	OS[a]	SMJ[a]	Percent of Entrepreneurship division members[b,c]
1985	1/326	0/64	1/64	0/25	0/25	0/125		0/23	
1986	5/320	0/51	1/51	0/23	1/40	0/122		3/33	
1987	6/332	1/47	0/49	1/23	1/48	3/121		0/44	15.5
1988	4/316	0/48	3/42	0/24	0/38	0/107		1/57	11.0
1989	9/281	1/40	0/27	3/23	1/38	2/103		2/50	11.2
1990	5/314	0/39	0/32	2/23	0/42	1/105	0/22	2/51	10.4
1991	4/324	1/45	0/25	1/21	0/32	0/109	0/28	2/64	10.3
1992	9/376	0/65	1/28	2/25	5/46	0/109	0/22	1/81	10.2
1993	6/360	1/65	0/21	0/22	2/41	1/121	1/33	1/57	11.4
1994	11/373	2/71	1/25	0/22	0/38	1/118	4/36	3/63	12.4
1995	4/415	1/72	0/25	0/25	1/55	0/145	0/42	2/51	12.0
1996	11/388	3/64	1/23	0/29	2/36	1/126	3/42	1/68	12.0
1997	8/379	1/65	1/27	2/24	1/33	0/124	1/41	2/65	13.0
1998	5/388	0/43	0/39	0/26	0/32	0/144	3/45	2/59	13.4
1999	9/399	1/61	1/48	3/26	0/36	2/118	0/47	2/63	13.4
Total	97/5291	12/840	10/526	14/361	14/580	11/1797	12/358[d]	24/829	
Percent (%)	1.8	1.4	1.9	3.9	2.4	.6	3.4	2.9	

[a] Number of entrepreneurship articles/total number of research articles.

[b] Entrepreneurship division membership/Academy of Management academic membership. Note: 1987 was the first year of divisional status for the Entrepreneurship division.

[c] Academy members may join multiple divisions, with more than two divisions requiring extra dues.

[d] Organization Science was founded in 1990.

Evidence of a growing body of entrepreneurship articles in management journals could lend support to the view that entrepreneurship is emerging as a distinct domain. Active scholarship in theory development could signal the conceptual definition of new domain boundaries. Comparing late to early study years, an average of 7.9 articles were published per year for 1992–1999 and only 4.9 per year for 1985–1991. The 62% growth in the publication rate is attributable to empirical work: the number of theoretical articles in the seven management journals is 0 or 1 per year, except for 1989 when there are 2 articles.

Statistically, a regression analysis demonstrates a positive trend for entrepreneurship publication in management journals over time (Table 2).[3] Controlling for the total number of articles published, the results indicate a positive trend in the number of entrepreneurship articles published in major management journals overtime (Model 1). This finding provides support for Proposition 1. Controlling for the total number of articles published, the results do not indicate a signi cant positive trend in the number of empirical entrepreneurship articles published in major management journals over time (Model 2) or the number of theoretical entrepreneurship articles published in major management journals over time (Model 3). Therefore, there is no support for Proposition 2.

[3] While this study examined all entrepreneurship-related articles, this set of articles represents a subpopulation of all articles published within a specified time frame and journal set. Consequently, we see it as appropriate to statistically examine the significance of these changes over time.

Table 2. OLS regression analysis on number and type of entrepreneurship articles in leading management journals, 1985–1999

Dependent variable: year of publication	Model 1: count all entrepreneurship articles	Model 2: count entrepreneurship empirical articles only	Model 3: count entrepreneurship theoretical articles only
Independent variable			
Full model count of entrepreneurship articles	.43 (.09)*	.39 (.17)	.98 (.27)
Control variable			
Count of all articles	.08 (.00)***	.08 (.00)***	.09 (.00)***
F full model	(17.3)***	15.6***	(14.3)***
Model R^2 control only	.67	.67	.67
Full model R^2	.74	.72	.70
Change in R^2 with independent variable	.07	.05	.03

Beta (signi cance level).
* $p < .01$.
*** $p < .01$.

Another window into understanding the development of entrepreneurship research is to consider the intellectual exchange among entrepreneurship scholars and between entrepreneurship scholars and other scholars (Propositions 3–5). The technique of citation analysis is used to examine these types of exchange. Following Phene and Guisinger (1998), we exclude self-citations (i.e. when an article cites another article from the same journal) from the analysis. Table 3 gives descriptive statistics on the combined reference sections of the study articles. Altogether the 97 articles employ 3329 references, of which 993 (30%) were published in the seven leading management journals included in this study. Of the remaining citations, 812 (24%) referred to dedicated entrepreneurship sources (books and journals), including 276 (8%) to the three leading journals dedicated to entrepreneurship (*JBV, ETP, and JSBM*). The remaining 1524 citations (46%) referred to other outlets.

These data indicate that entrepreneurship researchers publishing in management journals use a wide variety of reference sources. However, five journals appear to be particularly in influential. As shown in Table 3, these five journals are *ASQ, SMJ, AMJ, AMR*, and *JBV*, with total citations in the 161–236 range.

To move beyond a static analysis, we test the data for trends in reference source use over time. In a series of regression analyses (Table 4) we examine the relationship between year of publication and various reference sources, controlling for total number of citations. Following the logic of entrepreneurship emergence, we test for a decrease in the use of the major management journals (Model 1), a decrease in non-journal entrepreneurship sources (Model 2), and an increase in citation of the leading entrepreneurship journals (Models 3–6).

Table 3. Descriptive statistics on citation analysis[a] for entrepreneurship articles published in management journals, 1985–1999

Journal cited	Number of cites 1985–1999	Average number of times journal cited per article	Percent of total cites[b]	Journal rank by percent of total cites
Major management journals				
Administrative Science Quarterly	236	2.4	7.1	1
Strategic Management Journal	212	2.2	6.4	2
Academy of Management Journal	198	2.0	6.0	3
Academy of Management Review	192	2.0	5.8	4
Management Science	79	.8	2.4	6
Journal of Management	50	.5	1.5	8
Organization Science	26[c]	[c]	.8	[c]
Other non-entrepreneurship references	1524		45.8	
Sub-total of non-entrepreneurship citation sources $N = 2517$ (75.6%)				
Dedicated entrepreneurship journals				
Journal of Business Venturing	161	1.7	4.8	5
Entrepreneurship, Theory and Practice	67	.7	2.0	7
Journal of Small Business Management	48	.5	1.4	9
Other entrepreneurship				
Frontiers of Entrepreneurship Research	55	.6	1.7	
Other	481		14.4	
Sub-total of entrepreneurship citations $N = 812$ (24.4%)				
Total	3329		100.1	

[a] Self-citations excluded from analysis.
[b] Does not add to 100% due to rounding.
[c] Organization Science was not included in the comparison categories as the journal was not founded until 1990.

The results do not support Proposition 3, since entrepreneurship research published in the major management journals increasingly (rather than decreasingly) relies on citations from major management journal sources over time. However, citation of non-journal entrepreneurship sources declined over time, providing support for Proposition 5. Finally, our data indicate that entrepreneurship research published in the major management journals increasingly relies on the leading entrepreneurship journals over time. This finding provides support for Proposition 4. Figure 1 displays a 3-year moving average comparison for references to the three leading entrepreneurship journals (*JBV, ETP,* and *JSBM*).

To more directly examine the change in citation of each journal that occurred over these 15 years, we compared post hoc the number of citations during 1985–1987 to the number of citations during 1997–1999. Controlling for the number of articles published per year by each journal, we found a decrease in the citation of articles from *JSBM* and *MS*; a modest increase for *AMJ*, *OS*, and *AMR*, and a relatively large increase for *ASQ*, *JBV*, and *SMJ*. Table 4 includes the cumulative and individual results of this analysis for the three entrepreneurship journals. The rise in reference rate for *JBV* over the last 8 years of the study is particularly striking.

Table 4. OLS regression analysis on reference source trends, 1985 1999

Dependent variable: year of publication	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
1. Major management journals	.20 (.00)***					
2. Non-journal entrepreneurship sources		−.15 (.03)**				
3. Three leading, dedicated entrepreneurship journals			.21 (.02)**			
4. Journal of Business Venturing				.48 (.00)***		
5. Entrepreneurship Theory and Practice					.09 (.72)	
6. Journal of Small Business Management						−.30 (.26)
Control variable						
Count of all references	−.02 (.22)	.04 (.06)*	−.00 (.87)	−.00 (.82)		
F full model	8.8 (.00)***	3.0 (.05)**	3.1 (.05)**	7.8 (.00)***	.50 (.60)	1.1 (.34)
Model R^2 control only	.01	.01	.01	.01		
Full model R^2	.16	.06	.06	.14		
Change in R^2 with independent variable	.15	.05	.05	.13		

Beta (significance level).

* $p < .10$.

** $p < .05$.

*** $p < .01$.

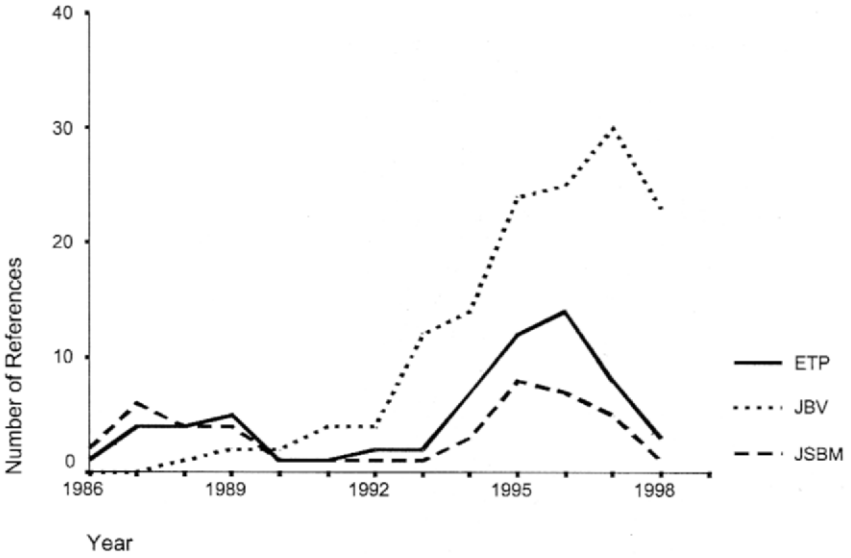

Fig. 1. Three-year moving average of number of reference sources ETP: Entrepreneurship Theory and Practice; JBV: Journal of Business Venturing; JSBM: Journal of Small Business Management

Discussion of Findings

This article set out to examine trends in entrepreneurship research published in the major management journals that provide evidence of the emergence of entrepreneurship as an academic field. In doing so, we wanted to evaluate whether progress has been made in establishing boundaries for the field and generating exchange among scholars inside and outside the field.

Over the 1985–1999 time frame, we found 97 articles in the major management journals, representing less than 2% of all articles published. Although the percentage of entrepreneurship-related articles appears to be increasing, this is less than we anticipated. Publication of empirical work is increasing, while theoretical work remains at a consistently low level. Over time, the dedicated entrepreneurship journals are cited more frequently and non-journal entrepreneurship sources (such as proceedings and books) are cited less in entrepreneurship research published in major management journals. In 1985–1999, *JBV* emerged as the strongest journal dedicated exclusively to the entrepreneurship domain. JBV was fifth overall among journals cited in entrepreneurship research published in the major management journals.

In the present study we find that the boundaries of the entrepreneurship field continue to be highly permeable. This is evidenced by theory development that is

not well represented in mainstream management journals and by a continued high degree of reliance on major management journals for entrepreneurship research citation support. Permeability allows scholars from various fields of research to apply their models and concepts to entrepreneurial settings, and thus opens entrepreneurship to criticisms such as accumulated fragmentalism (Harrison & Leitch, 1996). On the other hand, exchange has developed more or less as anticipated. Initially, exchange was dominated by non-entrepreneurship citation sources. Increasingly, however, exchange in entrepreneurship research published in mainstream management journals relies upon dedicated entrepreneurship journal citations. This provides evidence of a growing internal culture and knowledge base, and thus a growing level of exchange internal to the entrepreneurship community. The rise to prominence of *JBV*, in particular, suggests the development of a vibrant community within entrepreneurship and thus presents positive opportunities for entrepreneurship academics. As an important citational foundation for entrepreneurship research appearing in major management journals, work published in *JBV* increasingly bears on the conversations about entrepreneurship that occur within the broader management context. This exchange thus influences the establishment of boundaries for the field of entrepreneurship.

This study found evidence that entrepreneurship is emerging. The concept of emergence suggests that questions of boundaries and legitimacy are not "either/or" propositions. The field of entrepreneurship may not yet have "arrived," but arrival in and of itself does not uniquely define the field or the legitimacy of the efforts expended by its scholars. A growing exchange internal to the entrepreneurship community of scholars, together with exchange across domains attempting to better clarify the boundaries of entrepreneurship (e.g. Shane & Venkataraman, 2000), offers promise of continuing emergence and increasing legitimacy for the field. This is an important finding for faculty whose employment evaluations may be based in part on the extent to which their work is cited in "acceptable" publications.

While offering promise for scholars interested in entrepreneurship, the results of this study also suggest concern. Organizations must establish proprietary boundaries in order to succeed (Aldrich, 1999; Katz & Gartner, 1988). No research "space" in entrepreneurship has yet been de defined in which the application of other disciplines is unproductive or unrevealing. Lacking such defining knowledge or "knowing" boundaries, the field remains permeable to other disciplines. Until intellectual boundaries are established, the field may never gain the consensus and legitimacy academics seek and may only be viewed as a venue in which other disciplinary perspectives may be tested.

Boundaries and Intersections of Entrepreneurship Research

In the results presented here, it is particularly disconcerting that so few theoretical articles seek to develop unique knowledge and coherence for the field. Good theory is the foundation of any emerging field; it sets the boundaries and thus fosters

both external and internal exchange. A field of study with distinctive boundaries and coherent theory faces few questions of legitimacy from the broader Academy. For the field of entrepreneurship to then reach a higher level of legitimacy, we argue that the boundaries need to be articulated more clearly and new theory more consistently put forward.

Recent research has begun to address this need (Amit, Glosten & Muller, 1993; Shane & Venkataraman, 2000; Venkataraman, 1997). Figure 2 captures a sense of the unifying framework suggested: the constructs of opportunities, individuals and teams, and mode of organizing within the context of wider environments can be used to organize an approach to entrepreneurship. *Opportunities* often evolve from interactions between markets and environments that involve the creation of new means-ends relationships. The *individuals and teams* category focuses on the characteristics of individuals and teams, the dynamic processes associated with the development of intellectual or human capital by individuals and/or teams, and the comparison of different types of entrepreneurs or of entrepreneurs to non-entrepreneurs. The *mode of organizing* category includes management practices, the acquisition and deployment of resources, and the development of systems, strategies, and structures that allow a discovered opportunity to be transformed into a viable product or service. The *environments* category is concerned with rates of startup at a population level and the cultural, economic or market factors converging to create an environment that enhances or inhibits entrepreneurship.

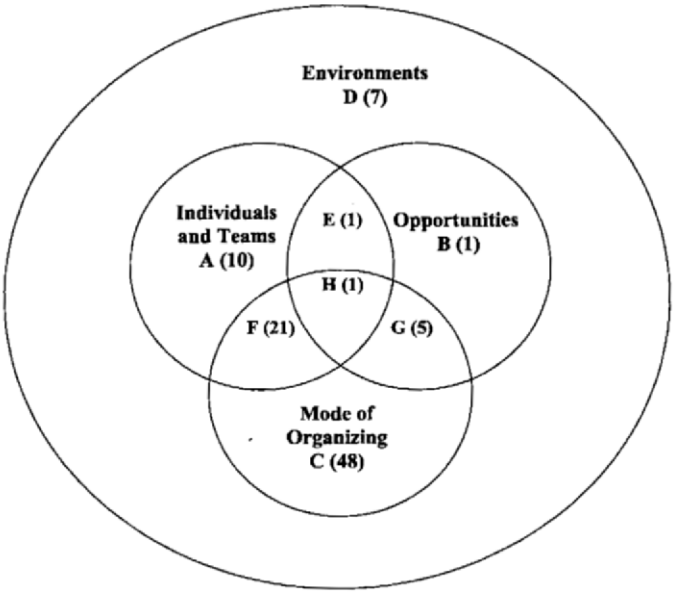

Fig. 2. Conceptual domain of entrepreneurship as a field (n=97 articles) Other articles, not included in specified categories (3). () indicates number of study articles classified to this domain or intersection area

We classified the entrepreneurship articles of this study into these categories. Sixty-six of the articles dealt with unitary concepts in this domain map, while only 28 focused on intersections between concepts. Furthermore, 86 of the 97 articles focused on more easily observable, accessible and often objectively measurable entities (individuals, organizations, environment), while only eight studies focused on content that includes the more subjective concept of opportunity. Finally, of the 28 articles that did focus on intersections, 21 appear in just one nexus of the domain map. Most research, therefore, has not focused on the nexus of important concepts in the domain.

