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Innovation refers to a process that begins with a novel idea and concludes with market introduction. Invention by itself is not an innovation. The innovation process occurs in two ways, the Corporate Model and the Entrepreneurship Model, and we refer to existing firms that are older and usually larger as "corporations" and firms recently started by entrepreneurs as "startups."

There are many competitive advantages that most corporations can use to succeed against startups. In a one-on-one competition, the startup usually has less capital, fewer scientists and engineers, less legitimacy or brand presence, fewer strategic alliances, evolving organizational structures, and incomplete or even non-existent business processes. At a more abstract level, young firms have liabilities of newness and smallness,[1] so they fail at higher rates than do their larger and older competitors.

Why aren't opportunities always absorbed into the existing industrial structure? Why don't the big companies just take them all? Over the last fifty years, a persistent and growing proportion of new ventures are technology-based companies, founded to exploit changes in technology and the market disruptions they often generate.

Why does the Entrepreneurial Model prove to be such a robust vehicle for breakthrough innovations? While the innovation process in corporations has features in common with that in startups, the managerial and structural advantages that established companies have are the bases of their disadvantages as well. Innovation requires two important underlying properties wherever it occurs. First, resources must be mobile. This often means changing the existing deployment of those resources. Extracting them from their current allocation slows down the process and often introduces inefficiencies as managers seek to

retain those resources to support the pursuit of their own responsibilities.[2] Second, incentives must be aligned
so that those who provide resources, especially financial resources, succeed along with innovators who are engaged in risky activities that generally require extraordinary levels of effort. When resources are immobile and incentives misaligned, the innovation process slows. A window in time opens and this gives quicker innovators a temporary advantage. Under certain circumstances, entrepreneurs can start companies, develop the capabilities of those companies, and bring new products to market relatively quickly, while their larger but slower corporate competitors lag behind.

An important caveat is that with a good deal of luck and effort, entrepreneurial ventures evolve into sustainable, growing, profitable businesses (e.g., corporations). Their success can be measured most obviously with age and size, as selling products or services and managing more people require organizational structure and business processes to provide internal control and external accountability. As the startup grows, matures, and develops, its innovation process slows. As a result, it falls victim to the very problems that generated its initial advantage. Success leads to innovative friction and no winner is ever secure.

The Paradox of Creativity and Control

Organizing to maximize creativity generally de-emphasizes bureaucratic structures, fixed job responsibilities, and written communications formalized in fixed filing systems. Rather, creativity seems to be enhanced when organization is based on teams, with job responsibilities shifting to meet the exigencies of problems that never exactly repeat.[3]

Rosabeth Moss Kanter summarizes this point of view as follows:

> That tidy world of the neat and orderly job in a simple structure barely exists for the middle ranks of an innovating change-embracing organization. Instead, managers and professionals function in a world that often contains vague assignments, overlapping territories, uncertain authority and resources, and the mandate to work through teams rather than to act unilaterally.[4]

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In the extreme, artistic organizations such as entertainment writing studios, industrial design firms, and advertising agencies employ such devices
as brainstorming sessions[5] in which one person's creativity feeds off that of another. Such structures encourage people to advance ideas that are incomplete and defy organized recording. Thus, the risks associated with being wrong are lowered, while the psychological rewards associated with novelty are high.

Ultimately, when such organizations focus the creative process on a solution to the problems at hand, the problem of execution arises. Developing a product around the new design or invention, devising the means to produce it in the predictable quantities and consistent quality required by customers, and creating the marketing and sales capabilities all require planning and coordination. These, in turn, require discipline. Organizations set up to produce that discipline have properties that are the opposite of those enhancing creativity. Conversely, organizations that are good at generating creative solutions are often not good at rapid and precise execution of plans. The problem is that innovation requires both. The greater the emphasis on speed, the more difficult is the reconciliation. The more radical or fundamental the innovation, the more difficult it is to plan the process of commercialization.

These difficulties are magnified by the consequences for personal behavior such structures imply. A good participant in a very creative organization behaves in ways that are difficult to predict. Such people often demean those who are predictable, and the culture of their organization usually supports such judgments. On the other hand, organizations set up to execute plans rapidly and precisely are often inhospitable to people whose behavior is difficult to predict. This clash of personal styles enhances the political risks associated with innovation.

