

incubators

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Incubators refer to economic development tools and programs designed to promote and accelerate the growth of entrepreneurial companies through the provision of a variety of services and resources (Barrow, 2001). Incubators help new ventures overcome the liabilities of newness by offering start-up firms many benefits not available to the typical new venture. These benefits include flexible, low-cost office or lab rental space, access to sources of capital, and a number of business and support services, such as a secretarial pool or administrative staff, shipping, receiving, and copying services, and human resource, finance, legal, information technology, and accounting services. Members of incubators can also benefit from the flow of skills and resources across multiple members within the incubator's network or ventures. Business expertise, however, is perhaps the most valuable resource incubators provide, as they can offer consulting services and help incubatees develop business and marketing strategies. Given that nearly 60 percent of all new businesses fail within four years of start-up, mostly due to insufficient financing and a lack of managerial expertise, incubators can assist new ventures through their infancy with the intent of nurturing them to the point they can become self-sustaining (Sherman, 1999).

Through their collective arrangement, incubator firms can gain access to higher quality and lower cost business and professional services than they would be able to garner on their own. During start-up, new venture managers can invest half of their time on administrative chores which can be more quickly and efficiently managed within the incubator (Hansen et al., 2000).

To help fund their operations and offset the costs of the services and space provided, incubators may charge reduced fees, take a portion of the venture's revenues, or even acquire an equity stake (usually 20–40 percent) in their incubatees, although the latter practice is far more prevalent among for-profit incubators.

The first incubator was created in 1959 outside Buffalo, NY, by Joseph Manusco, who bought a dilapidated 850,000 square foot Massey Ferguson factory (Barrow, 2001). Within a year, Manusco was renting space to approximately 20 small companies, one of which was a company that incubated chickens, which is how the name "incubator" was created. By 1980, 12 incubators existed within the United States; that number rose to over 950 by 2003 (with about a third of these being for-profit) with another 3,000 worldwide (only about one-tenth being for profit).

According to the National Business Incubation Association (NBIA, 2003), incubators can be broadly classified into three categories. The first, technology incubators (also called technology innovation centers and/or science parks), include incubators which are established with the primary purpose of commercializing new technologies or creating new innovation opportunities. These facilities are often affiliated with research universities that wish to transfer technologies developed in academic labs into commercial uses, or with major corporations that feel the need to create an external venture to "spin-in" or "spin-off" businesses which might not be completely compatible with the parent firm's existing businesses or technologies. Technology incubators also help corporations provide incentives to their more entrepreneurially oriented employees. About 40 percent of incubators are technology focused.

The second type of incubators are empowerment or microenterprise incubators, which account for less than 5 percent of incubators. These incubators are typically created by state and local governments to address socioeconomic issues, like creating jobs, growing or diversifying the economic base of a community, or revitalizing neighborhoods.

The third type, mixed use incubators, which account for nearly half of all incubators, are mostly concerned with fostering new businesses of all kinds. Some of these mixed use incubators might focus on specific industries or niches, like biotechnology, information technology, or Internet start-ups.

Despite their differing goals and objectives, evidence suggests that incubators can be effective. Typically, incubator ventures graduate to self-sustaining, stand-alone status after two and a half years, with the vast majority of these graduates (87 percent) remaining in business. The NBIA reports that their member incubators generate \$45 in local revenue taxes for every \$1 of public subsidy they receive and that North American incubators have created over half a million jobs since 1980. In 2001, approximately 35,000 North American incubator companies existed.

Early incubators were typically not-for-profit and emphasized economic development goals. In recent years, that trend has changed, as the prevalence of for-profits incubators, or “business accelerators,” has increased, many designed based on the experience of venture capitalists. The explosion and wealth creation of many “dot.coms” fueled the rapid expansion of these accelerators, which have the goal of fast-tracking a new venture toward an IPO or developing the new venture into an attractive acquisition target which allows the investing accelerator to reap substantial profits. Accelerators are generally highly involved in the planning and operations of the ventures under their control. During the 1980s, other for-profit models, labeled “EcoNets,” “MetaCompanies,” or “Internet keiretsus,” flourished. EcoNets are aggressive incubators which retain control of the ventures after start-up and orchestrate their network of hatchlings while trying to capitalize on the synergistic benefits of a diversified portfolio of businesses. MetaCompanies combine the characteristics of an incubator, a venture capitalist

firm, and a diversified operating company, but tend to focus on a more narrow line of business than their EcoNet counterparts. Many for-profit incubators and accelerators have struggled, and even failed, due to the infrequency of liquidity events (i.e., IPOs or acquisitions) that leads to financial difficulties, as well as their overreliance on information technology ventures which failed when the dot.com bubble burst (Johnsrud, Theis, and Bezerra, 2003). Many of those accelerators that survived have been forced to diversify their portfolios and develop more traditional revenue streams, such as collecting fees for service, to remain solvent.