Intersections and Linkages among Concepts

With the exception of the opportunities category, all of the other areas in and of themselves have received extensive research attention from other areas of management as well as non-management disciplines. This might suggest that opportunities could become the unique domain of entrepreneurship. No academic discipline has heretofore developed the area of opportunities, and research is certainly needed here to lay a better foundation for future entrepreneurship inquiry. However, limiting entrepreneurship research to the specific domain of opportunity may be shortsighted. Individual differences, opportunities, or modes of organizing by themselves are relatively unlikely to result in important tidings for entrepreneurship. It is when we probe the various intersections, exploring how individual differences impact the recognition of business opportunities or how they facilitate the marshalling of necessary resources to exploit these original insights, that we seem to uncover the true drama of the entrepreneurship phenomena. Thus we argue that the domain of the entrepreneurship field is fundamentally at the nexus of opportunities, enterprising individuals or teams, and mode of organizing within the overall context of wider environments. Research that seeks to define boundaries for the field and build theory, therefore, should address interesting and important research questions that better explain the complexity and dynamic nature of the phenomena at the intersections.

In reviewing these results we pointedly ask how entrepreneurship theory, and thus the field, can advance if so little work encompasses these intersections. We believe that the intersecting areas of the domain map in Fig. 2 are critical to the future of entrepreneurship research for three reasons. First, as evidenced by previous work that led to the creation of this domain map, entrepreneurship is a multi-faceted phenomenon. Like the Kipling parable about the blind men and the elephant, simply touching one leg or the tail will not provide a synthetic view of the creature. Shane (2000) and Shane and Venkataraman (2000), for example, claim that opportunities exist independently, irrespective of individuals or rms. This may be true, but such opportunities do not come to fruition without unique insights, perspectives, and interpretations by the founders, and are not transformed into wealth generation without organizing actions. This suggests that the *intersection* between opportunities and

enterprising individuals or mode of organizing, or both, is central to entrepreneurship theory. While the study of opportunities by itself (without the intersections) may be informative, it is unlikely to be able to facilitate and synthesize a stream of entrepreneurship research that generates consensus and legitimacy.

Second, research that focuses on a unitary dimension may be unable to contribute to an understanding of entrepreneurship phenomena. For example, 10 of the articles in this study focused primarily on individuals and teams, characterizing, describing, and predicting aspects of entrepreneurial efforts. However, such research may not be able to uniquely distinguish between the fields of entrepreneurship and strategic management, where top management teams are an important area of research (e.g. Hambrick, 1989). Population ecology has been used to explain rates of growth in populations of rms at the macro-environmental level. While providing great insight on questions of interest to entrepreneurship scholars, population ecology as a theoretical paradigm is not unique to entrepreneurship; it can also explain processes affecting mature rms, people, populations of tortoises, etc. Thus we hold that entrepreneurship theory must seek to identify not only the boundaries of "what is entrepreneurship" but also "what is *not* entrepreneurship."

Third, theories and perspectives from other management disciplines tend to focus on a single concept (e.g. domains A, B, and C in Fig. 2), with researchers often using empirical data drawn from the entrepreneurs and their rms. Perhaps it is research at this unitary level that gives entrepreneurship its reputation for "accumulative fragmentalism" (Harrison & Leitch, 1996: 69). Often the focus on a unitary concept applies levels of analysis and a variables orientation consistent with the paradigms of other management disciplines (e.g. individual, team, rm, or population). The incommensurability between levels and variables results in claims that "researchers tend to speak after one another rather than to one another" (Bruyat & Julien, 2001:166).

We argue "entrepreneurship" research should be about interesting and important research questions that exist at the intersections of Fig. 2, where the complexity of the phenomena exists. Here, there is a great deal of room for the development of new theory. We also believe that available theory from other fields and disciplines can be used to probe specific research questions in the nexus. When established theory is used, it will likely be extended, enriched, or challenged because it is being used to address new and important research questions.

We now suggest four theoretical perspectives from which substantial contributions can be made to the field of entrepreneurship, focusing on the intersections E, F, G, and H pictured in Fig. 2. These perspectives include decision and prospect theories, start-up factors of production, information processing/network theory, and temporal dynamics. This discussion is meant to illustrate how the areas of intersection in Fig. 2 can be productively explored.

Decision-making Theories

The notion that entrepreneurs are somehow different from the rest of the population provided the impetus for substantial research in the 1960s and 1970s, but the findings were largely disappointing (see Low & MacMillan, 1988 for a review).

However, cognitive and prospect theory approaches to the study of opportunity identification, evaluation, and response may help us understand how entrepreneurs think and explain their unusual tendency to take bold action.

First we consider how entrepreneurs discover new opportunities while others do not (Intersection E[4]) (Kirzner, 1979; Knight, 1921). A cognitive perspective may provide important insights into understanding how entrepreneurs use specific information to make leaps in the development of an enterprise. By combining new information with entrepreneurial logic (Baron, 1998; Busenitz & Barney, 1997), entrepreneurs can develop hunches about how a new variable such as a technological breakthrough or an environmental change will impact a specific project long before it can be methodically and rationally explained. Amore rational or normative approach requires an investment in information that tends to be very costly, time-intensive, and therefore inhibiting of the entrepreneurial process.

Second, we think that the cognitive perspective can help us better understand why entrepreneurs develop the organizations that they do with varying levels of success (Intersection H). We suspect that the heuristic-based decision style of entrepreneurs leads them to think in less structured and less systematic ways, and thus they are likely to establish organizations reflecting these characteristics. With a more structured organization, entrepreneurs are likely to feel constrained and unable to navigate through the opportunities and obstacles that start-up rms typically face. While there are no doubt weaknesses associated with less structure, we suspect that flexibility provides many advantages during the early stages of organizational growth. Furthermore, what is good or perhaps even necessary for one stage of an organization may later be a detriment. We propose that future research investigate the interrelationship between entrepreneurial cognition and organizing modes. For example, can entrepreneurs with their entrepreneurial cognition become more formal and structured as a business grows or do they need to move aside and let more traditional managers direct the growing business (Intersection F)?

Another important question left unanswered is why, faced with an identified opportunity, entrepreneurs will act and non-entrepreneurs will not. We think prospect theory (Kahneman & Tversky, 1979) has significant potential to better enlighten us on how entrepreneurs evaluate risk and why entrepreneurs take extraordinary risk (Intersection E). Prospect theory predicts that risk is based more on the decision-maker's reference point than on probable outcomes (Kahneman & Tversky, 1979). Rather than focusing on current industry standards, we suspect that entrepreneurs tend to focus more on future goals as their reference point, given their future orientation (Bird, 1988). Human capital characteristics such as alternative employment opportunities and psychic income from entrepreneurship (Gimeno, Folta, Cooper & Woo, 1997) may also frequently serve as reference points.

To date, much of the decision-making research within the entrepreneurship domain has relied on post hoc methodologies, such as questionnaires, surveys and interviews, to query entrepreneurs on how they made various decisions. While insightful and undoubtedly advancing the field, such an approach introduces a

4 Intersection henceforth refers to Fig. 2.

number of possible errors and biases (cf. Huber & Power, 1985; Shepherd & Zacharakis, 1997). We argue that triangulating post hoc methods with real time techniques, including protocol analysis (e.g. Sarasvathy, 2001), conjoint analysis (Shepherd, 1999), and policy capturing (Zacharakis & Meyer, 1998), can advance the field of entrepreneurship. These methods can be revealing of entrepreneurs' underlying cognitive structures.

While an emphasis on cognition and decision-making points to the individual as the level of analysis, other levels may also be relevant. For example, the team (such as the founding team or the R&D team) represents an important level of analysis; investigating "social cognition" in teams of entrepreneurs may be an important contribution. This is especially the case when the social cognition of entrepreneurial teams is investigated at the nexus of another category. For example, the intersection of team leadership and team diversity or environmental factors may offer insights about social cognition and propensity to discover business opportunities.

Start-up Factors of Production

In addition to the creation of new technologies, entrepreneurship generally involves the combining of resources to initiate new business activities (Schumpeter, 1934). The early assimilation of the necessary resources and start-up factors of production, sometimes referred to as strategic factor markets (Barney, 1986), invites further inquiry. Given that an entrepreneurial idea by definition has yet to be recognized and accurately valued by the market, can various factors of production be purchased more reasonably? In the context of specific strengths that entrepreneurs typically have, to what extent are they able to recognize in a realistic manner the combination of resources that constitute an opportunity? How do entrepreneurs with superior skills in one or two areas obtain the necessary inputs for a balanced push and organization (Intersection F)? Given that obtaining additional resources is frequently necessary to launch a business, strategic factor market theory holds interesting potential for probing this intersection.

It is important to point out that a strategic factor alone frequently does not create value (entrepreneurial rents) but value can be created by bundling strategic factors in such a way that the bundle becomes rare, valuable, not substitutable, and inimitable (Barney, 1991). Why are some individuals able to create new business activities by accumulating and then bundling resources while others cannot or do not? (Intersection E). Dierickx and Cool (1989) argue that rms may acquire imperfect substitutes for the desired input factor(s) and adapt them to the specific use it intends. Are at least some entrepreneurs better at bootstrapping together the necessary resources and bundling them together in a manner that creates future goods or services (Intersection G)? It appears that uncertainty surrounding a particular (re)combination of resources is the reason why an opportunity (B) can exist in its current form, i.e. without automatically being exploited by others in the environment (D). Consistent with earlier statements, we suspect that entrepreneurial cognition is positively related to an individual's ability to correctly pierce the fog of uncertainty. We think that probing these questions holds great

potential for a better understanding of the entrepreneurial process and how entrepreneurs exploit their new ideas.

Information Processing and Network Theory

We know that in markets characterized by disequilibrium and dynamic change, entrepreneurs become alert and develop knowledge by making deliberate informational investments that others do not (Fiet, 1996; Hayek, 1945). Therefore, attention paid to the nature of information, and the process by which information is gathered and evaluated may be particularly appropriate for understanding the antecedents and consequences of entrepreneurial action. This line of inquiry acknowledges the knowledge and information flows among members of an entrepreneurial network. Relief is provided from the dominant perspective that entrepreneurial entities (e.g. individuals, rms, populations) are discreet, stand-alone parties.

At the nexus of individuals and opportunities (Intersection E), many questions exist that may profitably be explored using an information processing perspective. For example: what sources of information have entrepreneurs tapped in to, and with whom do they share, refine, and assemble bits of information to create a new coherent view of opportunity? Can individuals truly discover opportunity within their existing network of friends and associates, or does the identification of opportunity rely upon the acquisition of information that is outside that network? How sharply defined is the knowledge about new opportunities at the outset, and how does continued information gathering further shape opportunity as new venture organizing efforts proceed (West & Meyer, 1997)? Can information feedback loops associated with learning (e.g. Argyris & Schön, 1978) help describe the process of opportunity identification?

When an entrepreneur seeks to formalize an opportunity into a new rm (Intersection H), information processing is also critical. For example, it may be asked: how do founding entrepreneurs identify and communicate with venture capitalists, banks, and angel investors in order to secure financial capital? How are their ideas and vision presented to others in order to attract human capital and other enabling strategic factors? The process often involves networking (Dubini & Aldrich, 1991) in order to locate the most receptive or knowledgeable individuals. What kinds of information are appropriate to share with each audience, and what kind of information that is at the intellectual core of the new venture should be protected and not revealed? Such questions imply that entrepreneurs act as information brokers (Hilmy, 1992) in order to accomplish the goal of founding and organizing a company. These ideas suggest that a better understanding of information content and flows among an entrepreneur's varied networks may reveal many facets of a new rm's startup and performance.

An information and knowledge flows orientation would recommend the use of network analysis methods (e.g. Scott, 1991) in future research. Information flows in an entrepreneurial network depend on structural characteristics such as the size and types of connections in the network, density and centralization (e.g. the importance of central individuals and gatekeepers for the continued flow of information), the importance of connections between different social groups in the

diffusion of new information and innovations (Granovetter, 1973), and the extent to which individuals bridge "structural holes" between different network clusters (Burt, 1997).

Viewing entrepreneurship in terms of networks and information flow can provide a synthetic view of different theoretical perspectives, and of the multi-level nature of the entrepreneurship phenomenon. For example, this approach would argue that information networks are an intervening construct between individuals and rms. Individuals' characteristics and heuristics affect their network behavior, which in turn impacts rm organization and performance. Moving between rm and population levels, the establishment and growth of vital networks in entrepreneurial communities provides support for and spurs new venture formation. A new venture itself may be viewed as a particular aggregation of knowledge, in the form of an experienced and knowledgeable top management team recruited (or "owing") from the industry or community. In each of these transitions (individual- rm, rm-population, population-rm) the same network analysis variables described above may be usefully employed to better understand relationships. Thus an information processing perspective, together with network analysis methods and techniques, presents an opportunity for entrepreneurship research at the meta-level of analysis.

The Temporal Dynamics of Entrepreneurship

All the intersecting domains of Fig. 2 are embedded in temporal dynamics. While most business activities involve time, Bird and West (1997) argue that temporal issues uniquely and explicitly characterize the entrepreneurial process. New opportunities rarely if ever emerge in a rational and predictable fashion but rather in the context of much uncertainty and long-term horizons.

Since time is an important dimension of the discovery, creation, and exploitation process (Baron, 1998), it becomes imperative for researchers to better understand related phenomena. For example, assuming that one's temporal orientation and the ability to span multiple time-horizons vary by individuals (Jaques & Cason, 1994), are entrepreneurs more likely to have the ability to span multiple horizons than their average counterparts? If so, then we suspect that it would be very informative to understand the extent to which such perspectives are based on history, future orientation, or some combination of the two.

Entrepreneurship also raises important research questions such as time constraints and brief windows of opportunity. Both the information processing and decision theory perspectives highlight the paths that entrepreneurs follow in identifying and evaluating opportunities. These can be built upon with a temporal orientation. For example, when does or should an entrepreneur act? Why are some individuals (entrepreneurs) able to act more quickly than others (intersection E)? Furthermore, is speed in strategic decision making associated with different time-horizons and how do these dimensions affect entrepreneurial discovery, creation and exploitation?

Once a potential opportunity is discovered, the entrepreneur must typically decide whether to gather more information to make a more accurate decision on the

"attractiveness" of the opportunity or simply deal with the uncertain opportunity before the window of opportunity closes (Shepherd & Levesque, 2002). Under such time constraints, making fast decisions and using heuristics (Intersection E) or organizational processes (Intersection G) to speed the decision process may be highly beneficial and help us better understand why some entrepreneurs act more quickly (Busenitz & Barney, 1997, Eisenhardt, 1989).

The intersection between individuals and mode of organizing may also provide important insights into entrepreneurs' ability to act promptly. On an ongoing basis the mode of organizing likely affects the temporal portfolio of options pursued, the pacing of activity, the synchronization of rm development with temporal windows of opportunity, and the rate of growth (Intersection H). These issues suggest that time represents an opportunity for entrepreneurship scholars as well as numerous methodological challenges. One challenge is to design studies that capture the entrepreneurial process over time. Options exist with experimental designs that manipulate time to simulate the entrepreneurial environment and with event history analysis that can track changes with censored data in entrepreneurial actions as the external environment evolves.

Commentary

Given the growing popularity of entrepreneurship on a variety of fronts (e.g. degree programs at the undergraduate and graduate levels, membership in the Entrepreneurship division of the Academy of Management, the number of endowed chairs and professorships), we expected to see a meaningful upward trend in the number of entrepreneurship articles appearing in major management journals. We did not find strong evidence for this supposition. While there are signs of entrepreneurship's recognition within management (e.g. the recent special journal issues on international entrepreneurship (*AMJ*) and privatization and entrepreneurial transformation (*AMR*)), entrepreneurship's empirical and theoretical development within the management domain remains in the early stages. We conclude that entrepreneurship must develop its capability to probe interesting and important issues from a solid foundation of entrepreneurship theory to claim a respected and more well-developed voice in management's conversation.

Much more theoretical work is needed to map a course of study and adequately develop boundaries unique to the entrepreneurship domain. With only a handful of theoretical articles on entrepreneurship published in major management journals in the past 15 years, our potential for a vibrant conceptual discussion is severely restricted. We face two obstacles to building this theoretical foundation. First, dialogue has just begun regarding the questions appropriate to define entrepreneurship (Shane & Venkataraman, 2000; Venkataraman, 1997). Second, it is obvious to those working within entrepreneurship-but perhaps not obvious to those outside the field-that entrepreneurship commonly manifests as a multi-level phenomenon (Davidsson & Wiklund, in press; West, 1997). Given that authors and reviewers may not be trained in multi-level theory or research, moving comfortably between and among the individual, group, rm, and population level of analysis becomes a

challenging undertaking. These factors, alone and in combination, make it more dif cult for scholars to embark on entrepreneurship research that will win publication space in leading general management journals.

In answer to these realities, we suggest that entrepreneurship scholars focus efforts on the nexus of entrepreneurial opportunities, enterprising individuals or teams, and mode of organizing within the overall context of dynamic environments. We have provided many examples of research questions that hold promise for addressing important questions within the domain of entrepreneurship. The good news is that an abundance of opportunities exist for scholars as the field of entrepreneurship moves through its emergent stage.

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Appendix. List of articles examined[5]

Journal of Management: Mainiero (1986) - [F]; Begley and Boyd (1998) - [A]; Biles, Bolton and Di Re (1989) - [E]; Cotcher (1992) - [I]; Lengnick-Hall (1992) - [C]; Russel and Russel (1992) - [C]; Dollinger and Golden (1992) - [D]; Jones and Butler (1992) - [C]; Morris, Avila and Allen (1993) - [H]; Mosakowski (1993) - [C]; Hill and Levenhagen (1995) - [F]; Shane (1996) - [D]; Castrogiovanni (1996) - [C]. Shane (1997) - [I].

