ENTREPRENEURING

Entrepreneuring, also known as entrepreneurship, emerged as a leading economic force in the United States in the past two decades and, indeed, has become a major source of vitality in today's global economy. Through entrepreneurship, new businesses have been created which, in turn, have introduced new products and services, advanced technology to higher levels, created new jobs, and opened foreign markets. This article summarizes the key developments in the field and interprets the trends necessary to an understanding of entrepreneuring.

ENTREPRENEURING DEFINED

Entrepreneuring is a term long known for its wide diversity of definitions or implied definitions. The following comment at a colloquium on the subject at the Harvard Business School (1) illustrates this point: "Entrepreneurship as a concept is a moving target. It is often described in metaphoric and approximate terms. It is full of ambiguity. And it arouses strong feelings." Nevertheless, realizing the need to specify the key terms for purposes of discussion, colloquium participants agreed on the following definition: "Entrepreneurship is the attempt to create value by an individual or individuals through; (a) the recognition of significant (generally innovative) business opportunity, (b) the drive to manage risk-taking appropriate to that project, and (c) the exercise of communicative and management skills necessary to mobilize rapidly the human, material, and financial resources that will bring the project to fruition."

Elements or Types of Entrepreneurship

"Entrepreneurship," according to Fry (2), "means the act of creating or growing a business through innovation." Fry adds that entrepreneurship may include one or more of the following elements:

- Starting a business
- Being creative and innovative in developing new products or services
- Managing an existing venture in such a way that it grows rapidly and consistently
- Seeking significant financing and other resources for a potentially high-growth venture
- Accepting risk in the development of a new or growing venture

The entrepreneur is not identified by formal rank or title but retrospectively, after the successful practice of innovation. Entrepreneurship is a pragmatic concept, fundamentally historical in nature.

Role of Environment

Does environment play a role in the success of entrepreneurial ventures? The answer would seem to be yes, given that only a handful of all endeavors succeed. Not only do different kinds of business depend on different kinds of entrepreneurial expertise, but other factors affect the creation of new ventures. The intense concentration of entrepreneurial activity in areas such as the San Francisco peninsula and Route 128 around Boston would suggest that certain environmental factors stimulate entrepreneurship. A number of authors have approached this topic by identifying a set of factors that constitute the environment for entrepreneurship. The environmental factors most frequently cited as essential to successful entrepreneuring are (3):

- Financing/venture capital availability
- Presence of experienced entrepreneurs
- Technically skilled labor force

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Accessibility of helpful suppliers
Accessibility of customers or new markets
Government support and lack of obstacles
Proximity of universities
Availability of land or facilities
Accessibility of transportation
Attitude of local population
Availability of support services (office, communication, etc.)
Living conditions
High level of industrial specialization
High percentage of recent immigrants in the population
Large industrial base and a large urban area
Low barriers to entry

These environmental factors taken together would seem to strongly support new ventures, which are also known as start-ups. In a research study, Sandberg and Hofer (4) found that that industry environment and strategy of new business help determine new business performance. Elaborating on the findings, it is proposed that new ventures are more successful in the following industrial environments:

1. Industries having heterogeneous products—The disposable cups industry would be homogeneous whereas the car industry with all its models and features would be a more heterogeneous industry.
2. Industries in development or growth stages rather than in maturity stages—The compact disc or digital audio industry would be an industry in its growth stages whereas the record industry is in its declining (past mature) stage.
3. Evident market disequilibria—Market disequilibria exists if a product in market A is selling for a lot less than in a similar Market B or if Market A has five movie theaters and Market B has none.
4. Presence of barriers to subsequent entry—A wholesaler who has contracted with the local retailers to be the sole supplier a product or products has essentially created barriers for other wholesalers wishing to enter the market.

THE ENTREPRENEUR

Webster's Encyclopedic Unabridged Dictionary of the English Language (5) defines the entrepreneur as "a person who organizes and manages any enterprise, esp. a business, usually with considerable initiative and risk." J. S. Mill (6) introduced entrepreneurship as a term used by economists. Generally speaking, he considers direction, control, and risk bearing to be entrepreneurial functions. Schumpeter (6) stressed the role of innovation itself in defining the entrepreneur; he places less emphasis on risk because he believes that both entrepreneurs and managers are subject to the risk of failure. Most present-day writers would consider the owner–manager of a business to be an entrepreneur, but not the person providing the capital without also managing the venture. Clearly, the definitions of an entrepreneur are as varied as the people defining them.