Several studies have examined the best practices of incubators. For example, one study found that in addition to offering a wide variety of services, high-performing incubators either had a strong relationship with a research university, or a medical or research laboratory, or was located in a metropolitan area with ample access to technology-based companies and high-quality business service firms (Tornatzky, Sherman, and Adkins, 2003). Hansen and his colleagues (2000) suggest that “networked incubators,” which deliberately foster partnerships among the start-ups and facilitate rather than control the entrepreneurial spirit of the incubatees, provide the model for incubator effectiveness. According to the NBIA (2003), model business incubators should not only be concerned with contributing to the economic community by maximizing the launch of successful companies, but should also consider themselves “a dynamic model of a sustainable, efficient business operation.” The latter is achieved by developing a realistic and financially solid plan, recruiting skilled talent to manage the incubator, developing a committed board of directors, building the collective resources, offerings, and capabilities of the incubator, weaving the incubator firms into the local economic community, fostering mutually beneficial relationships between the ventures within the incubator, and practicing continuous improvement to provide better services to future prospective businesses.

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incumbents' advantage

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Most academics and practitioners highlight the advantages enjoyed by new entrants (Foster, 1986; Christensen, 1997). New entrants are often viewed as initiating a Schumpeterian process of creative destruction (*see* CREATIVE DESTRUCTION), frequently replacing industry incumbents and rising to dominance. Yet there are many examples of incumbents who successfully weather waves of radical change in a wide range of industries, including computing and the life sciences (Hill and Rothaermel, 2003). Thus, entrepreneurs and entrepreneurship scholars need to be aware of the advantages enjoyed by incumbents that may retard entrepreneurial success.

The pioneering work of Schumpeter (1934, 1942) is not clear on whether incumbents or new entrants are likely to succeed in commercializing innovation, because it suggests that both – new entrants and incumbents – can have the upper hand when innovation occurs. Schumpeter attributed the incumbents' advantage to monopoly power that allows for limited competition and scale advantages in access to capital and R&D funding, among other advantages. Later work in industrial organization economics, emphasizing differential economic incentives, clarified that incumbents are likely to be successful when an

innovation is *incremental*, while new entrants are favored when an innovation is *radical* (Tirole, 1998) (*see* RADICAL INNOVATIONS).

More recent theoretical work has highlighted the importance of complementary assets in determining whether incumbents or new entrants are more likely to profit from an innovation (Teece, 1986). The commercialization of an innovation “requires that the know-how in question be utilized in conjunction with other capabilities or assets. Services such as marketing, competitive manufacturing, and after-sales support are almost always needed. These services are obtained from complementary assets, which are specialized” (Teece, 1986: 288). Examples include the commercialization of the CAT scanner or soft-drink innovations like diet cola, where the innovators (EMI and RC Cola) lost to incumbents (GE Medical Systems and Pepsi, Coke) due to a lack of specialized complementary assets.

Following Teece (1986), we suggest that the *type* of complementary assets necessary to commercialize an innovation is likely to be paramount in determining the performance consequences for incumbent firms. In particular, we argue that incumbents are advantageously positioned when the complementary assets needed to commercialize an innovation are specialized or co-specialized to the innovation. Specialized complementary assets exhibit unilateral dependence between the innovation and the complementary assets, while co-specialized complementary assets are characterized by a bilateral dependence. A stellar reputation for quality and service in hospital equipment is considered a specialized complementary asset, while specialized repair facilities for Mazda's rotary engine would be a co-specialized complementary asset. We use the term *specialized complementary assets* to denote both specialized and co-specialized complementary assets.

Recent empirical research has shown that incumbents even benefit from radical innovation through leveraging specialized complementary assets. Tripsas (1997), in her longitudinal study documenting multiple waves of innovation in the typesetting industry, showed that incumbents who were able to leverage specialized complementary assets like manufacturing capabilities, proprietary font libraries, or a sales and service network, continued to thrive in the

face of radical technological innovation, time and time again. Rothaermel (2001a) also provided some evidence for the notion that incumbent pharmaceutical firms were able to leverage their complementary assets in downstream value chain activities, such as clinical trial and regulatory management as well as drug distribution, through interfirm cooperation with new entrants. This alliance strategy has not only yielded superior firm performance for some incumbents, but also improved the overall industry performance of incumbents as a group, because they were able to extract significant innovation rents despite the fact that the innovation was introduced by new entrants (Rothaermel, 2001b). The key to continued superior incumbent performance in both the typesetting and pharmaceutical industries was specialized complementary assets held by incumbents. These assets are frequently *non-technological* in nature and are built over long periods of time.