One solution to this paradox is to build organizational units that are specialized to the creative portion of the innovation problem. The managerial challenge is to provide resources given that the results are difficult to predict and measure, but to buffer that unit from the structures and processes that the rest of the organization uses to generate discipline. Innovation in corporations thus involves an important political dimension.

Another way to deal with this paradox is to segment it in time. The most creative activities occur earlier in the innovation process than do those requiring the most discipline. Consequently, the organization can evolve from a fluid, lateral mode of coordination emphasizing teams, to a more vertical mode of coordination, emphasizing replicable business processes. The political dimension of the managerial process is replaced by personal and organizational flexibility.

An emerging form of time segmentation has evolved with the evolution of the venture capital industry and the Entrepreneurial Model, namely, the acquisition of innovative entrepreneurial startups by established firms. Indeed, we believe that emerging patterns of specialized organizations (startup and venture capital firms) that collaborate to exploit the respective strengths of the Entrepreneurial Model to enhance innovation and the Corporate Model to scale and maximize efficiency and profitability is a major evolution in business practice.

The Corporate Model

One of the most heavily researched subjects in organizational behavior and microeconomics is the problem of agency. Agency revolves around the fact

that what is good for the individual is not always what is good for the corporation. The corporation offers incentives to employees (and sometimes others), establishes more or less formal contracts with them defining what they are supposed to do to receive those incentives, and monitors their capabilities to discipline them from shirking those responsibilities. The Principal/Agent version of this problem concerns corporate governance structures that are designed to impose the interests of owners on management.[6] The owners are usually numerous and remotely located from the corporation. Otherwise, managers would be free to pursue their own interests, using assets of the corporation for their own benefit to the detriment of the owners. The contracts that lie at the heart of economic perspectives on agency may be more or less complete. That is, they may specify exactly what someone is supposed to do and when, and exactly how he or she will be compensated. However, these contracts are often incomplete because some of the duties involve difficult to foresee activities and risks, or because the rewards involve motivations that transcend cash payment. The innovation process provokes such incomplete contracts. The more radical the innovation, the more likely contracts are to be incomplete. Monitoring is made more difficult as people work in teams with shifting membership and mobile division of labor.[7]

When entrepreneurial ventures are first formed, they quickly put in place proto-governance structures. The legal requirements of forming a business require that ownership and responsibility be established. However, these structures often do very little until investors provide capital, and even then they often function only in a rudimentary form until institutional investors commit capital. Essentially, the owners are the managers at the start, so principal/agent problems appear as the new venture develops.

Agency problems are more general than this, however, and occur wherever employment relations occur. An important point of contrast between the corporate model and the entrepreneurial model is that various parties have interests in the innovation process and those interests often diverge.

One source of divergence is that inventors often have strong attachments to the technology itself. Streams of discovery and invention are not simply means to a commercial end, but are viewed by their creators as interesting and important in their own right. Such personal commitment to a technology is rarely strong among senior managers or corporate equity holders. It often matters a great deal to inventors (where an innovation process terminates). Many (perhaps most) processes of innovation end prior to market entry. Often, a write-off of an investment in an innovation is unfortunate for the corporation but it is a personal disaster for the inventor.

Conversely, this same characteristic of inventor attachment can work to the advantage of the startup. Because of the previously mentioned congruity of ownership and management at the earliest stages of a startup, difficult challenges in product development or market entry are sometimes overcome though an intense commitment to the technology. This persistence may at times exceed the logical boundaries of a strict cost-benefit approach.

Of course, sometimes the process works as planned. An invention proceeds from technology development, through prototype testing, to market launch. This is usually a long and arduous process in which the technology team is built around an invention and then broadens over time as other business functions have their input. Inevitably, ownership of the invention slips from the hands of the original inventors, often residing in the realm of responsibility of those who manage the organizational unit from which the invention emanates. In this way, the Divisional Vice President or the Laboratory Director and his or her career become associated with the invention.