Based on a review of a number of articles on the topic, the following characteristics are most often attributed to the entrepreneur:

1. Self-confidence
2. Perseverance, determination
3. Energy, diligence
4. Resourcefulness
5. Ability to take calculated risk
6. Need to achieve
7. Creativity
8. Initiative
9. Flexibility
10. Positive response to challenge
11. Independence
12. Foresight
13. Dynamism, leadership
14. Versatility
15. Knowledge of product, market machinery, technology
16. Ability to get along with people
17. Responsiveness to suggestion and criticism
18. Profit orientation
19. Perceptiveness
20. Optimism

Entrepreneurs seem to share a number of characteristics. At the same time, it appears that they also differ in a number of ways, with some of these differences attributed to the type of industry. Cooper and Dunkelberg (7) found that entrepreneurs differ from industry to industry. For example, two prospective entrepreneurs might share the common background of holding degrees in electrical engineering and having work experience in the semiconductor industry. They both have similar backgrounds and the interest and drive to be in business for themselves. At the same time, one wants to start a manufacturing business whereas the other is interested in starting a consulting firm. Both unquestionably could qualify as being entrepreneurial, yet one will provide a service and the other will provide a product.

If we accept the definition of entrepreneurship as "venturing into new business activity," we can look at Vesper's (8) work where he introduces his study of new venture strategies with eight types of entrepreneurs:

1. Solos (work as self-employed individuals)
2. Deal-to dealers (start several businesses)
3. Team builders (go on to build larger companies)
4. Independent innovators (start as innovators)
5. Pattern multipliers (run franchises or chain stores)
6. Economy-of-scale exploiters (discounters)
7. Capital aggregators (especially start financial institutions)
8. Acquirers (may speculate or turn-around businesses)

These types give us a sense of the variety of entrepreneurs. New organizations vary in their competitive strategies, their legal form, and the relationships they establish with their customers.

INNOVATION

Innovation is another term for which a range of definitions exists. Fry (2), for example, states, “Innovation is the development and introduction of a new product, a new process, or a new service to a market.” And Peter F. Drucker (9), acknowledged as America’s foremost management authority, says, “Innovation then is an economic or social rather than a technical term. It can be defined the way J. B. Say defined entrepreneurship, as changing the yield of resources. Or, as a modern economist would tend to do, it can be defined in demand terms rather than in supply terms, that is, as changing the value and satisfaction obtained from resources by the consumer.” Drucker further states that entrepreneurs who are not content simply to improve on what already exists or to modify it will have to learn to practice systematic innovation, which is “the purposeful and organized search for changes, and in the systematic analysis of the opportunities such changes might offer for economic or social innovation.”

Types of Innovation

Innovation is both an important tool for entrepreneurs and a major factor in meeting the ever-changing needs of society. Burch (10) identified the following five types of innovation:

1. Introduction of a new product or service that is an improvement in the quality of the existing product or service
2. Introduction of a new method that increases productivity
3. The opening of a new market, in particular an export market in a new territory
4. The conquest of a new source of supply of raw materials, half-manufactured products, or alternative materials
5. The creation of a new organization

Based on his study of job creation in the nation’s smallest companies, Birch (11) suggests that innovation can take one of two forms: creating something new or reshuffling something that already exists and presenting it in a new form. Further, the new or reshuffled product or service can fill a new demand or replace an existing one when the task is performed more efficiently. The result, then, is four different kinds of innovation which are described as follows:

1. Creation of a new device or procedure
2. Rearrangement or assembling of existing devices or procedures
3. Creation of a new function
4. Replacing existing function more efficiently or conveniently

SELECTING AN INDUSTRY

Selecting an industry to start a new business is extremely important. Although there are many opportunities that would support a company in stagnant or decaying industries, a nongrowth industry greatly limits your options in attracting venture capital, which establishes industry precedents and the long-term survival of your company.

The advantages of selecting a growth industry are many. A growth industry is an industry that is relatively new and doesn’t have a large number of established companies in it. Market penetration is far easier and less expensive in a young industry in which competition hasn’t had the opportunity to establish itself. Profit margins are also significantly higher. In stagnant industries (12), profit margins are low, usually between 3% and 7%, whereas in growth industries, profit margins of 10 times production costs are not rare.