Thus, complementary assets needed to commercialize an innovation ought to be of particular interest to entrepreneurs and entrepreneurship scholars. Hill (1997) posited that new entrants should go it alone if they have the required complementary assets and barriers to entry are high. When new entrants lack complementary assets, they should enter into a cooperative arrangement with an incumbent firm. New entrants may be able to obtain complementary assets in strategic factor markets (Barney, 1986), and if they are priced below their rent-generating potential, new entrants are well positioned to extract the profits from innovating (see COMPETITIVE ADVANTAGE). Taken together, innovation is the *sine qua non* of entrepreneurship. Yet incumbents enjoy many advantages that have a direct bearing on whether entrepreneurial ventures will succeed or fail. This fact offers abundant research opportunities to enhance our understanding of entrepreneurship and to more accurately inform practice.

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initial public offerings and new ventures

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Initial public offerings (IPOs) transition privately held new ventures into the arena of public trading. Firms have undertaken IPOs in over thirty countries, but the majority of IPO research involves firms in the United States (for a review of IPO research in international settings, see Ritter, 1998). In the US, privately held firms are typically owned by a small number of investors (see ENTREPRENEUR; BUSINESS ANGEL NETWORK; VENTURE CAPITAL) and are not required to file financial statements with the Securities and Exchange Commission (SEC).

While IPOs are usually associated with new ventures, it is important to note that they also

apply to spin-offs (*see SPIN-OFFS*), reverse leveraged buyouts, and closed-end mutual funds. The majority of IPO researchers, however, typically exclude such IPOs from analysis. Research indicates that entrepreneurs serve as CEO for approximately 50 percent of IPO firms, with the remainder led by “professional” managers (Certo et al., 2001).

Undertaking an IPO (also known as “going public”) transitions the private firm into a publicly traded company. With this new status of being publicly traded, shares of the IPO firm’s stock are listed on a stock exchange (e.g., New York Stock Exchange) and investors are able to buy and sell shares of the company’s stock through stockbrokers. In addition, the SEC requires publicly traded companies to abide by certain rules and regulations, such as the requirement that such firms must file audited financial statements.

IPOs have become a rather popular financing tool; between 1980 and 2001 over 6,200 firms raised nearly \$500 billion through IPOs in the United States (Ritter and Welch, 2002). Research suggests a number of reasons for which firms undertake IPOs (Rock, 1986). First, an IPO helps the firm raise new capital. By issuing new shares to the public, the firm brings in new capital to invest in new technologies, manufacturing facilities, employees, etc. Second, the IPO helps the firm’s initial investors to diversify their investments in the firm. Specifically, executives and investors in some firms use the IPO as an opportunity to sell existing shares; presumably these investors are able to use the proceeds from such sales to invest in other types of investment vehicles. In this sense, many venture capitalists view IPOs as a primary exit strategy. Third, firms undertake IPOs to gain organizational legitimacy (Certo, 2003). Existing as a publicly traded firm may establish credibility among key stakeholders such as customers, suppliers, and employees.

Owners and executives of firms going public adhere to a standardized IPO process (for a detailed description of the IPO process, see Ellis, Michaely, and O’Hara, 1999). The first step in this process usually involves enlisting the assistance of a lead investment banker (investment bankers are also referred to as underwriters). With the assistance of the underwriter,

executives begin to draft the registration statement. The registration statement, which must be filed with the SEC, details the company’s strategy, top executives, and financial statements. The investment banker then uses this registration statement to market the firm to potential investors. The investment banker also arranges for road shows, which involve presentations by the company’s top executives to potential investors, such as mutual and pension fund managers. After these road shows, the investment banker gauges demand for the offering by querying potential investors with respect to their desires to purchase shares in the company; this process is referred to as “book building” (for an excellent description of book building, see Cornelli and Goldreich, 2001). Based on these queries, investment bankers determine the final price at which shares of the company will sell to the public. This final price is known as the IPO’s offer price.

Empirical research has determined two trends with respect to the performance of IPO firms. The first trend involves the consistent underpricing of IPOs, and the second trend concerns the consistent long-term underperformance of IPO firms. The following sections detail research examining these two trends.