Organization Science: Rosenbla, Zehava, Nord and Walter (1993) - [C]; Day (1994) - [F]; Farjoun (1994) - [C]; Baum and Singh (1994) - [F]; Budros (1994) - [F]; Eisenhardt, DesMarteau and Shoonhoven (1996) - [C]; Galunic, Eisenhardt and DesMarteau (1996) - [C]; Richardson (1996) - [C]; Luo (1997) - [C]; Arino and de la Torre (1998) - [C]; Sedaitis (1998) - [F]; Jones, Hesterly, Fladmoe - Lindquist, Borgatti and Stephen (1998) - [C].

Management Science: Roberts and Hauptman (1987) - [C]; Segev (1987) - [C]; Horwitch and Thietart (1987) - [C]; Kazanjian and Drazin (1989) - [I]; Jewitt (1989) - [A]; Amit, Glosten and Muller (1990) - [A]; Thompson and Horowitz (1993) - [C]; Dowling and McGee (1994) - [C]; Bitran and Mondschein (1996) - [C]; Shane and Foo (1999) - [D]; Shepherd (1999) - [C].

Administrative Science Quarterly: Carrol and Mosakowski (1987) - [A]; Louis, Blumenthal, Gluck and Stoto (1989) - [G]; Boeker (1989) - [F]; Romanelli (1989) - [C]; Schoonhoven, Eisenhardt and Lyman (1990) - [G]; Krackhardt (1990) - [A]; Chen and Meindl (1991) - [F]; Larson (1992) - [C]; Nee (1992) - [D]; Gimeno, Folta, Cooper and Woo (1997) - [F]; Baum and Haveman (1997) - [C]; Ocasio (1999) - [F]; Ashcraft (1999) - [F]; Abrahamson and Fairchild (1999) - [F].

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5 The letters in brackets [ ] correspond to the various categories in Fig. 2.

Academy of Management Journal: Miller (1987) - [C]; Boeker (19 89) - [F]; Kalleberg and Leicht (199 1) - [A]; Drazin and Kazanjian (1993) - [A]; Permings, Barkema and Douma (1994) - [C]; Browning, Beyer and Sheller (1995) - [C]; Frese, Kring and Soose (199 6) -[A]; Sapienza and Korsgaard (1996) - [C]; Zahra (1996) - [C]; Dickson and Weaver (1997) - [F]; Gersick (1994) - [F]; Welbourne and Cyr (1999) - [C].

Academy of Management Review: Gartner (1985) - [F]; Bowen and Hisrish (1986) - [A]; D'Amboise and Muldowney (1988) - [C]; Bird (1988) - [A]; Katz and Gartner (1988) - [F]; Jacobson (1992) - [G]; Aldrich and Fiol (1994) - [D]; Lumpkin and Dess (1996) - [F]; Cable and Shane (1997) - [C]; McGrath (1999) - [G].

Strategic Management Journal: Birley (1986) - [D]; Cooper and Dunkelberg (1986) - [F]; Bracker and Pearson (1986) - [C]; Bracker, Keats and Pearson (1988) - [C]; Lafuente and Salas (1989) - [F]; Covin and Slevin (1989) - [C]; Feeser and Williard (1990) - [C]; Shan (1990) - [C]; Fiegenbaum and Karnani (1991) - [C]; Mosakowski (1991) - [C]; Garud and Van De Ven (1992) - [C]; Naman and Slevin (1993) - [C]; McDougall, Covin, Robinson and Herron (1994) - [C]; Dodge, Fullerton and Robbins (1994) - [C]; Stopford and Baden-Fuller (1994) - [C]; McGee, Dowling and Megginson (1995) - [C]; Metz and Sauber (1995) - [C]; Stone and Brush (1996) - [C]; Birkinshaw (1997) - [G]; Dess, Lumpkin and Covin (1997) - [C]; Robinson and McDougall (1998) - [C]; Dean, Brown and Bamford (1998) - [D]; Arend (1999) - [B]; Barringer and Bluedorn (1999) - [C].

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Many are Called, but Few are Chosen: An Evolutionary Perspective for the study of Entrepreneurship*

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Abstract

More than a decade ago, Low and MacMillan identified three elements indispensable to an understanding of entrepreneurial success: process, context, and outcomes. Since their critique, three important advances include (a) a shift in theoretical emphasis from the characteristics of entrepreneurs as individuals to the consequences of their actions, (b) a deeper understanding of how entrepreneurs use knowledge, networks, and resources to construct firms, and (c) a more sophisticated taxonomy of environmental forces at different levels of analysis (population, community, and society) that affect entrepreneurship. Although our knowledge of entrepreneurial activities has increased dramatically, we still have much to learn about how process and context interact to shape the outcome of entrepreneurial efforts. From an evolutionary approach, process and context (strategy and environment) interact in a recursive continuous process, driving the fate of entrepreneurial efforts. Thus, integrating context and process into research designs remains a major challenge. Such integration constitutes a necessary step to a more complete evolutionary approach and a better understanding of entrepreneurial success.

In entrepreneurship, as in the biblical story, many are called but few are chosen. Although the propensity to entrepreneurship varies from one society to another, a universal constant is that no matter how many entrepreneurs emerge, most do not succeed in creating lasting organizations. As Low and MacMillan (1988: p. 142) noted, "the list of potential pitfalls associated with starting a new venture appears limitless." Understanding how and why some entrepreneurs succeed remains a major challenge for the entrepreneurship research community.

No one doubts the importance of entrepreneurship, but the merits of specific approaches to its study have been the subject of prolific debate. In the paper that gives unity to this issue, Low and Macmillan (1988) explicitly asked two questions: what exactly should we be studying about entrepreneurship, and how should we be doing it. In their attempt to specify a theoretical perspective for the study of entrepreneurship, Low and Macmillan (1988: p. 142) pointed out a basic evolutionary principle: entrepreneurs are socially important not because they exist, but

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because they succeed in creating organizations. As intellectually stimulating as it may be to find out what motivates entrepreneurs and how they differ from ordinary mortals, the more critical question is how these individuals manage to create and sustain successful organizations, despite severe obstacles.

Toward this end, Low and MacMillan identified two indispensable elements of entrepreneurship theory and research. First, any theoretical model or research design should integrate the outcomes of entrepreneurial efforts and the processes that led to those outcomes. Second, understanding entrepreneurial success requires that we consider the social context in which entrepreneurs develop their efforts.

By insisting on the inclusion of context, process, and outcomes in our theoretical models and research designs, Low and MacMillan (1988: pp. 156–157) implicitly pointed out the need for an evolutionary approach. Evolutionary theory unites in a single coherent framework a concern for entrepreneurial outcomes and the processes and contexts making them possible, using the basic concepts of variation, adaptation, selection, and retention (Aldrich, 1999). 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).

In arguing for the value of an evolutionary approach, we are not broaching a new idea. Indeed, Low and MacMillan mentioned several previous articles (Aldrich and Auster, 1986; Hannan and Freeman, 1977) that suggested such a possibility. In this article, we survey the past decade and evaluate the extent to which evolutionary theoretical developments and empirical research have advanced our comprehension of entrepreneurial activities. In other words, have we used our time wisely? What are the next steps to be taken? We focus first on theoretical models and then turn to issues of processes, contexts, and outcomes.

Theoretical Advances

Theory, as an interpretive lens, profoundly influences our capacity to understand phenomena. One powerful traditional interpretation that Low and MacMillan roundly criticized was a concentration on entrepreneurs as objects of study by themselves. Classical romantic views of entrepreneurs hid the fact that most achieve only modest success and that success does not depend entirely on the capacities of individuals. As a new theoretical approach, evolutionary theory contributes another interpretive lens by calling attention to the complex and chaotic world of entrepreneurial activities.

Two small but significant theoretical developments, in our opinion, play a central role in the demystification of entrepreneurs. First, the concepts of “nascent entrepreneurs” and “entrepreneurial cycles” emphasize that most would-be entreneurs never succeed in actually creating organizations (Reynolds and White, 1997). Second, the distinction between “innovation” and “reproduction” in

entrepreneurial activities helps us see that innovation and entrepreneurship are not necessarily coupled, and that entrepreneurs are subject to the same social pressures and constraints as other individuals.

Nascent Entrepreneurs

First, the concept of a "nascent entrepreneur" captures the flavor of the chaotic and disorderly founding process. A nascent entrepreneur is defined as someone who initiates serious activities that are intended to culminate in a viable business startup (Reynolds, 1994). In evolutionary terms, nascent entrepreneurs are a major source of organizational variations, beginning with their intentions and continuing through their activities oriented toward a realized founding. Each year, between four and six percent of the working population in the United States take action to start a new venture, and about 40 percent of American adults experience spells of self employment in their lifetime (Reynolds and White, 1997).

The entrepreneurial cycle has four phases – conception, gestation, infancy and adolescence – that capture three transitions in entrepreneurial efforts: from an adult with a business idea to an individual entrepreneur, to a fledgling firm, and, finally, to an established new firm (Reynolds, 1994). The first transition occurs when someone begins thinking about trying to start a new business, alone or with others, and actually engages in activities to further that objective. Operationally, someone becomes a nascent entrepreneur if they not only say they are currently giving serious thought to the new business, but also are engaged in at least two entrepreneurial activities, such as looking for facilities and equipment, writing a business plan, investing money, or organizing a startup team.

The transition between a "nascent entrepreneur" and a "fledgling firm" is not a simple one. In many cases, nascent entrepreneurs' initial ideas fizzle out because their intentions were misguided or they could not mobilize needed resources. Many also cannot achieve the level of control necessary for gaining dominion over their organization's boundaries. The founding process often appears chaotic, complex, and compressed in time, due to extreme selection forces. Thus, many organizing attempts fail.

Foundings that survive typically adopt the existing routines and competencies of the population they join, but some may create new ones. All struggle to hold their place in the niche. Only half of all potential founders succeed in creating an enterprise, and fewer than one in ten of them are able to make their organizations grow significantly (Duncan and Handler, 1994; Reynolds and White, 1997). At any given time, then, we observe only a surviving fraction of a much larger pool of startups begun but abandoned by nascent entrepreneurs (Katz and Gartner, 1988).

Why are the ideas of an entrepreneurial cycle and a nascent entrepreneur important? Failure to appreciate the level of turnover and turbulence in populations has blinded social scientists and public policy experts to the organizational fermentation simmering just below the surface in modern societies. Past research has focused mainly on the prominent exceptions of organizations that manage to survive and grow, rather than the ubiquitous efforts that fail. The entrepreneurial cycle

concept forces researchers to consider new firms as just one possible outcome (and indeed not the most common) of the entrepreneurial process. Most entrepreneurial efforts do not result in the formation of an organization, and even when they do, the resulting firm is often quite small and short-lived. Nonetheless, the many attempted startups, as well as an occasional moderately successful firm, augment the bubbling cauldron of organizational soup so vividly described by Kaufman (1985).

Innovators and Reproducers

Second, the distinction between "innovators" and "reproducers" also enhances our understanding of entrepreneurship (Aldrich and Kenworthy, 1999). Although new firms may bring new products, structures, ideas, and processes to industries and markets, not all entrepreneurs and their firms qualify as innovators. On a continuum between the two poles of reproducer and innovator, reproducer organizations are defined as organizations whose routines and competencies vary imperceptibly from those of existing organizations in established populations. They bring little or no incremental knowledge to the populations they enter, organizing their activities in much the same way as their predecessors.

Innovator organizations, by contrast, are those organizations started by entrepreneurs whose routines and competencies vary significantly from those of existing organizations (Picot et al. 1989). Many such organizations will not survive, as their departures from existing routines and competencies are unworkable or fall outside current selection criteria. For example, many attempts to combine resources in new ways are fatally flawed. In fact, most entrepreneurs, either by choice or because of the strength of selection mechanisms, simply reproduce the structures, competencies, and routines of pre-existing organizations. Thus, most nascent entrepreneurs start as small reproducers and not as innovators.

In an evolutionary approach, the continuum from reproducer to innovator is defined by outcomes, not intentions (Aldrich and Kenworthy, 1999). Some entrepreneurs consciously intend to depart from existing knowledge, whereas others give it no thought. Irrespective of intentions, individuals face a tension between deviating from existing routines and competencies and conforming to them. As Campbell (1982) noted, playfulness and experimentation are natural human impulses that have extraordinary strength and persistence, enabling people to generate variations of great utility. However, people's tendency to defer to the beliefs of others blunts the full expression of these impulses.

Founders who begin as innovators usually build on or enhance existing routines and competencies, which can then be adopted by existing organizations (Schmookler, 1962; Tushman and Anderson, 1986). Consequently, even innovative start-ups face a competitive disadvantage because existing organizations can easily blend competence-enhancing innovations into their operations. This scenario leads to a very pessimistic view of innovation and its rewards for entrepreneurs. Even in cases where entrepreneurs provide meaningful and important innovations, they may not gain a clear advantage for survival.

However, competence-destroying innovations *do* give entrepreneurs very clear competitive and survival advantages. Competence-destroying innovations require new knowledge, routines, and competencies in the development and production of a product/service. They fundamentally alter the set of relevant competencies required of an organization. Accordingly, they put existing organizations at a disadvantage, because such organizations are often not flexible enough to change. By contrast, because the main advantages of start-ups are their flexibility and their ability to change, they can easily over-run their slow and rigid "big sisters."

The distinction between innovators and reproducers represents a big step forward in the demystification of entrepreneurs. Innovation is not a characteristic of the individual entrepreneurs, but of their actions (Gartner, 1988). Overestimating the innovating capacity and personal traits of entrepreneurs has hidden the major role of imitation in entrepreneurial processes. Evolutionary theory calls our attention to the numerically dominant role of reproducers, rather than innovators.

Empirical Advances

Although the development of theoretical elements more in concert with the real processes and contexts of entrepreneurial activities is important, we also need to assess the empirical findings of the discipline. Following the recommendations offered by Low and MacMillan, several questions deserve more attention. First, how do entrepreneurs obtain and apply the knowledge used to acquire and exploit resources? Second, under what circumstances do these practices lead to success? The first question directs us to explore the world of managerial action, where entrepreneurs define and develop organizations through strategic choices. The second question presumes that organizations, new or old, do not exist in a vacuum and are subject to the pressures and constraints of their environments. Organizational survival does not depend on strategic choices or environmental forces alone, but rather on the degree of fit between entrepreneurial efforts and environmental forces.

We divide our review of this literature into three main areas. First, we explore a few strategic choices that entrepreneurs make to create new organizations. Second, we review our understanding of environments. Third, we examine the degree to which process and context have been integrated into a more complete understanding of entrepreneurial success.

Process: Constructing New Organizations from Knowledge and Resources

What do we know about the process of creating a new firm? The transformation of an idea into an organization requires that entrepreneurs acquire resources, and as Greene and Brown (1997) noted, the success or failure of a new venture is affected by its resource profile. Although many typologies of resources and forms of capital have been developed, we believe that there are three essential elements for the success of nascent entrepreneurs: human capital, financial capital, and social

capital. The creation of a new firm requires a certain amount of knowledge that can be obtained by formal education, previous experience, or informal training. Entrepreneurs also require financial capital in order to obtain the inputs (labor, raw materials, information, etc.) necessary for the production of their goods or services and to sustain them during the unavoidable period in which their efforts do not produce profits. Finally, entrepreneurs must also develop social networks to gain access to the information, knowledge, financial capital and other resources that they do not possess. During the last decade, researchers have gained a greater understanding of the role played by these resources in the process of creating new firms or expanding existing ones.

Knowledge. A fair amount of human capital can be easily obtained from the socialization process experienced by all individuals in a particular society. Modern societies have fundamental rules of organizing that exist as cultural products, but particular strategies of action differ across societies. Resources for constructing strategies of action are generated by "the symbolic experiences, mythic lore, and ritual practices of a group or society [that] creates moods and motivations, ways of organizing experience and evaluating reality, modes of regulating conduct, and ways of forming social bonds" (Swidler, 1986: p. 284). In the United States, for example, people who are trying to get something done are very likely to create voluntary social movements. Nonetheless, founders also need specific resources, in addition to this general knowledge.

How do founders know what resources to pursue? Because most founders simply try to reproduce the most common forms in the populations they enter, much of the knowledge they require is widely available. They can obtain it from established organizations, industry experts, trade publications, newsletters, experience as an employee of an organization in the population, on-line databases, and early hires who have worked in the industry. Three of the most likely sources of entrepreneurial knowledge are previous work experience, advice from experts, and imitation and copying (Vesper, 1996).

Forms of knowledge acquisition for entrepreneurial activities differ somewhat from other areas of social life. In particular, the founding of a new organization often requires nascent entrepreneurs to improvise. As founders move deeper into the founding process, they must occasionally recall, develop, and apply knowledge under extreme time pressures (Moorman and Miner, 1998). The narrow time frame between conception and execution during founding compresses many activities that would otherwise be stretched out over longer periods in established organizations. Managers often have the luxury of contemplating their options, whereas entrepreneurs must act with little time for reflection. The short cycle between action and feedback provides many more opportunities for learning than managerial work in established organizations (Sitkin, 1992).

During the improvisation process, many occasions arise for blind variations and creativity, thus opening a window of opportunity for innovative organizational forms to emerge (Lant and Mezias, 1990). Due to the trial and error cycle inherent in any improvisation, the entrepreneurial process is a non-institutionalized form of acquiring human capital. In this sense, even when entrepreneurs are unable to

create a long lasting organization, their efforts are rewarded by the acquisition of unique knowledge that can be used by them or other entrepreneurs in subsequent founding attempts.