The commercialization process generally requires an organizational design exercise for production and marketing. Is the product to be sold by the part of the corporation that generated the invention? Does it go to another part of the company? Is it to be sold, licensed, or spun out to a joint venture or new company? Such decisions have implications for the managers who have invested resources under their control in the innovation process to that point. Suppose they spin it out and it is successful. Managers responsible are subject to *post hoc* judgments. Perhaps they let it go too cheaply. On the other hand, if it is released and it is unsuccessful, how does that reflect on prior innovation efforts? Sometimes, there is no way for senior managers to win in such scenarios. So they are reluctant to let the invention go. Similarly, the technical team often finds reasons for just one more series of tests, or one more improvement in the design. There are many reasons why those owning an invention may resist its being released from their control even when the corporation as a whole may benefit from such technology transfer.

Underlying these scenarios is the risk of failure. The more innovative the invention is, the less likely it is to succeed. So an incremental innovation that is an extension or improvement of an existing product is much easier to evaluate than is a completely new product being sold in a new market. An important part of the risk of innovation is potential conflict with existing business models or strategic initiatives. Cannibalizing the corporation's current market position is likely to generate opposition from those who are responsible for managing manufacturing or market position of that product. So managers whose organizations have been pursuing innovation often face opposition from within their own companies.

A final consideration of the risks to managers whose responsibilities involve ownership of an invention is that corporate resources (e.g., money, people, space, equipment, and time on production lines) in the short term are fixed. Game theorists sometimes call this a "constant sum game." The sum of the winnings equals the sum of the losings. So when managers seek budget to support the innovation process, those resources come from the budgets of others. The more innovative the new product or service is, the more decisions involve hard to prove potential for major benefits offsetting high risks. Such arguments are usually confronted by less risky allocations of resources, such as expansions of production capacity or marketing efforts for existing product lines. Such competition for resources fuels corporate politics and has no direct parallel in the world

of startups. Conversely, when startups seek additional funding, they do so from external sources such as venture capital firms. This process tends to align the interests of managers rather than divide them.

The corporate innovation model has three destination states: to the market, to spinout, or to innovation termination (that is, to death). Each of these involves potential benefits and also risks for the technologists and managers involved. Often, they do not benefit in ways that match the risks they take or the effort they expend.

We can understand these managerial considerations better if we also consider where instigation for the innovation process is located in the organization. Some corporations innovate from the top down. Opportunities are recognized and evaluated at the Executive Committee or even at the board level and are communicated downward. In some companies, invention begins at the bottom, or more often, in the middle. Engineers or marketing managers begin the invention process and persuade those above them in the hierarchy to support it. Sometimes, of course, the new technology is acquired from outside the company. It enters via merger or license. Each of these points of origin involves different risks and sources of friction for the innovation process.

When instigation originates at the top of the hierarchy, the political aspects of budgeting and resource acquisition problems are less severe, but not completely eliminated. Senior management may be more or less committed to such a new initiative. The same threats to the resource bases of managers supporting existing products can be observed. Opposition may still be very real, but more covert. Ownership of the innovation process is generally less obscure at the start, and resources are likely to be available, as analysis of resource needs is part of the original decision to instigate innovation. The downside of this is that decisions to commit resources are less incremental and subject to less scrutiny. Therefore, innovation driven from the top is likely to be costlier. In addition, the people tasked with inventing may well be less passionate about it than they would be if the idea came from them. Furthermore, recognition for creativity is likely to be muted, as each manager downwardly communicating decisions about innovation takes some of the credit for success. In the extreme, the inventor is just doing the assigned job.

In some companies, the innovation process works in reverse. Intel's invention of the microprocessor[8] and 3M's Post-It Notes are examples. Innovation proceeds through a series of proposals and presentations, revisions, and subsequent proposals, rising higher in the hierarchy with each iteration of the process. Ordinarily the amounts of resources that can be committed out of existing budgets rise with the level of the decision maker. However, long-term allocations often require very senior approval, eventually by the corporate Board of Directors. Executive-level managers get involved not simply because the capital commitment grows, but because the public posture of the entire corporation can be altered by an innovative initiative. Innovations emanating from within often involve visibility and attention from senior management that is out of proportion to the immediate capital commitment or business opportunity. People who

ordinarily make billion-dollar decisions spend time on million-dollar innovation efforts. This provokes jealousy and competition for credit. In this process, the inventor and even the underlying technology move from center stage to the periphery.