UNDERPRICING

Research suggests that on the first day of public trading, the share prices of IPO firms regularly close at prices that exceed their offer prices. This phenomenon is referred to as underpricing. A fictional example of XYZ, Inc.’s IPO will illustrate how underpricing occurs. Suppose that underwriters established an offer price of \$10 per share for XYZ. At the end of the first day of trading, though, shares of XYZ closed at \$13 per share. In this example, the firm raised \$10 for each share of equity sold to the public. The closing price of \$13 indicates, however, that the price set by investment bankers was less than the price determined by the stock market at the end of the first day of trading; this is known as IPO underpricing.

Underpricing produces consequences for both IPO firms and investors. Continuing the example of XYZ, Inc., executives of XYZ received \$10 (offer price) for each share of stock sold to new investors. If the investment banker

had priced the shares efficiently, however, executives of XYZ would have received \$13 for each share sold to new investors. In other words, efficient pricing would have enabled executives to receive an extra \$3 per share to invest in new technologies, equipment, employees, etc. Instead, this extra \$3 is captured by the initial investors, who purchased shares of XYZ for \$10 and witnessed the price increase to \$13 by the end of the first day of trading. Because the IPO firm does not capture this value, some commentators have referred to underpricing as “leaving money on the table” (e.g., Ritter and Welch, 2002) and questioned the efficiency of the IPO pricing process (Lowry and Schwert, 2004).

Empirical work by Ritter and Welch (2002) indicates that underpricing represents an economically significant phenomenon that appears to vary with overall investor attitudes. In the 1980s, for example, shares of IPO firms were underpriced by 7.4 percent on average; underpricing during this period resulted in approximately \$5.4 billion dollars being left on the table. In just 1999 and 2000, though, shares of IPO firms were underpriced by 65 percent on average, which resulted in over \$65 billion being left on the table. Despite the prevalence of this market anomaly, relatively little is known with respect to the determinants of underpricing (Daily et al., 2003).

THE LONG-RUN PERFORMANCE OF IPO FIRMS

Another trend associated with the performance of IPO firms involves the relative underperformance of firms in the years immediately following their IPOs. Ritter and Welch (2002) reported that the average firm going public between 1980 and 2001 trailed the general stock market by over 23 percent in the three years following its IPO. Complementing this finding, Jain and Kini (2000) analyzed a sample of firms undertaking IPOs between 1977 and 1990 and found that only about 75 percent of these firms continued to operate independently as public corporations within five years after their IPOs. In other words, more than 25 percent of these firms failed to maintain their status as publicly traded companies within five years of their IPOs.

As compared to the underpricing literature, there exists a less substantial stream of research examining the long-run underperformance of IPO firms. Jain and Kini (2000), for example, found that firms backed by venture capitalists were more likely to survive than firms not backed by a venture capitalist. Mikkelsen, Partch, and Shah (1997) found that larger IPO firms enjoyed higher levels of operating performance as compared to smaller IPO firms.

Although difficult to measure, overconfidence might also represent a potential explanation for the long-run underperformance of IPO firms. Specifically, it could be that both entrepreneurs and investors are overly optimistic at the time of the IPO. Such overconfidence could lead entrepreneurs to invest IPO proceeds in projects that are unlikely to reap benefits and investors to invest their capital in IPO firms with questionable growth prospects.

CONCLUSION

Going public will continue to represent a popular financing strategy for entrepreneurs and venture capitalists as they attempt to advance their firms. The substantial body of research examining IPO firms notwithstanding, there exist several additional areas for further exploration. Future research, for example, could further examine the pricing of IPOs. While extant research focuses primarily on prospectuses to examine IPO pricing, future research might involve collecting primary data from investment bankers, entrepreneurs, and venture capitalists. Understanding how these important stakeholders perceive IPO firms might help in explaining IPO prices.

Complementing this research on IPO pricing, additional examinations of the long-run performance of IPO firms are warranted. Specifically, future research could examine how changes within the firm help to circumvent long-run performance problems. Changes in top management team structures, for example, might help firms to adapt to the rigors of public trading. Similarly, changes in diversification levels, financial structures, strategies, and compensation systems might also influence long-run performance. Studies examining these issues would

surely benefit scholars in multiple disciplines who continue to explore the IPO process.