Managers and entrepreneurs also differ in the way they apply and evaluate their knowledge and capabilities. Instead of applying rational and scientific principles, entrepreneurs often rely on cognitive biases and heuristics. In the context of a decision making process, biases and heuristics are cognitive mechanisms and subjective opinions that guide behavior (Busenitz and Barney, 1997). The two most distinctive biases of entrepreneurs are overconfidence and representativeness. In their daily operations, entrepreneurs usually overestimate their capabilities and often generalize about a person or a phenomenon based on a few observations. In established firms, such behavior may lead to important strategic mistakes, and nascent entrepreneurs face the same threat. However, relying on incomplete information and cognitive heuristics may be the only way to overcome the incredible obstacles facing a new firm.

Financial Capital, Employees and Other Resources. Dominating all other statistics on new organizations is one inevitable fact: most new ventures begin small. Information from nationally representative sources reveals that few resources, other than knowledge, are available to most new organizations. Because initial endowments are critical to organizational survival, organizations that begin with limited resources are at high risk of early disbanding (Baum, 1996: 79–81; Fichman and Levinthal, 1991). A larger stock of initial endowments may give some founders an advantage that carries them through the difficult early months and years of a founding (Levinthal, 1991; Levinthal and Fichman, 1988). For example, Brüderl et al. (1992) found that the likelihood of disbanding among small businesses was strongly affected by their initial size.

Most businesses not only start small but also change little, if at all, over their lifetimes (Aldrich and Auster, 1986). Most firms never add more employees, and of the minority that does grow, only 3 percent add more than 100 employees (Duncan and Handler, 1994; Spilling, 1996). Resource requirements at founding are thus fairly modest and capital requirements for start-ups are small. In 1987, the Bureau of the Census (1987) conducted a special survey to ascertain the amount of original capital owners needed to start or acquire their businesses. Two points stand out. First, most owners required less than $5,000 to start their businesses – 57 percent of the men and 65 percent of the women. Second, only a small percentage required more than $100,000 – about 4 percent of the men and 2 percent of the women. Less than half of 1 percent of either group required a million dollars or more.

Most nascent entrepreneurs draw upon their own savings and personal assets in constructing their organizations. Few manage to scrape together sufficient resources to give themselves a financial cushion in their early days. Although some economists have argued that liquidity constraints – lack of funds – inhibit people from attempting to start businesses, the issue is still under debate. For example, Dunn and Holtz-Eakin (1996), in a nationally representative longitudinal survey study in the United States, found that level of personal assets did not predict which

respondents would enter self-employment. Indeed, many entrepreneurs find ways around their lack of funds. However, Blanchflower and Oswald (1998) argued that the probability of self-employment depends heavily on whether someone has ever received an inheritance or gift. Surveys consistently find that potential founders complain most often about the limited availability of capital. In any case, most nascent entrepreneurs begin with almost nothing in the way of assets.

Even though most begin with almost nothing, nascent entrepreneurs do not depend on charity for their survival. Entrepreneurs, as sense-making agents, pursue goals that shift as some resources prove unattainable and others fall into their laps. Their ability to obtain resources reveals to them how other people evaluate them, and negative assessments cause many entrepreneurs to drop out of the process. Nonetheless, a few succeed in assembling what they need, gaining enough control over resources to protect them from other users.

Social Capital. The concept of social capital is used to describe the instrumental benefits of social relationships (Aldrich, 1999: 81–88). Although not always accumulated with a particular purpose, social capital may help entrepreneurs in their efforts. Social capital is important because it allows individuals to obtain resources that are otherwise unavailable to them, such as knowledge, capital, clients, and access to suppliers. Three different dimensions determine the value of social capital: social resources, network position and the strength of the relationship (Lin, 1999). A network of social relationships is valuable to entrepreneurs because of the amount of resources that their contacts posess. The location of entrepreneurs within the larger community network also affects their ability to acquire resources (Burt, 1992).

Finally, the strength of the relationship with contacts may also affect the benefits that entrepreneurs obtain from their network. Many of the empirical findings mentioned by Low and Macmillan regarding the role of networks have been confirmed in the last ten years: entrepreneurs still require diverse network ties to obtain access to a wider circle of information about potential markets, new business locations, innovations, sources of capital, and potential investors. By a diversity of ties, we mean contacts that occupy differing social locations. Diversity is important because ties with more than one person with similar characteristics do not provide access to new information, and thus entrepreneurs with greater diversity in their personal networks obtain more novel information than those with restricted networks (Burt, 1992).

Recent research has also confirmed that strong ties (ties with high levels of trust and emotional closeness between two individuals) sometimes help nascent entrepreneurs in their efforts. Most business owners report 3 to 10 strong ties. This small number reflects the difficulties people have in maintaining strong ties. Most entrepreneurs' strong tie networks consist of a majority of business associates, a few close friends, and one or two family members (Aldrich et al. 1996).

Entrepreneurs draw on two kinds of social capital: one obtained from their family of origin and one developed by the individual (Greene and Brown, 1997). The need for this distinction has been empirically confirmed by studies showing that family members are not as important for entrepreneurial success as previously

believed. Only members of a few ethnic minority groups can count on financial support from family members (Aldrich et al. 1996; Bates, 1997; Renzulli, 1998; Zimmer and Aldrich, 1987). Indeed, relying too heavily on family members may put a nascent entrepreneur at a disadvantage (Renzulli, 1998). A panel study in the Research Triangle Area of North Carolina found that the greater the proportion of kin members in a nascent entrepreneur's business discussion network, the lower the odds of that person actually starting a business (Renzulli et al. 1998).

Greene and Brown (1997) proposed that different kinds of entrepreneurial efforts require different levels of family and individual social capital, depending on the degree of innovation and the rate of growth. Companies that have low rates of growth and are not particularly innovative tend to be based on social capital from the family. Highly innovative-rapid growth firms, on the other hand, rely on the use of individually developed social capital. Firms that have high rates of growth but are not particularly innovative rely on both family and individually developed social capital. Although these propositions are promising, they need to be embedded in an explicit evolutionary approach. For example, evolutionary theory would lead us to ask if social capital is a response to the levels of innovation and growth, or if the original profile of social resources determines the growth and the innovation levels of a particular firm.

In recent years, researchers within the network tradition have tried to empirically test the usefulness of different network strategies. In his study of the apparel industry in New York, Uzzi (1997) found that high degrees of embeddedness between an organization and its suppliers improved the survival capabilities of these organizations. However, too much embeddedness had negative effects on survival chances. Thus, some dependence on close and more exclusive relationships between an organization and its suppliers helped organizations, but too much closeness and complete exclusivity jeopardized their survival. In similar line of work, Keister (1998) found that hierarchical relationships with other "sister" organizations decreased the ability of firms to perform effectively. She found that in Chinese groups, firms belonging to a relatively democratic non-hierarchical group had higher levels of efficiency and performance.

Finally, the important role of brokers is another aspect of social networks whose importance has been highlighted by research in the last ten years. Not all nascent entrepreneurs have direct linkages with people who may be important for their needs. *Indirect* links with people in advantageous social locations can be created through the work of brokers. For example, venture capitalists often play broker roles because they bring together technical experts, management consultants and financial planners to supplement an entrepreneur's limited knowledge and experience.

Our brief review highlights three very important advances in our understanding of the entrepreneurial process. First, knowledge is just as vital as capital for entrepreneurs, and they are forced to learn at a significantly faster pace than people in non-entrepreneurial organizations. Second, although the availability of resources motivates entrepreneurs and protects them from rough times in the beginning, most startups begin with very little besides knowledge. Finally, the ideal combination for acquiring both knowledge and resources is a blend of diverse and strong connections with other individuals and organizations.

Context: Mapping the Organizational Environment

We have accumulated a great deal of knowledge about the environmental forces and challenges that entrepreneurial ventures face. Much of our knowledge of contextual constraints and opportunities comes from studies focused on populations and/or communities of organizations. As we noted in our discussion of the difference between innovators and reproducers, most organizations are founded within existing and relatively stable populations, imitating the goals, structures, and routines of established organizational forms. A second option for entrepreneurs is to position themselves at one extreme end of the continuum between innovators and reproducers: founding firms that are pioneers in new or emerging populations. We first consider the difference between entrepreneurs in established and emergent populations, and then turn to the community context of entrepreneurship.

Established Populations. Low and MacMillan acknowledged the contribution of population ecology to our knowledge of the contextual elements of entrepreneurship (Aldrich, 1979). Since that recognition, new findings have provided a more complex and sometimes contradictory picture of the impact of environmental forces. Despite controversies in the field, Low and MacMillan's emphasis on the importance of population ecology is very well taken. The environment of any start-up is formed, among other forces, by the characteristics of other organizations in its population. Two linked population characteristics affect the survival and growth chances of firms: population density and relational density.

Although the original measure for population density developed several decades ago was just the number of organizations in a population, researchers have been experimenting with other measures, such as population mass and the size distribution of organizations (Barnett and Amburgey, 1990; Baum and Mezias, 1992; Hannan and Carroll 1992; Hannan and Freeman 1989). From this extensive research, two conclusions can be drawn. First, although density does matter, it does not have the same effect in all populations. Second, no single aggregate measure of density can capture the effects of complex competitive forces on foundings or any other population phenomenon.

Debates on the effects of density have taken an interesting twist in the last twelve years. Some critics claimed that density may be just a proxy variable for other processes (Baum and Powell, 1995; Delacroix and Rao, 1994; Miner, 1993; and Zucker, 1989). Baum and Oliver (1992) issued the most provocative of these challenges. They assumed that density was an imperfect measure for the relationship of a population with its environment and so they created the concept of relational density, defined as the set of direct ties between organizations in a population and their institutional environments. Both population density and relational density are important to entrepreneurs. Individuals trying to create new companies in population with high density will find more opportunities to learn effective knowledge and create extensive social networks, but they will also encounter more intense competition. Relational density, by increasing the legitimacy of a whole population, protects new start-ups from potential constraints (or even attacks) from other social forces.

Emerging Populations. Because populations appear and disappear with great regularity, studying entrepreneurial activities only in the context of relatively stable large populations is a mistake. We also need to study entrepreneurs in emerging populations. Entrepreneurs who create competence-destroying innovations may become the source of an entirely new form of organization, thus potentially initiating a new population. Founders of these very innovative firms operate in situations with few precedents. Such organizations must construct their own niche instead of just occupying an existing one. Potential constraints they will face include the lack of pertinent entrepreneurial and organizational knowledge and the lack of legitimacy for their activities (Aldrich and Fiol, 1994).

The first constraint involves rapid knowledge acquisition under conditions of uncertainty. Because there are few previous founding attempts and therefore no other organizations to imitate, knowledge about possible successful strategies is very limited. Although all startups face uncertainty and the possibility of painful mistakes, such problems take a more acute form for real innovators. The second constraint, concerning legitimacy, is more complicated. Entrepreneurs in uncharted territories lack legitimacy along three important dimensions: cognitive, moral, and regulatory. The lack of cognitive legitimacy refers to the fact that the new product, process, orservice has not yet been accepted as a taken for granted feature of the environment by individuals. Moral legitimacy refers to the conformity of the start-up and its components with cultural norms and values. Finally, regulatory legitimacy refers to conformity with governmental rules and regulations.

More research is needed on the strategies innovative new ventures might follow to overcome both the lack of available knowledge and legitimacy. Aldrich (1999: pp. 223–258) created a taxonomy of possible strategies that can be carried out by new organization within populations, between populations, and within communities. For example, at the level of a population, entrepreneurs can pursue several cognitive strategies. On the learning front, they can deepen their knowledge base by encouraging convergence around a dominant design. On the legitimacy front, they can collaborate to create standard setting bodies. They can also pursue several sociopolitical strategies, such as fostering perceptions of reliability by mobilizing to take collective action in crises, and by presenting a united front to political and governmental officials. Notice that all of these strategies are linked with the topics we reviewed in our previous section: acquiring knowledge through experimentation, creating and using network linkages, and accumulating resources (human and otherwise) to overcome difficulties.

Communities. Following Hawley (1950), we define a community as "a set of co-evolving organizational populations joined by ties of commensalism and symbiosis through their orientation to a common technology, normative order, or regulatory regime" (Aldrich, 1999: p. 302). Relations between populations in an evolving community simultaneously reflect symbiotic and commensalistic axes. Symbiosis denotes a mutual dependence between dissimilar units, whereas commensalism means that units make similar demands on the environment. A population within a community, and therefore new ventures within it, may relate to other populations that share the same niche by either competing or cooperating with

each other (commensalism). Populations occupying different niches may benefit from the presence of the others (symbiosis). Entrepreneurs must be aware of both commensalistic and symbiotic relationships not only for competitive purposes, but also to detect and use advantages derived from complementary populations.

Societal Influences. Up to this point, we have discussed environmental characteristics related to populations and communities, and we turn now to the level of entire societies. At least two aspects of society shape the environment for organizations: cultural norms and values, and governmental and political activities and policies. Changing norms and values alter entrepreneurial intentions and the willingness of resource providers to support new ventures. Government actions and political events create new institutional structures for entrepreneurial action, encouraging some activities and thwarting others (Dobbin and Dowd, 1997).

Governmental and political activities have particularly strong effects on entrepreneurs. First, political turbulence can disrupt established ties between organizations and resources, rearranging organizational boundaries and freeing resources for use by new organizations (Carroll et al. 1988; Stinchcombe, 1965). For example, the European Union's removal of many barriers to trans-European marketing of goods and services has affected organizations that were not prepared to work in a multi-national space with no formal boundaries. The new conditions encouraged the foundings of new types of organizations (Delacroix, 1993). Second, government regulation affects the fate of organizations through protective legislation and by changing the rules regulating a population.

Public policy shapes the rules of competition and creates niches where investment and entrepreneurial activities seem more attractive. Governments also play a role in regulating populations that involve public goods or affect public welfare. For example, the beer and wine industries have been severely regulated in the US (Swaminathan, 1995; Wade et al. 1998. Swaminathan found that winery laws had a more powerful effect on the foundings of specialist wineries that the forces increasing wine consumption. Finally, macro-economic policy affects entrepreneurs by affecting unemployment levels and economic growth. However, evidence on the effects of economic growth and decline on organizational creation is, at best, weak.

Our understanding of environmental forces affecting organizations has increased dramatically in the last twelve years. Although we now understand more about the environment, it is also true that we are less certain about the effects of environmental forces for particular organizations. Much of the research we reviewed was not originally developed with entrepreneurial activities in mind. Furthermore, the complexity that ecological and evolutionary researchers introduced into their models of the environment makes them more difficult to apply to entrepreneurial development.

Fitness: Relating Process, Context and Outcomes

Despite our advances in understanding the process and context of entrepreneurial activities, we still have a long way to go before achieving Low and MacMillan's

vision. They not only suggested a need to study process and context, but also to integrate them into a coherent theoretical framework. We would like to go a step beyond their statement and suggest that we also need to *empirically* integrate process and context. Interaction between entrepreneurs' chosen strategies and the particular environmental forces they face determine entrepreneurial success or failure. In this respect, Low and MacMillan's critique is still valid: in most ecological and evolutionary studies, strategies are ignored or taken for granted, whereas studies focusing on strategies tend to ignore the existence of evolutionary forces. Either of these alternatives provides a very partial and perhaps inaccurate understanding of entrepreneurial success.

The empirical integration of strategies, environments and outcomes represents an area in which entrepreneurship researchers can learn from colleagues in related fields. For example, Britain and Freeman (1980), Lambkin and Day (1989), and others noticed that organizational forms display a great of variation, and that some forms are more favored in certain environments than others. Ecologists identified two important dimensions for analyzing organizational form: r versus k strategists, and specialists versus generalists.

Low and MacMillan (1988) mentioned the distinction between r versus k strategists as one important advance for research in entrepreneurship. The effectiveness of an organizational strategy depends on the density of a particular environment. Organizations following an r strategy have an advantage in the early stages of the density cycle. R-strategists reproduce rapidly and move quickly to obtain resources. By contrast, k-strategists, which efficiently use their resources but are not necessarily quick in seizing opportunities, have a distinctive advantage under environments with a population approaching carrying capacity.

Although they noted the importance of the r versus k strategy typology, Low and Macmillan (1988) neglected the distinction between "generalists" and "specialists." In their initial formulation, Hannan and Freeman (1977) asserted that specialist organizations concentrate their competence, activities, and fitness on a narrow niche in the larger market or environment. If the environment is relatively stable and the niche is not subject to changing environmental forces, specialists have a strategic advantage. Generalists, on the other hand, spread their competencies and strive to fit in a wider, more complex environment that usually requires them to simultaneously manage different strategies, product lines or even businesses. This wider scope is a strategy that firms use to protect themselves from very uncertain environments; because they are not dependent on the fate of any single activity or business, their chances for survival increase.

The basic formulations of both specialists vs. generalists and r versus k strategists have been empirically tested in the last twelve years. Researchers have also cross-classified the two dimensions to produce a taxonomy of four strategy types: r-specialist, r-generalist, K-specialist, and K-generalist. Carroll (1984, 1985), among others, noted that different organizational forms co-exist within the same population or market. Borrowing from biological ecology, he developed the theory of resource partitioning, which argues that environmental niches are segmented into a portion held by specialists and another by generalists.