Most venture capital firms want 10 times investment growth within the first 5 years (12). Because these goals are extremely difficult (if not impossible) to meet in nongrowth industries, most venture capital firms rarely invest in firms that are not in growth industries. The financial investment groups usually determine which industries will be growth industries and which will decay. If the financial firms feel that an industry is a growth industry, they will invest in it heavily enough in years to come to make it a growth industry. On the other hand, if they determine an industry will become a stagnant one, they will withhold funds and stunt that industry’s growth so that it will indeed become stagnant. Therefore, the best source for determining which industries your entrepreneuring efforts should focus on are the financial institutional themselves. They are usually very willing to give their evaluation on which industries are growth ones and which are not.

BUSINESS PLAN

A business plan is a written summary of the entrepreneur’s proposed business venture, including all the details of operations, finance, marketing opportunities, strategies to be followed, and managers’ skills and abilities. In essence, it answers the five Ws and the H: Who? What? When? Where? Why? and How? Although the written document itself does not have to follow any specific pattern, it should be arranged in a logical order that will help the reader understand the proposed business venture. For additional information on preparing a business plan, see the US Small Business Administration’s website at http://www.sba.gov/starting/businessplan.html.

An outline for a typical business plan is shown in Table 1. A well-written business plan serves two essential functions. First, it forces management to chart the firm’s future course and to devise the strategy for following it. The business plan also gives both managers and employees targets to strive for while providing a yardstick for measuring actual performance against those targets. Second, the business plan is used to

Table 1. Business Plan Outline

I.	Executive summary
II.	The industry and the business
III.	Products and/or services
IV.	Manufacturing or operations
V.	Marketing strategy
VI.	Management team
VII.	Financial description
VIII.	Appendix

attract lenders and investors. Because it often provides potential lenders and investors with a first impression of the company and its managers, the finished plan should be professional in both format and content.

Executive Summary

In an executive summary, which is an overview of the entire document, the entrepreneur should summarize all the relevant points in the business plan. This section, which should not exceed two pages, is written last but is placed first in the document even though it is not an introduction. Focusing on the essential information, the executive summary should be written to capture the reader's attention and interest. It often determines whether a person reads the rest of the business plan.

The Industry and the Business

The first main section of the business plan following the executive summary is the description of the industry and the business. The purpose is to describe the business and show how the particular business fits into the industry of which it is a part. The venture should also be identified as to type of business—for example, manufacturing, wholesale, retail, or service enterprise. Discussion in this section is often based on answers to such questions as: How long has the company been in operation? What is the legal form; that is, is it a proprietorship, a partnership, or a corporation? Who owns the company? If the entrepreneur is looking for financing, why does the firm need additional capital at this time? A written statement of the entrepreneur's goals and objectives for the business, both short and long term, should also be included. Lenders and investors may review the goals and objectives at some point in the future to determine whether they have been met. When the business is new and has no operating history, how the idea or concept came about and how far along it is in the developmental stage should be discussed.

The business plan also includes a description of the industry. All relevant forecasts for the industry's performance in the future should be examined. And where they are relevant, answers to the following questions should be included: Is the industry dominated by large firms or small firms, or perhaps by franchised outlets? Is the industry old and well established or new? How profitable is the typical firm in the industry? In addition, significant trends affecting the industry, such as technological changes or legislative actions, should be identified. Also the names of the major competitors the new business will face as it vies for customers in the marketplace should be included. It is these competing businesses who are responsible for shaping the industry as it currently exists.

Products and/or Services

In this section the entrepreneur describes what the company will sell to customers, paying special attention to the advantages, unique features, and alternative uses of the company's products and/or services. Drawings, diagrams, and illustrations may be required if the product is highly technical. Descriptions of products or services are written so that people outside the industry can understand them. Where applicable, a summary of any patents, trademarks, or copyrights protecting the product or service from infringement by competitors should be part of this section. Also typically included is a comparison of the company's products and services with those of competitors, citing specific advantages or improvements making them unique and of value to customers. Finally, plans for developing the next generation of products or services should be discussed.

Manufacturing or Operations

A manufacturing or production plan is an important part of the business plan when the business is a manufacturer. If some or part of the manufacturing process is to be subcontracted, the plan should describe the subcontractors, including location, reasons for selection, and costs. When the manufacturing is to be carried out in whole or in part by the entrepreneur's company, the complete manufacturing process must be described. This typically includes a description of the physical plant layout, the machinery and equipment used, the raw materials used, the names of their suppliers, the manufacturing costs, and a list of equipment needed in the future.