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innovations

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Technological innovations are commercialized inventions, where inventions refer to the development of a new idea or an act of creation (Hitt, Hoskisson, and Nixon, 1993). Innovations can take the form of new products, new uses for existing products, and new devices, designs, services, methods of production, or systems of arrangements. Technological innovations can thus come in many different forms: a new computer

chip (device), a new ergonomic design for chairs (design), allowing for issue of electronic air-tickets through Internet websites (service), a new desalination technology to obtain fresh water (methods of production), and a new arrangement of the production line that improves quality control (system of arrangements). Because innovations are end products of successful inventions, the two constructs (“innovations” and “inventions”) are often perceived to be synonymous. However, one should recognize that the same invention could be commercialized in different forms, hence appearing as different innovations. For example, a new invention in the art of coffee-making can be embodied in the form of a new coffee-maker machine that incorporates this new principle, or it can be a new procedure for making the coffee – a specific and explicit method of combining coffee beans and hot water, leading to the transformation of such raw materials into the beverage, without a specific product that incorporates this procedure.

The key component to an innovation is the “newness” or novelty in the underlying invention, the improvement(s) that it entails over the existing pool of knowledge in its field. It is through the ability to improve on current knowledge and better satisfy consumer needs that an invention creates value, and hence justifies its commercialization. The value of the innovation represents the extent of the improvement and the value that users of the innovation place on such improvements. Hence, while the extent of “newness” in the invention might be high, such novelty does not necessarily translate into a high-value innovation, unless this novelty adds commensurate value to users.

Innovations can also refer to novelties in organization design or practice. For instance, M-form and matrix structures are illustrations of organizational design innovations. Similarly, total quality management is an illustration of an organizational practice innovation.

There are various dimensions along which innovations have been classified, namely: (1) radical vs. incremental (Abernathy and Utterback, 1978) (*see* RADICAL INNOVATIONS); (2) competence-destroying vs. competence-enhancing (Tushman and Anderson,

1986); (3) architectural vs. modular (Henderson and Clark, 1990); (4) disruptive vs. sustaining (Christensen, 1997; Adner, 2002) (*see* DISRUPTIVE INNOVATIONS); and (5) product vs. process. Most of the above innovation types have been studied in the realm of technologies. Classifications (1), (2), and (4) are based on the *effects* of innovations, whereas classifications (3) and (5) are based on the *nature* of the innovations.

The various typologies are discussed briefly below:

- 1 A radical innovation is one where the extent of novelty is high, in terms of either performance on a set of attributes (or price performance) or if it represents a major change or a breakaway from the previous technological trajectory. It is often associated with terms like “breakthrough inventions” (Ahuja and Lampert, 2001) and discontinuous innovation (Tushman and Anderson, 1986).
- 2 To the extent that the radical innovation creates a discontinuity in the original technological trajectory, it can also be competence-destroying, if it renders previous know-how irrelevant as it pushes the technological frontier towards one defined along a new trajectory. For example, the arrival of PC technology in effect reduces the value of word processor and typewriter technologies and makes irrelevant the production competencies that typewriter producers built up over the years. On the other hand, an incremental innovation is one that represents minor improvements over existing technologies and know-how. The novelty embedded in such innovation is less. Such innovation often tends to enhance or preserve the value of existing knowledge and products (hence it may be competence enhancing), and does not create a major breakthrough; nor does it cause any large discontinuities in the existing technological trajectory.
- 3 The architectural/modular dimension of innovation represents an almost orthogonal dimension to that of radical/incremental, and draws on the concept of recombination. To the extent that innovations arise from the recombination of existing knowledge components, architectural innovations can have “radical” effects despite not using any radic-

ally new knowledge components. Architectural innovations embody mainly the knowledge of how to recombine existing elements, and a radical architectural innovation is one that is radical in its method of recombining existing elements. Modular innovations, on the other hand, represent improvements in the knowledge embedded in the individual components. Henderson and Clark (1990) give the example of the room fan: the modular components are the blade, the motor, the blade guard, and control system, etc., and the architectural knowledge is the know-how of putting the various components together to create moving air.

- 4 An innovation is disruptive if it disrupts the original technological trajectory and displaces the mainstream technology – oddly, not with a superior technology, but rather with what is at least initially an inferior one (Christensen, 1997). The disruptive innovation, while having poorer performance on some dimensions, is able to satisfy the main needs of the mainstream consumers at lower cost and hence takes over the market, while the original technology is too focused on the needs of the most sophisticated consumers and misses the chance of meeting the growing demand for a product with a different value proposition.
- 5 Innovations can also be classified according to the nature or form in which the innovation resides. Innovations taking the form of a new object, device, design, or service are called product innovations, and innovations taking the form of a new arrangement or method are called process innovations. An alternate distinction between product and process innovations has also been suggested (Scherer, 1984; Cohen and Klepper, 1996). Process innovations are those that are used in the industry in which they are created, while product inventions are those that are used in an industry different from the one in which they are created.