Resource partitioning has been empirically documented in studies of the brewing, music, recording, book publishing, and microprocessor industries. All four industries are characterized by economies of scale in production and all have experienced the founding and economic success of specialist producers after the industries were dominated by K-generalists for quite some time (Carroll and Swaminathan, 1992). For example, as concentration increased in the American brewing industry between 1975 and 1990, the disbanding rate of microbreweries decreased, although the disbanding rate for large mass production breweries was unchanged. In the American microprocessor industry, as concentration increased, new entrants in the industry were K-specialists, rather than generalists (Wade, 1995). They served specialist segments of the microprocessor market that placed a premium on high performance.

Although resource partitioning represents an integration of strategy and environmental forces, it is not completely in agreement with Low and MacMillan's vision. Resource partitioning may integrate strategy and environment, but it does not necessarily integrate process and context. We need to go beyond the use of abstract categories such as "specialist" or "generalist" to investigate the way that entrepreneurs, as actors, create such organizations. In fact, we have little systematic knowledge of how nascent entrepreneurs create specialist (or generalist) organizations. Do the entrepreneurs who build generalist organizations, versus those who become and remain specialists, require anything different in their actions or resources? Do nascent entrepreneurs actually have such intentions, and do their intentions matter?

What, then, do we know about the way entrepreneurs use knowledge, resources and social capital in their struggle with environmental forces? Our brief review has provided some hints. However, much of this knowledge is based on limited accounts, which raises two problems. First, evidence from selected populations should only be a first step toward understanding the interactions between environments and strategies, as generalizability should be our final goal. Second, much of this evidence comes from studies of successful organizations, and thus it is tainted with selection bias. Can we really get to know the key features of those individuals who enter the heaven of successful entrepreneurship if we do not see the actions and circumstances of those who "were not chosen"?

Discussion

We have offered a brief review of the advances made toward an integrated and evolutionary study of entrepreneurship. Perhaps the most astonishing advances are in the area of theory. We have moved away from the figure, characteristics, and intentions of entrepreneurs themselves to concentrate more on their actions and the outcomes. By emphasizing the varied actions they take to create and manage their firms, we have achieved a more evolutionary view of entrepreneurial activities. Empirically, we have also gained a great deal of knowledge. We now know more about how entrepreneurs use and acquire knowledge and resources to construct organizations. With regard to selection forces, we have recognized the different

units of analysis (population, communities and societies) that form the environment for entrepreneurs, and have discovered that distinct selection forces emanate from different levels.

The weakest point in the field entrepreneurship is, perhaps, the most important one for an evolutionary perspective and for the integrated vision of a field sought by Low and MacMillan. We understand strategic choices and environmental selection process, but we know far less about how they interact with each other over time. Perhaps the idea of "strategic choice" has gotten in the way of our integration. In reality, strategies are not just choices, but also plans. Strategies are constructed, molded and adapted in processes of interaction with environments. Entrepreneurs have the potential of learning during the process of constructing their firms, based on feedback from their outcomes. It is this feedback process that we still need to understand.

How is it possible to advance so far and yet to have such a long way to go? The answer lies in the reciprocal relationship between theory and research design. An integrated view of the context, process, and outcomes of entrepreneurial activities requires more complex empirical tests. Twelve years ago, testing hypotheses in our field was relatively easy. Entrepreneurial success "depended" on relatively simple and static variables. Complexity was minimized.

Today, integrating process, contexts, and outcomes requires the simultaneous and repeated measurement of complex variables located at different levels of analysis. Endogeneity is an ever-present problem, because many variables have reciprocal causal relationships. For example, feedback from outcomes modifies entrepreneurs' strategies, which, in turn, alter the likelihood of achieving a new outcome. At least in theory, if entrepreneurs learn, then outcomes also shape strategy. Paradoxically, the more we learn as researchers, the more we discover what else we need to know.

The last twelve years have been marked by an exploration of the different dimensions, variables, and issues that an integrated study of entrepreneurship should consider. The main task set by Low and MacMillan, integration, is still unfulfilled. But, how can we accomplish such an overwhelming task? Many of Low and Macmillan's basic recommendations still apply. We need more longitudinal studies that may help us find causal linkages among variables, and that can also provide a picture of on-going adaptation processes. This means that entrepreneurial research desperately requires the collection and creative use of original data. We also need to improve our measurements of environments and strategies. In an evolutionary study, it is not sufficient to imply the existence of selection forces by simply observing the dual outcomes of survival or failure. In the same way, measuring a strategy just by the presence or absence of something (for example, multiple product lines, network relationships, or TQM programs) is an inadequate form of dealing with strategies. If we cannot measure the environmental forces that affect nascent entrepreneurs and the sometimes-subtle changes in response to them, how can we aspire to understand the reciprocal relationships between them?

Following an evolutionary approach, the next step in entrepreneurial research is very clear: we need to stop a posteriori explaining the interaction between strategy and environment and between process, context, and outcomes. Our challenge is to

generate theoretically derived hypothesis, develop measures, collect longitudinal data, and apply state of the art statistical techniques. This is not a small task, but is surely worth our efforts over the next decade.

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The New Venture Decision: An Analysis Based on the GEM Project Database*

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Abstract

The new venture decision is a crucial stage in the process of creating a new business and is influenced by a series of social, demographic, cultural and economic factors, amongst others. These factors have been the subject of several studies, though there is still no widely accepted agreement on exactly how they affect the decision to create a new enterprise. This study will provide evidence on which variables affect the new venture decision, as well as the extent of their influence based on the analysis of a sample of 7524 cases, using information obtained via the Global Entrepreneurship Monitor 2001 Project. At the same time, we provide evidence to show that there are differences in the way these variables affect new ventures born out of need or out of opportunity.

Keywords

Entrepreneurship, business creation, entrepreneurial decision

Introduction

During the last few decades, the phenomenon of entrepreneurship or "the business function" has gained unprecedented importance on a worldwide scale due to being regarded as a substantial source of new employment, innovation and economic growth (Audretsch, 2002; Reynolds, Levie and Autio, 1999; Veciana, 1999). Although there is still no complete consensus on the definition of this field of study, a large number of researchers coincide in the opinion that the creation of new enterprises is one of the principal outcomes of entrepreneurship.

The venture decision is a crucial stage in the process of creating a new business and is influenced by a series of social, demographic, cultural and economic factors, amongst others (Audretsch, 2002; Gartner, 1985; Shapero, 1984). These factors have been the subject of several studies, though there is still no widely accepted agreement on exactly how they affect the decision to create a new enterprise.

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Our aim is to shed light on which variables influence the decision to create an enterprise, and to what extent. In order to do this, we identified from among the variables included in the Global Entrepreneurship Monitor 2001 Project, those that, according to the literature used for research, have an impact on the process, to later go on to submit these variables to statistical contrast. We have also incorporated a segmentation of entrepreneurs according to their motivation for setting up a new business, as this could minimize the impact of certain factors in the new venture decision.

We will firstly present a theoretical review of the entrepreneurial decision as a process, taking Shapero's (1984) model of the entrepreneurial event as a reference, incorporating contributions from other authors such as Gnyawali and Fogel (1994), Krueger and Brazeal (1994) and Shane and Venkataraman (2000). Secondly we will put forward hypotheses related to the variables included within the framework of the GEM study and then present the methodology used for contrasting these hypotheses. We subsequently present the estimated regression models with the accompanying results and end with a discussion of the outcomes and the conclusions of the study.

Background

From a microeconomic perspective, the first models that explain the entrepreneurial decision were based on the assumption that this decision is based solely on the willingness to accept/ aversion to risk so that, for a given wage scale, everyone would have the same attitude toward working on the payroll or assuming the entrepreneurial role and vice versa (Kihlstrom and Laffont, 1979). This model is largely considered to be unrealistic, as it considers everyone as "having the same aptitude" to function either as entrepreneur or employee (Veciana, 1999: 18). However, new microeconomic models on entrepreneurial behaviour include both objective and subjective variables such as gender, age, socioeconomic level, area of residence, perceptions towards risk and social attitudes toward the figure of the entrepreneur, amongst others (Ashcroft, Holden and Low, 2004).

From a psychological perspective, pioneering studies were aimed at determining personality traits that would separate entrepreneurs from non-entrepreneurs, as well as successful entrepreneurs from less successful ones (Gartner, 1985; Veciana, 1999). Although there are numerous empirical studies on this theme, the outcomes are contradictory and have been questioned not only because of their focus but also due to the methodology used, which has brought about a reduction in the number of studies on this topic in recent years (Veciana, 1999).

Later on, models were created on the entrepreneurial process that incorporated behavioural and situational factors (Gartner, 1985; Veciana, 1988). More recently, models of intention that focus on attitudes and the reasons behind them have been proposed as a more likely explanation for the entrepreneurial process (Gnyawali and Fogel, 1994; Shapero, 1984; Shapero and Sokol, 1982).

The Entrepreneurial Decision as a Process

The decision to start up a new enterprise is a process which is the fruit of two decisions: the decision to change the path of one's life and the decision to start up a new venture (Shapero, 1984). The decision to alter the path of one's life comes about as a result of personal change generated by some kind of "triggering event" which can be negative (job loss, immigration, feelings of frustration in the present job, etc) or positive (detection of an attractive business opportunity) (Veciana, 1988). The decision to start up a new business depends on the perception of the viability of the venture and the desirability of becoming an entrepreneur as a means of creating a new life.

The perception of viability is related to the existence of favourable conditions for starting a business project and the degree to which each individual believes they have the capacity to create business ventures. This is defined as the sum of technical and business (administrative) capabilities required to initiate and administrate an enterprise (Gnyawali and Fogel, 1994). This perception is closely related to that of "self-sufficiency", which is the perception that one possesses the ability to carry out a specific job or a particular set of tasks (Bandura, 1986; Krueger and Brazeal, 1994). The level of self-sufficiency not only affects the decision to create a new enterprise but also can be a determining factor in the success or failure of the new organization (Bird, 1988). For example, excessive self-sufficiency can lead to the wrong decisions being made during the creation process and in the subsequent organizational development.

The perception of desirability refers to how attractive the prospect seems of setting up in business as a life choice and is the consequence of the individual's position in a cultural, socioeconomic, family, educational and peer group matrix (Shapero, 1984). In this way, "social norms" become a crucial element that will influence the individual's perception of whether or not it is desirable to become an entrepreneur.

The "willingness to act" is another indispensable element in the process of the new venture decision, because, if the individual is not predisposed to this type of challenge, they will not be likely to act, despite the difficulties that other life choices may present (Shapero, 1984). The willingness to act is related to psychological characteristics and to the behaviour of entrepreneurs. The psychological focus on personality traits indicates that certain characteristics such as a notable need for achievement (McClelland and Winter, 1969), the ability to innovate (Schumpeter, 1934), the locus of internal control (Shapero, 1984) and the propensity to take risks (Brockhaus and Horwitz, 1986) are common in entrepreneurs. However, it is important to point out that these characteristics can also be found in individuals that are not entrepreneurs and it cannot thus be regarded as an exclusively entrepreneurial characteristic (Gartner, 1985).

Another fundamental element in the process of starting up a new venture is the existence of business opportunities (Gnyawali and Fogel, 1994), which must first be spotted by individuals who then assess them and eventually decide whether to exploit them or not. According to Kirzner (1979), only certain sections of the population will discover an opportunity. Shane and Venkataraman (2000) suggest

that there are two categories of factors that influence the chances of one or another person discovering particular opportunities: 1) the possession of previous, or inside, information that is necessary for identifying a business opportunity, 2) the cognitive characteristics necessary to assess these opportunities and subsequently make a decision on whether to exploit them.

There are diverse factors that affect the entrepreneurial decision. Some authors have carried out extensive reviews of the literature that indicate which factors have been studied and how they influence this process (both positively and negatively).

The Global Entrepreneurship Monitor Project (GEM) included some of these variables in its survey of the adult population, carried out in 2001. We will now present the analysis of these variables from a theoretical perspective, with the incorporation of their relation to the individual's main reason for wanting to create their own business, on the assumption that this is the result of a "triggering event" (Shapero, 1984) that "pushes" the individual into deciding to start up their own company. This may be an adverse situation such as job loss or a deterioration in the role given to them in their firm, or it may be the simple detection of a sound business opportunity. In this sense, we shall consider the "entrepreneur born of necessity" as someone who's main motive for creating a business is the existence of adverse circumstances that allow this person no other choice than to follow this path, and the "entrepreneur born out of opportunity" as someone who decides to change the course of their lives when they come across a sufficiently attractive business opportunity (Reynolds, Camp, Bygrave, Autio and Hay, 2001). By incorporating this segmentation, it is our aim to observe whether differences exist in the way some variables influence the entrepreneurial decision when entrepreneurs are analyzed according to whether they are born out of necessity or opportunity.

The Perception of Business Opportunities

The first factor that interests us is related to one of the key elements in the venture-creating decision process: the perception of business opportunities. Kirzner (1979) describes the businessperson as someone who is capable of "staying alert". Only certain people are capable of spotting previously undiscovered business opportunities, without the need to go out and look for them. Thus, when groups of entrepreneurs and non-entrepreneurs are compared, it is only to be expected that the former group will perceive business opportunities where the second group does not, and consequently they do not make the decision to create a new business. We can now establish the following hypothesis:

H1: The perception of the existence of sound business opportunities has a positive influence on the decision to start up a new business.

Aversion to Risk

Aversion or a propensity to take risks, defined as the general tendency to take or avoid risks, is another factor related to the entrepreneurial decision that has been

frequently been studied in the relevant literature (Cooper and Gimeno-Gascón, 1992; Gartner, 1985; Gnyawali and Fogel, 1994; Veciana, 1999). When assessing the theme of risk, it is necessary to analyze two sides of the development of this concept: the level of perceived risk in the creation of any new firm and the perceived likelihood of failure if the business is unsuccessful.

Traditionally, theories on characteristics have proposed that entrepreneurs have a greater propensity to assume risks than non-entrepreneurs. However, results from empirical research have been contradictory, although it has been generally accepted that entrepreneurs assume moderate risks and do not significantly differ from managers or even the rest of the population (Brockhaus, 1980; Gartner, 1985; Pinillos, 2003). Consequently:

H2: An aversion to risk on the part of an individual has a negative effect on the decision to start up a new business.

Given that in the GEM Project, aversion to risk was evaluated through the perception of fear of failure, future expectations on the country's business conditions and expectations of the family's financial future, it is necessary to subdivide this general hypothesis into three subhypotheses:

H2.1: Fear of failure has a negative influence on the decision to start up a new business.

H2.2: Pessimistic expectations on the family's financial future have a negative influence on the decision to create a new firm.

H2.3: Pessimistic expectations on future business conditions of the country of origin have a negative influence on the entrepreneurial decision

In addition to this, we consider that the perception of risk levels on the part of people who create their own business out of necessity is different to that of entrepreneurs born out of opportunity. In businesspeople who are motivated by necessity, aversion to risk will have less of an influence on the decision to start up a new business, as this factor has less of a bearing when the entrepreneur has no choice but to follow that route. On the other hand, for those that have become entrepreneurs due to opportunity, aversion to risk will exert greater influence on the entrepreneurial decision as they have the freedom to "choose" and can thus weigh up the risk that each choice implies.

H2a: Aversion to risk has less influence on the decision to start a new business in the group of entrepreneurs born out of necessity than in the group of entrepreneurs born out of opportunity.

As with hypothesis H2, in this case it is necessary to put forward and assess a series of subhypotheses to verify the variables included in the GEM Project on the question of aversion to risk-taking:

H2a.1: Fear of failure has less influence on the new venture decision in the group of entrepreneurs born out of need than in the case of the entrepreneurs born out of opportunity.

H2a.2: Future financial expectations for the family have less influence on the new venture decision in the group of entrepreneurs born out of necessity than the group born out of opportunity.

H2a.3: Expectations on the country's future economic business conditions have less influence on the decision to create a new business in the group of entrepreneurs born out of necessity than those born out of opportunity.

Relations with Other Entrepreneurs

One of the factors particularly related to the perception of the viability of creating a new business is the existence of entrepreneurial role models in the individual's social surroundings. Shapero and Sokol (1982) point out those individuals that come from families where the parents are company owners are more likely to create new businesses, as they see that that the creation of new enterprise may well be a viable professional option. Moreover, the presence of experienced entrepreneurs and successful role models in a community or country sends a message to other potential entrepreneurs that creating a business is an "attractive" career option (Gnyawali and Fogel, 1994). This assumption allows us to formulate the following hypothesis:

H3: The existence of entrepreneural role models in the individual's social surroundings positively influences the decision to start up a business.

However, we consider that differences do exist, in this case, between entrepreneurs through necessity and entrepreneurs through opportunity because the existence of other entrepreneurs will enhance the perception of the viability of this alternative for both groups. We can consequently put forward the following hypothesis:

H3a: The existence of entrepreneurs in an individual's social surroundings equally *affects the group of entrepreneurs through necessity and that of entrepreneurs through opportunity*.

The Ability to Create a New Business

As we showed in the model representing the process of the new venture decision, the fact that individuals see themselves as capable of carrying out this task is a key element in making the decision to start up a new enterprise, and is related to the perception of "self-sufficiency" (Krueger and Brazeal, 1994). Therefore, the new venture decision will be influenced by the individual's perception of whether they perceive that they possess the necessary skills to initiate this task, regardless of the

type of triggering event that motivates this decision. Consequently, someone who feels they do not have the necessary skills, even if they are in a situation of extreme necessity, will look for any other possible alternative before choosing to create their own business, as they do not regard themselves as capable of taking on a task of such magnitude. We can consequently form the following hypotheses:

H4: The existence of entrepreneurs in an individual's social surroundings equally affects the group of entrepreneurs through necessity and that of entrepreneurs through opportunity.