Marketing Strategy

Investors and lenders to new businesses want to know whether a market actually exists for the company's products and/or services. It is imperative for the entrepreneur, therefore, to show that customers in the marketplace have a need for the product or service and that they are willing to pay for it. The marketing strategy section of the business plan describes who the primary customers are, their characteristics, what they buy, and why they buy. It should also describe the size of the market in terms of dollars or units and indicate whether it is growing or shrinking. Finally, the entrepreneur should discuss how the product and/or service should be priced, advertised and promoted, and distributed to potential customers.

Management Team

The management team section of the business plan documents the ability, talent, and integrity of the entrepreneur and key employees who will operate the business according to the plan. A brief paragraph highlighting the experience of each member of the management team is normally included. Each individual's resume should also be included in the appendix. The resume should summarize the person's education, work history with emphasis on managerial responsibilities, and relevant business experience.

Financial Description

For the established business, the balance sheets and income statements for the last three years are placed in the financial data section. Both established and new businesses also need to provide five years of projected balance sheets, income statements, and cash flow statements. Entrepreneurs often use the services of an accounting firm in preparing these statements. An important component of the financial data section is a statement of the assumptions on which these financial projections are based. Prospective lenders and investors will then understand how the entrepreneur derived forecasts for sales, costs of goods sold, operating expenses, accounts receivable, collections, inventory, and other key items.

Appendix

Lengthy documents that would clutter the plan if included elsewhere in the business plan should be placed in the appendix. Examples are drawings of the physical plant layout for a manufacturer, the resumes for the management team and key employees, sample advertisements, and marketing brochures.

GROWTH STRATEGIES

A company's long-term success hinges on its ability to grow by finding opportunities and products for the future. As described by Kotler and Armstrong (13), four growth strategies to consider are market penetration, market development, product development, and business diversification.

Market Penetration

Using a market penetration strategy, a company seeks to grow by increasing sales of current products to current market segments (i.e., current customers) without changing the product in any way. This might be achieved by reducing prices and by increasing advertising and promotional efforts. Obtaining more exposure for the product at trade shows or through press releases published in trade journals are examples.

Market Development

When the company identifies and develops new market segments for current products, it is practicing market development. In other words, new customers are encouraged to buy the product for the first time. For example, when a product that was previously sold only to semiconductor manufacturers is now marketed to other manufacturers it is called market development.

Product Development

Companies following a strategy of product development offer new or modified products to their current market segments. Such developments range from very minor changes in an existing product (e.g., a slightly more compact size) to an entirely new and different item sold to the same customers. At the same time, the company could offer new products to appeal to different users, or it could offer other products in which current customers might have an interest.

Business Diversification

Using a business diversification growth strategy, the company broadens its market focus by starting up or acquiring businesses outside its current products and markets. That is, it seeks to sell products new to its product line to customers it has not sold to before. Some managers approach this task by trying to identify the most attractive emerging markets and then developing plans to serve that market. Diversification can be both a costly and a risky growth strategy. Resources, particularly management time, can be consumed in selecting and buying the business. Then, following the acquisition, management may find itself confronted with problems outside its area of expertise and distracted to the point where it is unable to devote appropriate resources to its original business and products.

Spin-offs and corporate venturing as growth strategies are discussed separately.

VENTURE CAPITAL

"Venture capital," according to *The Arthur Young Guide to Raising Venture Capital* (14), "is a private source of financing for high-risk business endeavors . . .. Venture capital is generally invested in equity ownership of a company or new venture (or ownership that is expected to be converted into equity)." Venture capital companies invest money in businesses having a potential to achieve extremely rapid growth and profits. Venture capitalists expect to make high returns on their investment. As noted by Bygrave and Timmons (15), these investors prefer to invest in companies having a potential price/earnings ratio of 15 times or higher and who are able to return 10 times the original investment in 5 years. Typically, this requires the company to sell an initial public offering of stock in the foreseeable future, usually within 5 to 7 years.