Innovations are often measured using counts of patents, new products, or new processes. A patent, by definition, represents a unique and novel element of knowledge, and gives the inventor the exclusive rights to the invention.

Such legal protection of intellectual property rights provides an incentive for inventors to file patents for their patentable inventions. If the value of the invention exceeds the cost of patenting, then the inventor will prefer to file for a patent. Hence, patents are perceived as good indicators of innovations of at least some economic significance. However, patents are naturally not complete measures of all innovations, as some inventors might choose to keep the invention secret (and hence not file for a patent), or some innovations may not be patentable (e.g., when the novelty of the innovation cannot be made explicit). Finally, patents vary considerably in their economic value, and many patents have very little economic value. Industries also differ considerably in the efficacy of patents at protecting innovations and hence are characterized by widely varying propensities to patent inventions.

Similarly, product and process count measures of innovation present some strengths. They represent a more “advanced” indicator of innovation in that the innovation has been extended from the patent stage to a market or usage stage. However, such data are generally difficult to collect and demarcating new products and processes can be complex.

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internal venturing

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Corporate venturing (CV) refers to the process by which an organization enters a new domestic or foreign market. This process enables established organizations to create and use products or process innovations to target new markets (Venkataraman, MacMillan, and McGrath, 1992). These activities could be external (e.g., alliances, corporate venture capital and acquisitions) or internal. Internal venturing activities stimulate and promote entrepreneurial activities within a company's ongoing operations. Some refer to internal venturing as “internal entrepreneurship,” “intra-corporate entrepreneurship,” or “internal corporate entrepreneurship” (for a review, see Schollhammer, 1982). The theoretical domain and importance of these activities have evolved over the past two decades, reflecting the changes that have occurred in the business environment and managerial practice.

EVOLUTION OF THE INTERNAL VENTURING CONCEPT

Earlier writings on internal venturing have highlighted formally sanctioned organizational activities intended to stimulate innovation in a firm's operations (Schollhammer, 1982). Some of these activities are opportunistic in nature, exploiting transient opportunities in the firm's existing markets or operations. Internal venturing activities may be incubative, focusing on creating a setting in which new ideas or initiatives are

explored, supported, evaluated, and institutionalized. Some incubative activities require the creation of autonomous business units that develop new business concepts and practices (Zahra, 1991, 1996).

Burgelman's (1983a, 1983b, 1984) research was a milestone in the study of internal venturing. It separated formally induced (i.e., formally sanctioned) from autonomous (informal) efforts aimed at creating strategic options for the firm through entrepreneurship. Pinchott (1985) later observed that employees and middle managers often initiate informal projects that increase innovation, allowing their companies to enter market arenas. Employees initiate these autonomous activities even when formal systems do not exist to create the momentum for change. Bootlegging and skunkworks are popular informal approaches to internal venturing. While formal and autonomous venturing activities may collide, they often complement one another. The role of senior management centers on creating the mechanisms that induce and strategically exploit complementarity among various formal and informal initiatives. Therefore, by the mid-1990s, several corporations had initiated multiple programs to encourage internal venturing by facilitating the coexistence of formal and informal activities.

APPROACHES TO INTERNAL VENTURING

Companies vary considerably in their approaches to internal venturing. Some companies simply assign this task to a senior manager of an existing unit, such as R&D. Other companies create a task force or a cross-functional team that champions these activities and reports on their progress to the firm's top management. Other companies have created autonomous units whose sole responsibility is to create the context, process, and systems that foster and sustain internal venturing. For example, in 1996, Nortel Networks created a "business ventures group" with a mandate to "identify, cultivate and incubate possible stand-alone internal ventures" (O'Connor and Maslyn, 2002: 2). The group has an advisory board that seeks input from everyone in the company. The ventures' group provides a hospitable place where new business concepts are identified and screened against preset criteria. Once successfully

screened, a business proposal is developed and refined. Promising proposals are then presented to the business venture group's advisory board. Ideas that meet organizational and strategic criteria are approved for investment and given the time to develop. Upon evaluation of their progress, final recommendations about the fate of these projects are made. Projects could be spun-in (for internal development), spun-out externally, licensed, or terminated. Throughout these various activities, the business venture group is expected to work with the company's various business units and keep senior managers informed.