H4a: The perception of having the necessary skills, knowledge and experience necessary to establish a new firm has a positive influence on the decision to create a new business, regardless of whether it is due to necessity or opportunity.

Academic Level

One factor that has been the focus of a great deal of literature is the influence of academic level in the decision to start up a new business. There is contradictory evidence on the extent to which education can affect a person's decision to become an entrepreneur. While Storey (1994) and Yusuf (1995) discovered that the level of education had a positive effect, Lee and Tsang (2001), and Stuart and Abetti(1990) suggest that it has a negative effect. It is our view that education has a positive effect on the new venture decision as the current business climate demands a greater level of preparation and training to be competitive in today's market.

With regard to the groups of entrepreneurs through need or opportunity, we consider there to be no difference in the impact of academic level and the entrepreneurial decision, although we admit that it may affect the choice of the type of firm being established as, for example, someone with a university degree in engineering might opt to establish their firm in that area of knowledge, while those without this level of education might be less inclined to set up a business of this type. We can thus formulate the following hypotheses:

H5: A higher academic level has a positive influence on the decision to start up a new business.

H5a: A higher academic level has a positive influence on the decision to start up a new business, regardless of whether they create their own business for reasons *of necessity or opportunity*.

Level of Family Income

The level of the family's income and its relation to the new venture decision has been analyzed from different perspectives. In our particular case, we consider that this variable may have an influence on the availability of funding for the business project, a topic considered to be one of the major obstacles to creating

new businesses. (Audretsch, 2002; Gartner, 1985; Veciana, 1999). From this viewpoint, some kind of relation between a high level of income and the decision to start up a business is to be expected, as individuals from this segment can count on resources to implement the firm's needs, which for someone with a smaller income would prove difficult to achieve and this, therefore, lowers their perception of the viability of creating a new business (Singh and Lucas, 2005). This allows us to propose the following hypothesis:

H6: A high level of income has a positive influence on the decision to start up a new business.

When comparing entrepreneurs born of necessity or opportunity, it might be that the influence of the level of income on the new venture decision is less in the case of entrepreneurs through necessity in the sense that, were they to find themselves in an adverse situation, the individual may be inclined to create their own firm, regardless of their level of income, by looking for other sources of finance. This outlook coincides with the findings of Evans and Leighton (1989), who found that workers with low incomes are forced to look for alternatives of self-employment when they are excluded from the traditional job market. We can thus propose the following hypothesis:

H6a: The level of income has less influence on the group of entrepreneurs born out of necessity than on the group of entrepreneurs born out of opportunity.

Occupation

Occupation is another variable that has been related in the literature to the decision to start up a new business, although there is no consensus on the extent of its influence.

Certain studies on self-employment suggest that the unemployed are more likely to take the entrepreneurial decision than those that have a steady job (Audrestch, 2002; Evans and Leighton, 1990). Equally, other empirical studies have shown that people in full-time work are less convinced by the idea of starting up their own business than the unemployed, part-time workers or students. However, relations between occupation and the new venture decision were found to be tenuous (Davidsson, 1995); this contradicts what was discovered by Reynolds, Carter, Gartner and Greence (2004), who suggest that people in full or part-time work are more likely to set up their own firms than the unemployed or those employed in other categories or work. In our view, we consider that unemployment has a positive effect on the entrepreneurial decision, as the jobless may consider this alternative as a new occupation and therefore:

H7: Unemployment has a positive effect on the individual's decision to create a new business.

When comparing the groupings of necessity and opportunity, we believe that, for the group of entrepreneurs born out of necessity, unemployment will have a greater effect on the decision to start up a new business, as it leaves few or no other alternatives. Whereas, in the case of the group born out of necessity, independently of what they do for a living, they will take the decision to create a new enterprise moved by the desire to exploit an attractive opportunity. Therefore:

H7a. Unemployment has a greater influence on the group of entrepreneurs born out of necessity than on the group born out of opportunity.

Research

The data used in this analysis is taken from the survey on the adult carried out in 2001 by the Global Entrepreneurship Monitor (GEM), the results of which are available to the general public and includes the participation of 29 different countries. A representative sample of at least 2000 people was taken in each of the participating countries and a total of 74000 completed surveys were collected during the months of June and July, 2001.

The survey of the adult population was made up of a series of questions that allowed the sample to be divided up into groups according to whether they were involved or not in new venture activities, or were company owners or business angels. Individuals could thus be classified into the following groups:

- Emerging entrepreneurs: This group is made up of individuals who had actively attempted to set up a business in the last 12 months, future proprietors and company owners who had been paying salaries for three months or less.

- New businesspeople: those that had been owners/managers of a new, operative firm and had been paying salaries or profits for a maximum of 42 months.

- Non-entrepreneurs: those that neither indicated involvement in any of the aforementioned activities, nor had been business owners for more than 42 working months.

At the same time, it is possible to identify individuals involved in the processes of business creation according to their main motive for becoming an entrepreneur or company owner, either through “necessity” or “opportunity”. The group of businesspeople born out of necessity is made up of people who have been forced to create a new firm due to adverse circumstances as an alternative answer to their economic problems, whereas the group born out of opportunity is made up of those who have been mainly motivated by the desire to take advantage of a sound business opportunity at a particular moment

Sample

A sample of cases from the GEM Project survey of the adult population was analyzed in order to obtain a suitable, balanced model. The inclusion of all the cases of non-entrepreneurs (62893) and emerging entrepreneurs (3762) in the regression allowed us to obtain an "apparently" close fit to the prediction for the decision to start up a new business, obtaining levels of 95%. However, if we observe carefully the detailed coefficients for cases in each of the categories included in the analysis, it can be seen that the model lacks validity, as 100% precision can be obtained in cases where the right decision was made NOT to create a new business (as there is a high frequency), and 0% for the decision to set up a new business, which may lead to incorrect conclusions being drawn on the topic of study.

The final sample, obtained via sampling not based on probability for convenience, includes all the cases of emerging entrepreneurs contained in the database (3.762) and an equal number of cases of non-entrepreneurs, giving us a total of 7524 cases. The cases of non-entrepreneurs were chosen randomly in relation to the numbers of emerging entrepreneurs registered for each country. Once the regression model was calculated, it was applied to the remaining 59131 cases that were not included to prove the validity of the model.

Statistical Analysis

The chosen analytical technique for examining the study of relations between dependent and independent variables was logistical regression, which was carried out using the statistical program SPSS 11.0. This is the most appropriate technique for assessing the proposed hypotheses as it allows us to predict and explain a dependent categorical binary variable via a group of independent covariables, amongst which not only qualitative (categorical) but also quantitative variables can be included, as in our case (Ferrán, 1996). We calculated three regression models using this technique. The first with the emerging entrepreneurs as a reference and the remaining two correspond to the groups of emerging entrepreneurs born out of necessity and opportunity, respectively

The supposed existence of multicolinearity, which is a basic ingredient for the application of logistical regression, was assessed through the calculation of the values of tolerance levels and the inflation levels of variance (FIV) of the variables included. The results obtained confirm the absence of multicolinearity, as tolerance level values of 0,541 and 0,951 were obtained, along with a maximum FIV value of 1,849, which is far below the minimum value required for the application of this technique.

The calculated correlations (Table 1) show values close to zero, which suggests that there is no linear relation between the independent variables or that the degree of association between them is extremely low.

Table 1. Correlations between independent variables. The Kendall Tau-b Coefficient

	1	2	3	4	5	6	7	8
1. Perceives opportunity	1							
2. Knows an entrepreneur	0,238*	1						
3. Possess the skills to create	0,278*	0,305*	1					
4. Fear of failure	0,079*	0,060*	0,183*	1				
5. Family future	0,237*	0,152*	0,197*	0,119*	1			
6. Country's future	0,150*	0,034*	0,037*	0,045*	0,288*	1		
7. Level of income	0,050*	0,176*	0,134*	0,067*	0,118*	0,019	1	
8. Academic level	0,073*	0,157*	0,102*	0,063*	0,097*	0,035*	0,238*	1
9. Occupation	−0,104*	−0,155*	−0,216*	−0,045*	−0,095*	0,008	−0,188*	−0,112*

*The correlation is significant at 0.01 (bilateral).

Dependent and Independent Variables

The dependent variable in our study is the decision to start up a new business, measured via the variable "*suboanwc*", where 0 indicates the decision NOT to create a business and 1 is the decision to start a new venture.

The independent variables included in our analysis are:

- *Relations with entrepreneurs (knowentq):* This variable is measured using the question *"You know someone personally who started a business in the past 2 years?"*, and indicates whether an individual is acquainted with an entrepreneur or not. This variable is related to the perception of the viability of creating a business.

- *Perception of opportunities (opportq):* This variable, which is also a dichotomy, tells us directly whether the individual does or doesn't perceive the existence of business opportunities in the local area through the question *"Will there be sound opportunities for starting a new business in your local area in the next six months?"*

- *Perception of skills, knowledge and experience (suskill)*: This variable indicates whether the individual sees themselves as having the ability to create a new business or not. This perception was gauged in the questionnaire by asking: *"Do you possess the knowledge, skills and experience to set up a new business?"* The answer is related to self-confidence, although it should be mentioned that this is not a complete measurement of this extremely complex item, which may be influenced by overconfidence on the part of the individual and by other factors.

- *Fear of failure (fearfaiq):* This variable shows whether an individual is afraid of failing in the creation of a new business. It can be considered as an approximate measurement of the aversion to risk. The question related to this item is

"Would the fear of failure prevent you from starting up a new business?" It is important to point out that overconfidence can reduce the fear of failure to a certain extent.

- *Perception of the family's future economy (famfutuq):* this variable allows the assessment of the individual's perception of the family's financial future, with the question: *"Looking to the future, do you think that in a year's time, you and your family will be better off, worse or the same as you are today, financially?"* This is related to the individual's aversion/willingness to take risks, as, at the moment of taking the entrepreneurial decision, they weigh up the effect of the decision on the family's economic welfare.

- *Perception of the country's economic conditions (ctrfutuq):* This variable is measured via the question: *"Within a year, would you expect the country's business conditions to be better, worse or the same as they are at the moment?"* The perception of business conditions is related to the individual's aversion to risk-taking as it can be assumed that if business conditions are expected to be unsatisfactory, there might not be any risky investments and this will consequently restrict the founding of new firms

Besides the aforementioned variables, the GEM study gathered information on the level of income, occupation and academic level, all of which we have included in our analysis and have the following categories:

- *Level of income (gemhhinc):* this variable indicates the interviewee's level of income: high, medium or low.

- *Occupation (gemwork):* this variable has the following categories: (1) part-time and/or full-time work; (2) only part-time; (3) retired; (4) housewife/husband; (5) student and (6) unemployed

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- *Academic level: (gemeduc):* This variable presents the following categories: (1) none; (2) a degree of secondary education; (3) completed secondary education; (4) postsecondary and (5) postgraduate.

Results

The results obtained from the study allow us to contribute evidence on the influence of the different variables included in the models of the creation of new businesses using the three estimated models. In addition, the validation of Model 1 shows an extremely good fit which leads us to consider it as a reference for the estimation of the likelihood of whether an individual will decide to set up their own firm or not.

Model 1: Emerging Entrepreneurs

Model 1, estimated for the dependent variable *suboanw* has a total prediction capacity of 74.7% and can correctly predict a negative decision for 72.4% and a positive decision for 77% of the cases studied. This first model includes eight of the nine independent variables, with a level of significativity of less than or equal to 0.05. The results of this model are shown in Table 2.

Table 2. Estimated regression models*

	Model 1. Emerging entrepreneurs			Model 2. Emerging entrepreneurs through necessity			Model 3. Emerging entrepreneurs through opportunity		
Variables	Coef.	Standard error	Wald	Coef.	Standard error	Wald	Coef.	Standard error	Wald
Perceives opportunity (NO)	−0,773	0,099	61,185	−0,764	0,193	15,631	−0,922	0,120	59,323
Knows an entrepreneur (NO)	−0,873	0,095	84,104	−1,017	0,187	29,712	−0,884	0,116	57,825
Possesses the skills to create (NO)	−1,414	0,099	205,484	−1,169	0,186	39,582	−1,602	0,124	167,592
Fear of failure (YES)	−0,380	0,100	14,415	−0,614	0,185	11,063	−0,331	0,126	6,882
Perception of the family's future			9,829						13,779
Worse	−0,235	0,161	2,140				−0,614	0,214	8,203
The same	−0,309	0,099	9,659				−0,378	0,122	9,646
Level of income			16,913			27,612			
Low	0,405	0,129	9,848	1,239	0,249	24,839			
Medium	−0,063	0,111	0,323	0,422	0,226	3,499			
Academic Level			24,135			14,155			22,880
Some secondary education	0,424	0,295	2,063	0,439	0,708	0,385	0,365	0,335	1,190
Completed secondary education	0,923	0,290	10,166	1,047	0,707	2,192	0,890	0,325	7,474
Post-secondary education	0,775	0,287	7,303	0,332	0,708	0,220	0,981	0,323	9,243
Occupation			118,583			26,477			93,420
Full or part-time work	0,839	0,133	39,733	0,518	0,232	5,006	0,965	0,170	32,130
Part-time work	0,893	0,173	26,527	0,724	0,322	5,045	1,055	0,219	23,155
Retired	−1,011	0,238	18,017	−0,941	0,423	4,942	−1,082	0,307	12,376
Home	0,349	0,219	2,538	0,425	0,354	1,440	0,126	0,318	0,157
Student	−0,327	0,260	1,580	−0,874	0,469	3,466	−0,038	0,325	0,014
Constant	0,526	0,309	2,894	0,489	0,736	0,440	0,471	0,350	1,809
Diagnostic of the model's fit									
−2 log of the verosimilarity	2874,725			826,744			1.880,377		
Cox and Snell *R* squared	0,288			0,256			0,339		
Nagelkerke *R* squared	0,383			0,341			0,452		
Chi-squared	930,978			224,345			800,311		
Total % correct	74,7			73,5			76,8		
% incorrect cases	72,4			71,8			75,8		
% correct cases	77,0			75,1			77,9		
Total cases included	2.746			618			1.934		

*Level of significativity ≤0.05

This model suggests that the new venture decision is negatively affected by not knowing other entrepreneurs, the non-perception of opportunities and the perception that the individual does not possess the skills, knowledge and experience to create a new firm, all of which is analogous to what can be found in the literature and allows us to confirm hypotheses H1, H3 and H4.

With regard to the variables associated with aversion to taking risks, its negative influence of fear of failure on the decision to create a new business and the perceptions on the family's future finances are confirmed, thus supporting H2.1 and H.2.2. However, perceptions on the country's future economic conditions have indicated that this is not an important factor for entrepreneurs and so hypothesis H.2.3 remains unconfirmed. This may be caused by the difference between the figure of the entrepreneur and the investor, who assumes different criteria when taking investment decisions such as the economic conditions of the country concerned, while for entrepreneurs, other factors such as those analyzed herein exert greater influence over their decision.

Academic level has also shown itself to be influential in the decision to create a new business, indicating that lower levels of education positively and significantly affect the new venture decision, thus making it impossible to accept hypothesis H5. These results are consistent with the findings of Lee and Tsang (2001) and those of Stuart and Abetti (1990). Nevertheless, it should be underlined that the influence of this variable on the likelihood of creating a new business has a "*U*" shape, meaning that people who complete a secondary education are more likely to set up their own company than those who did not finish secondary education or those that have postsecondary studies.

The level of income significantly affects the entrepreneurial decision; however, it is not possible to draw conclusions on the direction of this influence and it is therefore not possible to confirm hypothesis 6. Evidence suggests that lower levels of income positively affect the decision to set up a business, thus confirming the results of Evans and Leighton (1989) and contradicting those of Singh and Lucas (2005); insofar as medium levels of income negatively affect the new venture decision.

Finally, with regard to the impact of the occupation variable, the results suggest that, on the one hand, full-time or part-time workers are more likely to decide to create their own business than the unemployed, which coincides with the work Reynolds et al. (2004); while people who are retired, housewives/househusbands and students are less likely to create a new business than the unemployed. Consequently, it is not possible to confirm hypothesis H7, which proposes that the unemployed are more likely to decide to set up their own businesses.

Emerging Entrepreneurs Grouped by Necessity and Opportunity

Models 2 and 3, which show emerging entrepreneurs born out of necessity and opportunity respectively, give prediction levels of 73.5% and 76.8%, differing slightly from the model on emerging entrepreneurs (74.7%). Moreover, it can be observed that segmentation improves the fit of the models, which can be seen by detailing the indicators of maximum verosimilarity, the R^2, and the Chi-squared

statistic, as shown in Table 2. The new models allow us to contrast the proposed hypotheses with regard to the existence of differences between these groups of emerging entrepreneurs.

Firstly, the results shown in Table 2 suggest that, both for entrepreneurs born out of necessity and those resulting from opportunity, the *non*-perception of business opportunities, not having other entrepreneurs in their social circle and the non-perception of skills has a negative impact on the decision to set up in business, as it does in the general model, which allows us to confirm hypotheses H3a and H4a. In addition, it is important to point out that the variable with the most influence over the decision to start a new business is found in this group and corresponds to the perception of whether they possess the skills, knowledge and experience necessary to start up a venture, which clearly shows the importance of the perception of self-sufficiency in the initial stages of the process of creating a new business.