As they grow and develop, business firms move through various life-cycle stages. Aligned with each stage are unique risk/reward opportunities, which, in turn, attract funding sources with matching risk/reward propensities. Even though the business life cycle is said to consist of various stages and substages, it is clear that there is no single pattern that is more closely associated with success than another. Further, all firms do not follow the same pattern in moving through the various stages. In fact, a particular firm may reach a plateau and then stay there indefinitely. For purposes of this discussion, the life cycle is said to consist of three stages and some corresponding substages, as shown in Table 2.

Seed capital is used by the new company while it is being organized and covers expenses such as initial market research, recruitment of management team members, employee wages, or initial sales calls. Working capital represents funds the firm needs to support normal short-term operations. In the case of the start-up venture, capital is needed to finalize development of the new product and to produce and sell the products in quantities demanded by the market. Venture capital is used as acquisition capital by one established business in buying another established business.

Three of the more common sources of venture capital are venture capital funds, Small Business Investment Companies (SBICs), and large corporations. Organized as either limited partnerships or corporations, venture capital funds have the backing of one or more financial institutions (such as insur-

Table 2. Business Life-Cycle Stages

1. Development
   a. Seed
   b. Start-up
   c. Early growth
2. Expansion
   a. Rapid growth
   b. Sustained growth
   c. Bridge
3. Acquisition

ance companies or pension funds), wealthy families, or wealthy individuals and are professionally managed. Preferences for the type of business and industry in which to invest, size of investment, and duration of investment are described by each fund's investment policy. SBICs are privately owned financial institutions that are licensed by the US Small Business Administration. Using a combination of private capital and federally guaranteed debt, SBICs provide long-term capital to small businesses. A number of domestic and foreign corporations, often through venture capital divisions or subsidiaries, make direct investments in start-up or small businesses. These corporate investors tend to invest in companies with the potential for becoming acquisition candidates in the future.

ENTREPRENEURSHIP AND TECHNOLOGY

The terms entrepreneurship and technology have become closely linked in recent years. Indeed, many of the new products in the computer, computer software, and other so-called high-technology industries have been brought to the market by entrepreneurs and the relatively new business ventures they established. The following discussion of technology transfer, technology commercialization, and public technology sources will aid in an understanding of the relationship between entrepreneurship and technology.

Technology Transfer

The term technology transfer is used in different ways in the literature of entrepreneuring and business. One definition is provided by Baty (16), who describes technology transfer as the process of "getting technology originally developed at government cost into commercial markets." A slightly different definition is offered by Burch (10), who states that technology transfer occurs in one of three ways. First, a manufacturer in one country licenses its technology to a manufacturer in another country. The technology could involve either a product or the process used to make a product. Second, one domestic company licenses technology to another domestic company. Third, rather than manufacturing what he or she has invented, an inventor licenses the technology to another company to make and sell the product. The party granting the license often negotiates to receive a royalty payment from the party to whom the technology is transferred.

Technology Commercialization

Technology commercialization is the process of transforming new ideas and scientific findings into commercial products and processes, which are introduced into the market. The term is used to refer to companies introducing products resulting from either their own research and development efforts or those conducted by another company or research institution.

Public Technology Sources

Two federal government programs designed to advance technological innovation by helping small businesses translate research and development into new products are the Small Business Innovation Research (SBIR) Program (17), reauthorized in 1992, and the Small Business Technology Transfer (STTR) Pilot Program (18), created in 1992.

Table 3. Federal Departments and Agencies Participating in the Small Business Innovation Research Program

Department of Agriculture
Department of Commerce
Department of Defense
Department of Education
Department of Energy
Department of Health and Human Services
Department of Transportation
Environmental Protection Agency
National Aeronautics and Space Administration
National Science Foundation

Ten federal agencies and departments, as listed in Table 3, participate in the SBIR Program (17). Under this program, small companies wishing to begin or expand their research and development efforts submit proposals to one of the agencies and may be awarded funds to pursue projects of mutual interest. A company receiving an SBIR award has the option of conducting the research in collaboration with a nonprofit research institution such as a university, a federally funded research and development center, or another entity. According to Zimmer and Scarborough (19), about one out of four small businesses receiving SBIR support have been successful in developing commercially successful products.