SUCCESSFUL RECIPES FOR INTERNAL VENTURING

Success in internal venturing requires strategic clarity about the firm's direction, competencies, and objectives. It is necessary also to recognize the limitations of formal innovation systems that might exist within the organization and accept the possibility that employees, at all levels, can contribute to the firm's ability to innovate and take risks. Internal venturing programs also require successful and sometimes forceful champions to sell innovative business ideas to senior managers. Champions connect the outcomes of the internal venturing process to the firm's various existing units, creating a basis for synergy in sharing the firm's assets. These programs require a longer time horizon to succeed, which requires sustained organizational support. Strategic control systems that appreciate the exploratory nature of the firm's internal venturing activities are also needed to safeguard against a short-term orientation in managing these activities. The success of these programs also requires resolving conflicts and communication issues that arise between venture groups and existing units. Champions devote considerable energy to linking various organizational units and ensuring that new initiatives are connected to the strategic vision of the organization.

IMPORTANCE OF INTERNAL VENTURING

Internal venturing activities foster innovations of different types (Baden-Fuller, 1995) by creating a setting in which new ideas receive political and organizational support. Internal venturing units also provide a safe environment in which

new ideas are tested and refined before presenting them to operating units or senior managers. These activities can promote organizational learning and the acquisition of valuable new knowledge (Zahra, Nielsen, and Bogner, 1999). This learning can be organizational (how to structure things), strategic (how and where to compete), or technological. Internal venturing also makes use of different knowledge bases that exist within the firm, generating the requisite combinative knowledge that becomes the foundation of competitive advantage. By linking diverse bodies of knowledge, internal venturing units also create a setting in which various organizational members from different divisions interact, share their experiences, and learn. This sharing becomes a foundation for joint innovative activities crossing divisional boundaries. Organizational learning also serves to create new competencies, allowing the firm to redefine its strategic arena differently and compete in ways that give supremacy over its rivals. Understandably, some research reveals that internal venturing is conducive to higher profitability and growth (Zahra, 1991). Another benefit of internal venturing is providing a forum that fosters employee innovativeness, which can improve productivity. When employees feel safe to innovate, they are likely to experiment with new combinations of resources, providing a basis for differentiation that creates competitive advantage.

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international entrepreneurship

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We define international entrepreneurship as the discovery, enactment, evaluation, and exploitation of opportunities – across national borders – to create future goods and services (McDougall and Oviatt, forthcoming). The scholarly study of international entrepreneurship attempts to answer questions about how, by whom, and with what effects those opportunities are acted upon. It includes two branches: (1) the study of entrepreneurial activity that itself crosses national borders and (2) the comparison of domestic entrepreneurial activities in multiple countries.

The definition is a deliberate effort to blend the foci of entrepreneurship and international business, and we believe a full understanding of the definition requires an appreciation of its evolution. Furthermore, we believe understanding is also aided by examples of well-conducted research from both branches of study in international entrepreneurship.

In their comprehensive review of international entrepreneurship, Zahra and George (2002) noted that the first known reference to the term “international entrepreneurship” was

in a three-page article by Morrow (1988), in which the author showed the impact of technological advances and increased cultural awareness in making once remote markets accessible to established companies and new ventures. The following year, McDougall's (1989) study comparing domestic and international new ventures marked the beginning of academic study specifically positioned as international entrepreneurship research. She narrowly defined international entrepreneurship as "the development of international new ventures or start-ups that, from their inception, engage in international business" (1989: 388).

At the 1992 Academy of Management meetings, a commissioned task force held a special session entitled "What does international entrepreneurship mean to division members?" The general consensus of the membership was that the definition of international entrepreneurship needed to be broad and its multidimensionality should be encouraged (Giamartino, McDougall, and Bird, 1993).

While most of the early work in international entrepreneurship emanated from entrepreneurship scholars, Wright and Ricks (1994) highlighted it as a newly emerging research direction for international business scholars, which was noteworthy since international business researchers at that time focused almost exclusively on established companies. Their definition also drew attention to the need to include a comparative focus.

More recently, McDougall and Oviatt proposed a new definition of international entrepreneurship in a Special Research Forum in the *Academy of Management Journal*, noting that firm size or age were not defining characteristics: "International entrepreneurship is a combination of innovative, proactive, and risk-seeking behavior that crosses national borders and is intended to create value in organizations" (2000: 903).

Highlighting the fact that the bulk of international entrepreneurship research has focused on the internationalization of new ventures, Zahra and George (2002) sought to emphasize the role of established firms in international entrepreneurship. They defined international entrepreneurship as "the process of creatively discovering and exploiting oppor-

tunities that lie outside a firm's domestic markets in the pursuit of competitive advantage" (2002: 261). Thus, Zahra and George more explicitly included corporate entrepreneurship.