With regard to the variables related to aversion to risk-taking, the following results can be observed. Firstly, a significant, negative influence can be detected in both, due to fear of failure. However, if we examine the coefficients of the variable in both models, a greater negative influence of the fear of failure can be seen in the group of emerging entrepreneurs born out of necessity (-0.614) than in the case of the group of emerging entrepreneurs through opportunity (-0.331). It is therefore not possible to accept hypothesis H2a.1. Secondly, it can be observed that, in the group of entrepreneurs through necessity, the perception of the family's future finances is not a significant variable, whilst in the group of entrepreneurs born out of opportunity, the perception and prospect of worsening or simply maintaining the family's financial conditions will have a significantly negative effect on the decision to start up a new business. This shows less of an influence on the future expectations of the family's financial conditions in the group of entrepreneurs through necessity and allows us to accept hypothesis H2a.2. Thirdly, perceptions of the country's economic business conditions does not appear to have any kind of effect on either of the groups, as occurred in the general model, which leads us to reject hypothesis H2a.3.

Academic level in the decision to create a new venture shows the same behaviour as in Model 1 for both groups, which leads us to accept hypothesis H5a. However, the existence of differences in the coefficients obtained in the models for entrepreneurs through necessity and opportunity should be underlined, which indicates that a particular subcategory can have a greater impact on the decision to start up a new enterprise for one group or the other. An example of this is the coefficients corresponding to the postsecondary academic level, for which the model of entrepreneurs through necessity has a coefficient of 0.332, while for the group of entrepreneurs through opportunity, the coefficient has a value of 0.981, which indicates that this academic level has a greater influence over the latter group.

On the other hand, the level of income variable is not significant in the model of entrepreneurs born out of opportunity, while it is significant and has a positive influence on the entrepreneurs through necessity, which means it is not possible to accept hypothesis H6a. Evidence suggests that entrepreneurs through opportunity look for different financing alternatives that allow them to carry through their

Table 3. Results of the contrast of hypotheses

Hypotheses	Result
H1. The perception of the existence of sound business opportunities has a positive influence on the decision to start up a new business.	*Accepted*
H2. An aversion to risk on the part of an individual has a negative effect on the decision to start up a new business.	*Accepted*
H2.1. Fear of failure has a negative influence on the decision to start up a new business	*Accepted*
H2.2. Pessimistic expectations on the family's financial future have a negative influence on the decision to create a new firm.	*Accepted*
H2.3.: Pessimistic expectations on future business conditions of the country of origin have a negative influence on the entrepreneurial decision	*Rejected*
H2a. Aversion to risk has less influence on the decision to start a new business in the group of entrepreneurs born out of necessity than in the group of entrepreneurs born out of opportunity.	*Rejected*
H2a.1. Fear of failure has less influence on the new venture decision in the group of entrepreneurs born out of need than in the case of the entrepreneurs born out of opportunity.	*Rejected*
H2a.2. Future financial expectations for the family have less influence on the new venture decision in the group of entrepreneurs born through necessity than the group born out of opportunity.	*Accepted*
H2a.3. Expectations on the country's future economic business conditions have less influence on the decision to create a new business in the group of entrepreneurs born out of necessity than those born out of opportunity.	*Rejected*
H3. The existence of entrepreneurial role models in the individual's social surroundings positively influences the decision to start up a business.	*Accepted*
H3a. The existence of entrepreneurs in an individual's social surroundings equally affects the group of entrepreneurs through necessity and that of entrepreneurs through opportunity.	*Accepted*
H4. *The existence of entrepreneurs in an individual's social surroundings equally affects the group of entrepreneurs through necessity and that of entrepreneurs through opportunity.*	*Accepted*
H4a. The perception of having the necessary skills, knowledge and experience necessary to establish a new firm has a positive influence on the decision to create a new business, regardless of whether it is due to necessity or opportunity.	*Accepted*
H5. A higher academic level has a positive influence on the decision to start up a new business.	*Rejected*
H5a. A higher academic level has a positive influence on the decision to start up a new business, regardless of whether they create their own business for reasons of necessity or opportunity.	*Rejected*
H6. A high level of income has a positive influence on the decision to start up a new business.	*Rejected*
H6a. The level of income has less influence on the group of entrepreneurs born out of necessity than on the group of entrepreneurs born out of opportunity.	*Rejected*
H7. Unemployment has a positive effect on the individual's decision to create a new business.	*Rejected*
H7a. Unemployment has a greater influence on the group of entrepreneurs born out of necessity than on the group born out of opportunity.	*Rejected*

business project because they perceive the existence of worthwhile opportunity. In the case of entrepreneurs through necessity, this variable has greater influence, probably because, bearing in mind their limited level of income, they see the creation of a business as an alternative to solving their situation. This goes some way to explaining why the results suggest that a low or medium income positively affects the decision to start up a new firm.

Finally, when analyzing the occupation variable, it can be observed that that the direction of influence in the two categories is the same, i.e. full and/or part-time work and working at home has a positive and significant influence on the decision to create a new business, while retirement and full-time study have a significant and negative effect on this decision. On the other hand, if we look at the coefficients of these variables, they indicate a greater influence on the decision to start up a new business over the group born out of opportunity than that of necessity. For this reason, hypothesis H7a should be rejected. Table 3 shows a synthesis of the results obtained.

Validation of Model 1

For the validation of Model 1, which corresponds to emerging entrepreneurs, the model was applied to 59.131 cases from the sample, excluding the cases of new and veteran business owners.

By applying the model to the validation sample, the precision levels for prediction was obtained in 72.1% of the 21.621 valid cases that involved non-entrepreneurs. The total sample, which includes the sample from model 1 and the validation sample, obtained 72.36% of correct predictions, with a total of 72,08% correct predictions on who would make the decision not to set up in business and 77% correct predictions on who would start up a new business in the time period analyzed (Table 4).

It is our understanding that the usefulness of these types of models lies precisely in reaching a correct prediction on who will decide to start a new business and, at least, that the prediction percentages should be balanced with regard to the options of deciding whether to create or not.

Table 4. Predictive capacity of the regression model on the new venture decision

		Predicted		
		Will NOT decide to create a new business	WILL decide to create a new business	Percentage of correct predictions
Observed	Did NOT decide to create a new business	16.556	6.411	72,08%
	DID decide to create a new business	322	1078	77%
	Percentage of correct predictions			72,36%
Data of the samples used				
			No. of initial cases	No. of valid cases
Sample for Model 1			7.524	2.746
Validation sample			59.131	21.621
Total GEM ample			66.655	24.367

Conclusions

The analysis carried out clearly shows the importance of variables that have been identified in the literature as being crucial to the entrepreneurial decision to create a new venture, such as the perception of business opportunities, knowing people who have decided to embark on a business project, the perception that they have the necessary skills to take on the task of creating a new firm, all of which have a significant and positive effect on the entrepreneurial decision, thus increasing the likelihood of such an event.

We have also been able to verify the negative influence of the fear of failure on the decision to start up in business, a variable which is fundamental when analyzing the topic of the entrepreneur's aversion to risk. At the same, it can be observed that entrepreneurs give special importance to financial expectations for the future of the family when it comes to taking the decision to create a new venture, to the extent that an adverse situation can inhibit the decision to start up a business. On the other hand, the variable related to expectations on the future of the country show little significant influence over the decision to set up in business, a result that contradicts the proposals laid down in traditional literature, where this parameter is an important element at the moment of taking investment decisions. One explanation for this might lie in the fact that the entrepreneur is not always the main investor in the venture; it may be that adverse business circumstances make rounding up the necessary capital to set up the firm difficult, but that this does not become an unsurpassable obstacle. Another possible explanation is that emerging entrepreneurs have already taken the decision to create the new firm, and so this parameter may have ceased to be so important. However, deeper analysis is necessary to verify this aspect.

In addition to this, we have found that a higher level of income has a negative effect on the new venture decision, and that the different occupations ncluded in the study have a differing amount of influence on the decision to start up a new business. Therefore, it was established that people in full or part-time work are more likely to create a new firm than the unemployed, students or retired people.

It is also necessary to underline the existence of certain differences in the influence of variables such as the family's future financial expectations and the level of income when the sample is segmented into entrepreneurs through opportunity and necessity. This suggests that segmentation of entrepreneurs into those born out of opportunity and necessity may be an interesting avenue to follow in order to understand how these groups face up to the task of creating a new business, as it is likely that the processes are not identical. It could aid us in designing suitable mechanisms to support both entrepreneurs that set up a business through necessity to help them to overcome an adverse situation, as well as the group of entrepreneurs born out of opportunity, by fomenting a more proactive and not a reactive attitude amongst the general population towards the creation of new business, which may occur more often in the case of entrepreneurs through necessity.

The variables we have just quantitatively described have great explanatory value with regard to the creation of new business when they are incorporated into

a regression model such as the one we have calculated, reaching 72.1% of correct predictions on new venture decisions taken by individuals from a wide variety of countries.

If the sample is segmented by countries, and an independent model is calculated for each one, a great deal of variability can be observed in the variables included here and their values, though the rate of correct predictions does not overly differ, oscillating between 68.6% and 84.7%, giving higher values in countries with a smaller number of valid cases. Due to this fact, the global model and its level of precision is a reliable indicator of the validity of the data and leads us to the question of the search for new variables that are yet to be incorporated into the theoretical model and the GEM surveys. These variables could contribute to a greater explanatory capacity of the new venture decision.

The estimated regression models in the present study are intended to be used as a tool that allows us to predict, through certain characteristics, whether an individual is more or less likely to create a new business, always taking a population of entrepreneurs and non-entrepreneurs as a reference. However, the differences observed between the models when entrepreneurs are segmented into groups of those born out of necessity and opportunity suggest that it is important to incorporate this and other types of segmentation into research on the business function, with the aim of achieving a deeper understanding of this phenomenon. It is insufficient to divide the population into groups of entrepreneurs and non-entrepreneurs, it is also necessary to "*divide the world according to what we suspect might be the key parameters of variation between entrepreneurs and then go on to examine why some individuals that present certain variables or characteristics decide to become business owners or not"* (Sarasvathy, 2004, p. 712).

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Entrepreneurship Research in *AMJ*: What Has Been Published, and What Might the Future Hold?*

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Ours is a multifaceted academic discipline. Indeed, scholars seeking to publish their management-related research in *AMJ* have interests in diverse areas of inquiry, such as management history, technology and innovation management, and management spirituality and religion, among a host of others. The Academy of Management's 24 divisions and interest groups are perhaps a meaningful proxy for the sheer diversity of management scholarship. One might even argue that the eclectic nature of this scholarship contributes to researchers' ability to consistently produce intriguing and stimulating findings.

Not unexpectedly, many scholars are passionate about their research and about the importance of the area of inquiry with which they are intellectually engaged. In many ways, of course, passion for one's research interests and chosen area of inquiry is highly desirable. After all, passionate scholars care deeply about scholarly research and are committed to trying to make contributions that will result in important additions to one or more stocks of knowledge.

Sometimes, scholars' passion for their research may lead to a belief that journals should publish a larger number of articles concerned with their chosen area of inquiry. Indeed, Sara Rynes, reporting a survey of *AMJ*'s Editorial Board members, wrote this: "Approximately half (51%) of the respondents felt there were some research areas that should receive more coverage in *AMJ*" (2005: 10). Of course, this reported finding also means that roughly half the respondents believe that the articles *AMJ* publishes represent an acceptable balance among the diverse areas of management scholarship.

Entrepreneurship is an area of inquiry on which some (but certainly not all) scholars take the position that *AMJ* has not published a sufficient number of articles. Those holding the view that *AMJ*, should publish more entrepreneurship research might further suggest that this is not a desirable situation, especially in light of the fact that this area of management scholarship continues to attract the interest

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of an increasing number of scholars (Chandler & Lyon, 2001; Low & MacMillan, 1988). Using arguments advanced by Lumpkin and Dess, we can briefly introduce entrepreneurship by noting that "the essential act of entrepreneurship is new entry," where new entry is seen as "the act of launching a new venture, either by a start-up firm, through an existing firm, or via internal corporate venturing" (Lumpkin & Dess, 1996: 136). Different perspectives about entrepreneurship's domain are offered later in this editorial.

To a degree, one's answer to the question about the sufficiency of the number of articles related to a discipline that a particular journal publishes is subjective. Nonetheless, there are some objective measures one can use to consider the matter of how much of a particular type of research a journal has published or is publishing. In this context, the main objective of this editorial is to determine how much entrepreneurship research has been published in *AMJ*. In some ways, our objective is similar to the one Brad Kirkman and Kenny Law (2005) established for their recent piece (see the June issue of this volume of the *Journal* to read their work). A principal difference between the two editorials is that while Kirkman and Law's focus was on the publication of international management research in *AMJ*, our focus is on the entrepreneurship research published here. Our interest is to (1) describe the trends associated with publishing entrepreneurship research in *AMJ*, (2) identify some of the characteristics of the entrepreneurship research that *AMJ* has published, and (3) offer a few expectations about the entrepreneurship research that *AMJ* may publish in the future.

Review Methodology

Entrepreneurship is a relatively young field (Cooper, 2003); some argue that it is in its adolescence (Low, 2001), others that it is still emerging (Busenitz, West, Shepherd, Nelson, Chandler, & Zacharakis. 2003). Supporting those positions are arguments suggesting that entrepreneurship is a field (1) in which the search for a distinct theory of entrepreneurship continues (Phan, 2004), (2) that is characterized by low paradigmatic development (Ireland, Webb, & Coombs, 2005), and (3) that scholars have frequently evaluated in order to assess its progress and status as an independent field of study (Davidsson, 2003; Sarasvathy, 2004; Smith, Gannon, & Sapienza, 1989). Kuhn asserted that less-developed paradigms are "regularly marked by frequent and deep debates over legitimate methods, problems, and standards of solution" (1996: 47–48).

The lack of agreement regarding the definition of entrepreneurship as a construct (Davidsson, 2003; Gartner, 1990) is an indicator that entrepreneurship is a field of inquiry with relatively low paradigmatic development. However, Low (2001) argued that scholars are allocating too many of their research efforts to developing a widely agreed upon definition of entrepreneurship. Differing opinions as to the type of research scholars should complete to examine important questions, including the question of how a construct should be defined, are symptomatic of low paradigm development.

Before continuing, we should note that our assertion of entrepreneurship as a field characterized by low paradigmatic development, if accurate, should not be interpreted as a criticism. Rather, fully developed paradigms commonly result from long-term and successful evolutions in an area of scholarly inquiry.

Entrepreneurship's Domain

A survey of published research shows that the entrepreneurship construct is variously argued to concern opportunity identification and exploitation (Shane & Venkataraman, 2000), corporate renewal (Guth & Ginsberg, 1990), and the creation of firms (Alvarez, 2003; Vesper, 1982), among other things. Many of these arguments are in some form or fashion grounded in the classic work of scholars such as Knight (1921), Schumpeter (1934), and Kirzner (1973).

Following a survey of the literature and with the objective of offering scholars an integrated and hopefully valid definition of the entrepreneurship construct, Sharma and Chrisman argued that "entrepreneurship encompasses acts of organizational creation, renewal, or innovation that occur within or outside an existing organization" (1999: 17). Including innovation as an indicator of entrepreneurship mirrors Peter Drucker's perspective. Relying on the Schumpeterian (1934) view, this management practitioner and prolific author took the position that "innovation is the specific function of entrepreneurship, whether in an existing business, a public service institution, or a new venture started by a lone individual" (Drucker, 1998: 152).

The variance in the definitions of entrepreneurship led us to cast a wide net when searching for entrepreneurship publications in *AMJ*. The Appendix lists the search terms we used in this effort. As you will see, we did not include, "innovation" as a search term, because in our view multiple areas of inquiry are concerned with innovation, causing it to be less definitively aligned with entrepreneurship research than are the activities Suggested by the entries in the Appendix. One could argue, however, that some, of the search terms we did use (e.g. "corporate entrepreneurship," "intrapreneurship," and "new technology ventures") are proxies for innovation. We examined each published article identified by using the search terms to verify that the study did indeed deal with entrepreneurship.

We also wish to point out that when scanning the Appendix, you will notice that we did not use, "small business" and "small business management" as search terms. This decision may seem a bit puzzling in that the entrepreneurship and small business research streams shared a history early in their development. Nonetheless, entrepreneurship and small business management have different, yet individually important, foci. New entry (Lumpkin & Dess, 1996) and the recognition and exploitation of opportunities (Shane & Venkataraman, 2000) are among the topics entrepreneurship researchers often examine. Small business management researchers commonly study firms that are independently owned and operated, but not dominant in their area of operations. For these researchers, the interest is to determine how small businesses can be managed in ways that will lead to continuing success. Because of the fields' different foci, we included a small business article in our sample of entrepreneurship articles published in *AMJ* only if at least one of the other search terms shown in the Appendix was present.

The Search for Entrepreneurship Articles in AMJ

Our search included all *AMJ* issues from 1963 to the present. We defined the present to include articles that were in press at the time of preparing this editorial. We chose 1963 as our beginning point because this was the year in which *AMJ* first published an empirical article that clearly focused on entrepreneurship. The first time block includes seven years (1963-69); the remaining time periods have six years each.