To be eligible for an award under the STTR Program (18), a small business is required to collaborate with a nonprofit research institution such as a university, a federally funded research and development center, or another entity. Federal departments and agencies participating in the STTR Program are listed in Table 4. Following submission of a proposal, the agency will make STTR awards based on the small business's qualifications, the degree of innovation, and the market potential of the product to be developed. The program consists of three phases. In Phase I, the start-up phase, awards of up to $100,000 for a period of approximately one year are made to examine the scientific, technical, and commercial feasibility of the small business's idea. In Phase II, awards of up to $500,000 for up to two years are made to expand the results from Phase I. In Phase III, the innovation moves from the laboratory to the marketplace. STTR funding is not available to support this phase, and the small business will need to find other sources of capital.

ENTREPRENEURIAL SPIN-OFFS

When an existing company innovates through the development of new technology, the firm may perceive a new business opportunity (20). But what if the exploitation of this new tech-

Table 4. Federal Departments and Agencies Participating in the Small Business Technology Transfer Program

Department of Defense
Department of Energy
Department of Health and Human Services
National Aeronautics and Space Administration
National Science Foundation

nology involves a new line of products or new markets into which the company is not prepared to enter? The very nature of the opportunity may be inconsistent with the firm's strategy. Does that mean the company ignores this new opportunity? Not necessarily. The company can choose to start a "spin-off". This means the company may invest in a new company dedicated to the development of this new business. The company need not have controlling investment either. This strategy has proved successful in Japan where Toyota Motor Corporation, for example, was a spin-off from Toyoda Auto Loom Works.

CORPORATE VENTURING

The following stages of an entrepreneurial process, as noted by Block and MacMillan (20), are universal, whether an independent entrepreneur or a team in a corporation carries it out:

An opportunity must be identified.

The opportunity must be evaluated.

A solution must be found or invented to fulfill the opportunity.

Resources must be acquired: money, people, plant, and equipment.

These resources must be managed to start up, to survive, and to expand.

When an existing company or corporation engages in a new venture, it is called corporate venturing. Corporate venturing can be defined as the act of internally generating new business. What differentiates a corporate venture from other activities? A project is considered a venture when it (20):

Involves an activity new to the organization,

Is initiated or conducted internally (to the organization),

Involves significantly higher risk of failure or losses as well as greater uncertainty than the existing business the corporation is involved in,

Will be managed separately at some time during its life, and

Is undertaken for the purpose of increasing sales, profit, productivity, or quality

Although a venture may originate externally, the venturing activity is organizationally internal to the parent company. Internal corporate ventures may include major new products, development of new markets, commercialization of new technology, and major innovative projects. They can involve a significant diversification or be closely related to the company's current line of business. The key differentiating factors are risk, uncertainty, newness, and significance.

The dividing line between a new venture and an extension of a current line of business is not always clear, but it is important nonetheless to determine this. Deciding that the new business is, in fact, a new venture will help an organization define the kind of management the project will need. This decision may be critical to the success of the new business.

Creating a new business is different from modifying an old one to meet new challenges. New ventures require a very different approach to management—one consisting of integrated entrepreneurial management and leadership. This contrasts sharply with the traditional approach to management in which activities are separated into functional departments.

Why Do Companies Venture?

Companies venture primarily to grow and to respond to competitive pressures. A 1987 survey by Block and Subranarsimha (20) found that for 43 US and 149 Japanese companies, the most common reason for venturing was "to meet strategic goals" and "maturity of base business."

An organization's very survival depends on constant growth and strategic defense against competition. Long-term competitiveness cannot be maintained without innovation and the generation of new ventures. Growth can be achieved by increasing market penetration within existing markets with existing products, by introducing new products to existing markets, by entering new markets with existing products, or by introducing new products to new markets. The more mature a market, the more difficult it is to penetrate. Thus it becomes imperative for the company to innovate and develop new products and new markets.

Who Should Venture?

The question arises: should all companies venture? It is clear that all organizations must innovate and venture in order to survive competitively, but not every organization must be prepared at all times to start a new business internally. Other options exist, including creating spin-offs and venturing with corporate venture capital. In general, a company should not venture unless venturing is an integral part of its organizational strategy and is seen as essential to survival and the achievement of corporate objectives. In the same light, it is very important to recognize that venturing in some form and at some level is essential to an organization's long-term survival in a competitive world.

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ENVIRONMENTAL ENGINEERING AND DESIGN. See Environmentally sound assembly processes.

ENVIRONMENTAL IMPACT MINIMIZATION. See Life cycle optimization.

ENVIRONMENTAL IMPACTS OF TECHNOLOGY. See Environmentally sound assembly processes.