As noted by Young, Dimitratos, and Dana (2003) in the inaugural issue of the *Journal of International Entrepreneurship*, a journal dedicated exclusively to the study of this growing field, regular "soul-searching" on the boundaries of international entrepreneurship is not unique. They noted that during the last decade significant discussions in international business have taken place, with definitions ranging from "transactions that cross national boundaries" (Rugman and Hodgetts, 1995: 4) to "a multi-level economic exchange process" (Toyne, 1997: 37). Within entrepreneurship, a definitional debate has plagued the field since its infancy (see, for example, Gartner, 1988; Venkataraman, 1997; Shane and Venkataraman, 2000). Building on the definition of entrepreneurship recently proposed by Shane and Venkataraman (2000), we have reformulated our definition of international entrepreneurship to the definition set forth in the first sentence of this essay. As the fields of entrepreneurship and international business continue to evolve, we expect the definition of international entrepreneurship will also evolve.

Two examples of international entrepreneurship, one from each branch of inquiry, may improve the reader's understanding and may even stimulate additional research. An example of the study of cross-border entrepreneurial behavior is Zahra, Ireland, and Hitt's (2000) empirical study of the relationships between international expansion, technological learning, and new venture performance. The research was conducted on a sample of 321 independent and corporate ventures that were (1) six years old or younger, (2) headquartered in the United States, (3) competing in a dozen high-technology industries, and (4) deriving an average of 17 percent of their sales from foreign sources. Thus, the sample focused on firms exploiting relatively new and likely innovative opportunities across national borders, thereby fitting our definition of international entrepreneurship.

The study took into account a variety of variables using many rich data sources, including mailed surveys, archival data, telephone

contacts, and emailed responses. The results were complex and cannot be fully explained here, but evidence was found that new ventures that diversify internationally might sacrifice speed in international expansion for breadth and depth in technological learning. Deeper technological learning was associated with the use of high-control entry modes, such as acquisition and establishment of new ventures. Proactive knowledge-integration efforts, such as analysis of new information by cross-functional teams and consultants, were associated with greater depth and breadth of technological learning in international new ventures. Technological learning was also shown to be positively linked to new venture performance. Readers wanting to know more are encouraged to read the entire article. It was recognized as the best article published in the *Academy of Management Journal* in 2000.

The Global Entrepreneurship Monitor (Reynolds et al., 2002) is a rich example of the comparative branch of international entrepreneurship. The study is published each year in the fall, and in its fourth year entrepreneurial activity in 37 countries was compared on a variety of dimensions. Teams of researchers in the countries gathered data on economic and social conditions, conducted interviews of many experts, administered surveys to those experts, and surveyed representative samples of the national populations. Thus, the data and the teams gathering them were highly international, and the objective was to compare entrepreneurial activities in many countries. Therefore, it clearly represents the international study of entrepreneurship.

Each year, the Global Entrepreneurship Monitor finds wide differences in the level of entrepreneurial activity from country to country, shows that variation in national economic growth rates is associated with those differences, and explores explanatory factors. Even more valuable, because the Global Entrepreneurship Monitor evaluates these issues from year to year, it can show longitudinal dynamics in entrepreneurial behavior around the world.

The domain of international entrepreneurship provides abundant opportunities for further scholarly inquiry. For scholars focusing on entrepreneurial activity that crosses national borders, we propose two very broad research

questions: What effects do fluctuating international economic conditions have on the amount, speed, direction, and mode of cross-border transactions by entrepreneurial firms? What factors cause entrepreneurial firms to withdraw from international activity, and once withdrawal occurs, what stimulates entrepreneurial firms to increase their level of internationalization? Within the comparative branch of international entrepreneurship, we are particularly intrigued with the evidence of the positive association between entrepreneurial activity and improved national living standards. Therefore, it becomes important to determine the most effective and efficient way of encouraging entrepreneurship in nations where entrepreneurial activity is weak.

With 15 years of research inquiry, international entrepreneurship has grown to adolescence. As an adolescent discipline, we expect researchers will continue to explore the boundaries of the field and further seek to elucidate why international entrepreneurship should be regarded as a distinct area of scholarly investigation. The field is rich with possibility and opportunity (Acs, Dana, and Jones, 2003) and offers significant collaborative challenges as it, by definition, benefits from the work of scholars in multiple countries and the expertise of scholars in multiple disciplines.

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