We recognize the arbitrariness or the idiosyncratic nature of our various decisions including (1) choosing terms to use to identify entrepreneurship articles published in *AMJ*, (2) classifying articles in. terms of focal subject areas, and (3) selecting relevant time periods to search for entrepreneurship publications in *AMJ*. Indeed, different classification decisions could yield different results. Busenitz et al. (2003), for example, asserted that *AMJ* published eight entrepreneurship articles from 1994 through 1999. Using our search terms, which differ from those Busenitz and his coauthors used, we determined that *AMJ* published ten such articles during this period. Thus, researchers can reach different conclusions when investigating the same question. Nevertheless, to increase the objectivity of our processes, each of us independently classified published articles into individually chosen topic areas. Variances in the classification we used (which were few) were discussed and resolved.

How Many, What Type, and by Whom?

How Many?

Our analysis shows that *AMJ* published 50 entrepreneurship articles during the focal time period (1963 to the present, including "in press" articles). Figure 1 is a graph of the number of publications by subperiod. If we included innovation articles published during the same time period, our count would increase by 59 articles, more than doubling the sample to 109. The years 2000 to the present contained by far the largest number of entrepreneurship articles (n = 25) published in. a subperiod. This growing representation is in sharp contrast to the first three subperiods, during which *AMJ* published 3, 2, and 1 entrepreneurship articles, respectively.

Beginning with the 1982-87 time period, the data shown in Fig. 1 indicate a continuing increase in the number of entrepreneurship publications in *AMJ*. In fact, collapsing the seven subperiods into a more parsimonious set of three (1963-81, 1982-93, and 1994-present) shows a positive growth trend. Six articles were published in the first of these three subperiods, while only 7 additional articles were published in the second. Thus, of the total 50 entrepreneurship articles published in *AMJ* over the chosen time periods, 37 appeared from 1994 to the present. The increasing number of entrepreneurship articles the *Journal* published in the more recent time periods may suggest a larger flow of higher-quality manuscripts and may also reflect the continuing evolution of entrepreneurship as a viable research paradigm. Additionally and importantly, these data suggest that *AMJ*

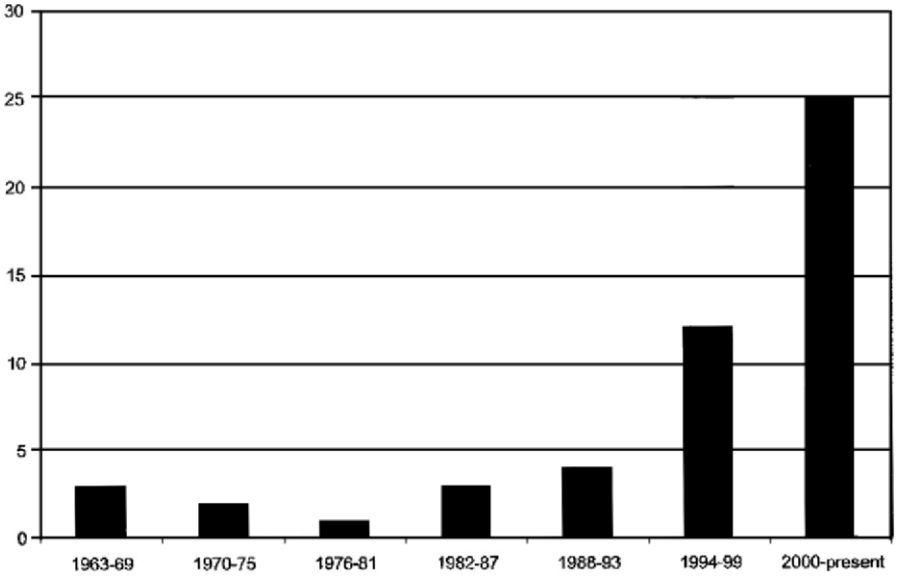

Fig. 1. Number of entrepreneurship articles published in AMJ (1963-in press)

published more entrepreneurship research from 2000 to the present than in all previous time periods combined. This fact should be encouraging for entrepreneurship scholars interested in publishing empirical work in *AMJ*.

What Type?

Table 1 shows the core subject matters of entrepreneurship articles published in *AMJ*. While we searched on a number of topics (see the Appendix), our judgment is that the 50 articles fit predominantly into seven categories. Some of Table 1's categories are the product of collapsing related search terms included in the Appendix into single factors. For example, "new technology ventures," "new ventures," and "venture initiation" were collapsed into the category *new ventures*. Similarly, "corporate entrepreneurship," "corporate renewal," "intrapreneurs," and "intrapreneurship" were combined to form the *corporate entrepreneurship* category.

Some studies, of course, deal with more than a single topic. In these instances, we placed the article into the category representing the study's primary focus. For example, Shrader (2001) examined the effects of international new venture collaborations on performance. His emphasis on the international aspects of his work caused us to count this as an international entrepreneurship article rather than as a new venture article. This metric also explains why Table 1 includes a

Table 1. Breakdown of Local Areas of Entrepreneurship Articles Published in *AMJ*

Breakdown of Focal Areas of Entrepreneurship Articles Published in *AMJ*							
Period	**Small Business**	**Institutional Entrepre-neurship**	**International Entrepreneur-ship**	**Corporate Entrepre-neurship**	**Initial Public Offer-ings**	**Individuals of Entrepre-neurs**	**New Ven-tures**
1963–69	0	0	0	1	0	2	0
1970–75	0	0	0	1	0	1	0
1976–81	0	0	0	0	0	1	0
1982–87	1	1	0	1	0	0	0
1988–93	2	0	0	0	0	0	2
1994–99	2	0	1	3	2	2	2
2000-present	0	3	8	2	3	2	7
Total by clas-sification	5	4	9	8	5	8	11
Percent of total published in *AMJ*	10	8	18	16	10	16	22

business" category. As explained above, we did not use "small business" and "small business management" as search terms. However, we did find five articles about research focused on small business or small business management, even though the studies were initially found when we used the search terms shown in the Appendix.

Table 1's contents reveal a reasonable balance across focal areas among the total number of entrepreneurship articles *AMJ* has published. The earlier publications primarily concerned either individuals or entrepreneurs or corporate entrepreneurship. In contrast, from 2000 to the present, the preponderance of published articles shifted to international entrepreneurship (eight) and new ventures (seven). (We should note, though, that the 2000 Special Research Forum on International Entrepreneurship skews the statistic for this focal area.) Overall, the statistics reported in Table 1 indicate the increasing publication of work related to certain entrepreneurship topics (e.g. new ventures) and the decreasing publication of work related to other topics (e.g. small business). Additionally, the data show that new ventures and international entrepreneurship are the focal areas with the largest number of publications in *AMJ*.

How Many Authors?

As shown in Table 2, the number of authors involved with publishing entrepreneurship articles in. *AMJ* is increasing. The highest average number of authors per published paper (2.96) occurs during the 2000-present subperiod. This finding is likely influenced by several factors, including the increasing number of collaborations among scholars from multiple countries that formed to examine international

Table 2. Number of authors of entrepreneurship articles published in *AMJ*

Period	Average Number of Authors per Article
1963–69	1.00
1970–75	2.00
1976–81	1.00
1982–87	1.33
1988–93	2.25
1994–99	2.08
2000–present	2.96

entrepreneurship research questions. In addition, the increase in the number of authors may also suggest the forming of larger collaborations to increase the diversity of perspectives, and perhaps skills, within a team. of course, the phenomenon of more authors per paper characterizes many scholarly fields in addition to entrepreneurship.

It is interesting to note that Kirkman and Law (2005) also reported that the numbers of international. management articles with three, four, or five or more authors were at peaks in international management articles published in *AMJ* between 2000 and. the present. Thus, beginning with the year 2000, the phenomenon of an increase in the number of authors per published article in *AMJ* is consistent across at least two (international management and entrepreneurship) areas of management scholarship. Next, we turn our attention to the methods used in some of the entrepreneurship articles that have been published in *AMJ*.

Methods Issues

Data Collection

As shown in Table 3, surveys and interviews have been and continue to be popular data collection choices among entrepreneurship researchers publishing their work in *AMJ*. However, we found that collecting secondary data was the most frequently used method in *AMJ* entrepreneurship articles. The bulk of the studies using secondary data were published during the 2000-present period. Improving

Table 3. Data collection methods employed in entrepreneurship articles published in *AMJ*

Period	Survey	Interview	Field Observation	Secondary Sources
1963–69	3	1	0	0
1970–75	1	2	0	0
1976–81	1	0	0	0
1982–87	1	1	1	2
1988–93	2	2	0	2
1994–99	6	4	1	6
2000–present	10	10	1	19
Totals	24	20	3	29

quality of secondary data and increasing use of certain kinds of dependent variables may be contributing to the growing popularity of secondary data sources among entrepreneurship scholars. An alternative explanation could be that secondary data sources have become a more convenient, but not necessarily a superior data collection choice.

Our findings differ slightly from previously reported statistics. Davidsson, for example, found that "published research in entrepreneurship is dominated by cross-sectional (mail) surveys," (2004: xxx). Coviello and Jones's (2004: 494) statement that international entrepreneurship studies "are dominated by surveys" mirrors Davidsson's (2003) findings. Moreover, Kirkman and Law (2005) found surveys to be the most popular choice among international management scholars. Convenience, cost, and incomplete secondary data sources are among the factors that may contribute to the frequent use of surveys among scholars across research areas.

Level of Analysis

When designing their studies, entrepreneurship researchers choose from among several levels of analysis, each of which has the potential to yield rich understandings of entrepreneurship-related phenomena. Nonetheless, in their review of earlier published work, Low and MacMillan (1988) faulted entrepreneurship researchers for not clearly specifying the level of analysis on which they focused and the reasons for doing so.

Table 4 reveals that the individual and firm levels of analysis dominate the entrepreneurship research published in *AMJ*. Use of the individual entrepreneur as a level of analysis has been relatively steady over the six time periods, yet there has been a distinct increase in the number of articles (26 of 34) using the

Table 4. Levels of analysis in entrepreneurship articles published in *AMJ*

Period	Individual	Group	Firm	Industry	Country
1963-69	2	0	1	0	0
1970-75	1	0	1	0	0
1976-81	1	0	0	0	0
1982-87	1	0	2	0	0
1988-93	0	0	4	0	0
1994-99	2	2	8	0	0
2000-present	3	0	18	2	2
Totals	10	2	34	2	2

firm level of analysis since 1994. This finding is consistent with Davidsson and Wiklund's results showing "a strong and growing dominance for firm-level analysis" (2001: 94).

Analytical Tools

As shown in Table 5, a number of analytical tools have been used to complete the entrepreneurship research published in *AMJ*. Interestingly, in eight of the published studies, researchers used qualitative methods. The use of qualitative methods is on the rise, in that four of the eight qualitative studies were published between 2000 and the present. This statistic may reflect a correct belief among entrepreneurship researchers that *AMJ* is interested in publishing work that effectively uses qualitative methods (Gephart, 2004).

The data included in Table 5 also show that the sophistication of the analytical tools entrepreneurship researchers are using is increasing over time (for instance, use of structural equations modeling is growing). The analytical method of choice,

Table 5. Commonly used primary analytic tools in entrepreneurship articles published in *AMJ*

Period	Descriptive Statistics	ANOVA, MANOVA, etc.	Regression Techniques	Survival/ Hazard Analysis	Structural Equitions Modeling	Qualitative Methods
1963-69	3	0	0	0	0	0
1970-75	1	0	0	0	0	0
1976-81	0	1	0	0	0	0
1982-87	0	0	2	0	0	1
1988-93	0	1	1	2	0	1
1994-99	0	4	8	1	1	2
2000-present	0	3	14	4	3	4
Totals	4	9	25	7	4	8

however, remains a set of regression techniques (hierarchical regression, moderated hierarchical regression, OLS, and so forth). The frequent use of regression tools may suggest their appropriateness for examining entrepreneurship-related research questions or, alternatively, the inability to use more sophisticated analyses owing to such characteristics as limited sample sizes. The dependent variable(s), the character of the independent variables, and the nature of the questions a researcher seeks to answer are among other factors that could influence the selection of regression techniques for examining entrepreneurship questions.

Dependent Variables

Table 6 presents six categories of dependent variables that have been commonly used in entrepreneurship articles published in *AMJ*. Our examination revealed that over 40 unique dependent variables (e.g. founder departure, organizational survival, the risk-taking propensity of entrepreneurs, and various accounting performance measures) were used in the entrepreneurship articles published in *AMJ*.

As shown in Table 6, "entrepreneurial actions or behaviors" is the category featuring the most frequently, used dependent variables. Here are two examples of our classifications of dependent variables: (1) we placed the decision of entrepreneurial firms to use alliances to increase innovativeness (Steensma, Marino, Weaver & Dickson, 2000) within the "entrepreneurial actions or behaviors" category and

Table 6. Commonly used dependent variables in entrepreneurship articles published in *AMJ*

Period	Entrepreneurial actions or behaviors	Organizational growth	Individual or Entrepreneur characteristics	Survival or mortality	IPO performance	Firm performance
1963-69	1	0	2	0	0	0
1970-75	1	1	0	0	0	0
1976-81	0	0	1	0	0	0
1982-87	1	1	0	0	0	1
1988-93	0	2	1	2	0	0
1994-99	3	0	1	2	1	3
2000-hoy	11	6	1	2	2	6
Total	17	10	6	6	3	10

(2) we placed the use of growth in international sales (Autio, Sapienza, & Almeida, 2000) within the "organizational growth" category, although sales growth could arguably fit within "firm performance," The array of dependent variables entrepreneurship researchers use may reflect the field's lack of a unifying theory or the complexity associated with entrepreneurship as an area of management scholarship. Alternatively, it may be that the breadth and depth of the entrepreneurship domain warrant assessment through the contexts suggested by several or perhaps many dependent variables.

We find it interesting that job creation is not a dependent variable used in the entrepreneurship articles that have been published in *AMJ* (to date). Job creation may be an important dependent variable for entrepreneurship researchers to use. Davidsson, for example, argued that entrepreneurship research has the opportunity to "make contributions by relating micro-level change to societal level outcomes" (2004: 159) through job creation studies.

The Bottom Line and a Potential Future

What does our examination of tile entrepreneurship research that *AMJ* has published reveal? The most significant finding presented here (see Fig. 1) is that *AMJ* is definitely publishing entrepreneurship research! More importantly, the amount of entrepreneurship research *AMJ* is publishing continues to increase. Thus, entrepreneurship scholars should feel comfortable in concluding that *AMJ* is a. viable publication outlet for their empirical research. In slightly different words, our analysis supports Davidsson's contention that "there is progress in entrepreneurship research ... (and that) important works in entrepreneurship increasingly appear in highly respected, mainstream journals" (2003: 315).

Our analysis also suggests possibilities about the entrepreneurship research that might be published in *AMJ* in the future. As shown in Table 1, scholars appear to be increasingly interested in studying questions regarding new ventures, international entrepreneurship, and initial public offerings (IPOs). The questions studied could, of course, find entrepreneurship researchers specifying a wide range of hypotheses that are motivated by a number of different theories at varying levels of analysis. In a global sense, we think that future entrepreneurship scholarship may also be influenced by researchers' desire to examine a question Rumelt (1987) (among others) raised: Where do new businesses come from?

In addition to these possible topics, entrepreneurship scholars will, of course, choose to empirically examine other relevant and interesting topics-topics that *AMJ* would want to consider for publication purposes (e.g. the nexus of entrepreneurs and opportunities [Shane & Venkataraman, 2000]). It also seems likely that geographic and skill diversity among entrepreneurship scholars will continue to influence the forming of teams of authors. The robustness of talent and diversity of insights that can result from such collaborations may indeed be a positive trend for designing and executing empirical studies.

Consistent with continuing developments in other areas of management scholarship, we anticipate that in the future, greater attention will be paid to assessing statistical power (Hitt, Boyd, & Li, 2004), validating how constructs were measured (Boyd, Gove, & Hitt, 2005), and reporting and interpreting effect sizes (Ireland et al. 2005), among other issues. Finally, we anticipate that the desire among entrepreneurship scholars to form longitudinal or panel samples and then to use appropriate methods for testing purposes will continue to increase (Hitt, Gimeno & Hoskisson, 1998; Schwartz & Teach, 2000). All of these expectations have the potential to represent positive developments for conducting important and interesting management research in a number of areas of inquiry, including entrepreneurship.

In closing, we want to reiterate that in our view, entrepreneurship research is alive and well in *AMJ*! Thus, we, hope that scholars interested in publishing empirical entrepreneurship research will be encouraged to know that *AMJ* is publishing this type of work and that the number of entrepreneurship studies this journal is publishing is increasing. We are pleased to report this positive trend. *AMJ*'s editors look forward to receiving more entrepreneurship manuscripts in. the coming months and years.

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Appendix

Search Terms Used to Find Entrepreneurship Articles in AMJ

Corporate entrepreneurship
Corporate renewal
Entrepreneurial orientation
Entrepreneur
Entrepreneurship
Family business(es)
Founder(s)
Initial public offering(s)
IPO(s)
Institutional entrepreneurship
International entrepreneurship
Intrapreneurs
Intrapreneurship
New technology venture(s)
New venture(s)
Social entrepreneurship
Spin-off(s)
Start-up(s)
University start-up(s)
Venture capital
Venture capitalist(s)
Venture initiation