Innovation efforts are usually organized in teams, with intense lateral communication and joint decision making. The effort levels within such teams are often very high and the timing of decisions is difficult to predict. This makes disciplined activity difficult to produce, partly because it is counterproductive. Such teams are organized in a manner that is inconsistent with the rest of the corporation. Furthermore, they are consuming resources that generate returns according to a protracted schedule. Corporate budgeting and control are driven by quarterly financial reporting. Product innovation is usually out of sync with such a quarterly cycle.

Management writers often note that such invention teams often need protectors (i.e., "champions"). These protectors are often not technology people, but are general managers who have the political skills, contacts, and reputation required to secure resources and protect them from poachers. They also buffer the teams from interference emanating from rivalry and cultural incompatibility.[9]

Finally, innovations often begin outside the focal company. The rights to commercialize inventions are acquired via licensing agreements or when the focal firm merges with the company where invention was instigated. Observations of "not invented here" syndrome are common. Innovations that come from the outside lack legitimacy and sometimes are thought to imply that insiders are less technically sophisticated than they should be (otherwise they would have come up with the invention on their own). Sometimes the acquired invention gets mired in the merger process. Not all parts and all the people coming with the acquisition are retained. This causes political defensiveness and slows the innovation process. This is particularly likely when the acquired invention is integrated into an existing product line.

New technologies often threaten power structures when the positions of powerful managers are based on expertise that is suddenly obsolete. So it not simply that older product lines are less valuable, but the people who know how to make and sell them are less valuable as well. These career-based political issues are exacerbated by lack of cultural fit. When the acquired company has norms, values, and histories that are incompatible with those of the acquirer, technological advocacy is sometimes interpreted in the context of ethical doubts.

All of these issues are exacerbated when innovations are radical and constitute disruptions of existing market and production processes.[10] In turn, such disruptions are more organizationally problematic when they are "competence destroying."[11] Innovations are sometimes based on technologies that not only work better than those preceding them, but also render management skills and business models obsolete. When innovation processes lead in this direction, one would expect powerful managers at the very least to demand convincing evidence that innovation processes will lead to substantial corporate benefits.

The corporate model is characterized by internal frictions that impede technology transfer and slow the allocation of financial and other resources. Extraordinary effort required for rapid development of new technologies, and the inherent restrictions on the probability of success, are generally not matched by compensation schemes that provide rewards consonant with the personal demands placed on the inventor. Political support and protection is provided by senior managers whose current reputation is put at risk. Most importantly, this model does not align incentives in such a way that all the parties win or lose together—corporate equity owners, senior managers, and inventors. All of these factors slow down the innovation process. This gives entrepreneurs a window in time within which to start and build companies that can succeed while their larger but slower competitors work on catching up.

The Entrepreneurial Model

If we define entrepreneurship as the act of starting a new business enterprise, it is obvious that the majority of such events involve businesses that are small and simple by design. Many are not innovative and are copying business and organizational models already employed by others. This article is about a special kind of entrepreneurial venture built around technology or business model innovations. Such young companies represent an important variant of the innovation process, one that is designed around rapid growth. Its signal feature is the alignment of incentives between entrepreneur, investor, and employees.

Entrepreneurs engaged in building startups based on major innovations are channeled into a social role we call the "professional entrepreneur." We say that they are "channeled" because the strategic problems they face strongly encourage them to build rapidly, as rival entrepreneurs and existing corporations—following their market leadership position—threaten to overtake them. This requires serial injections of capital provided in some measure by institutional investors, especially venture capitalists. This form of innovation involves collaboration between entrepreneurs and venture capitalists, a collaboration that is based in large measure on their agreement on the objective of creating liquid value. In other words, such ventures are born to be sold. Their shared imperative is the creation of liquid equity value. This imperative may change the very definition of success, and ultimately involve the loss of control by the entrepreneur, and the disappearance of the business entity formed by that entrepreneur though merger or acquisition.

Venture capitalists live in a world of time-valued money. It is not enough to invest in a young company and sell later at a higher price. The challenge is to grow the value of the portfolio company as quickly as possible and then promptly sell that investment (either through the public markets or through an acquisition). Growing the company's value ordinarily means growing the size of the business itself. Entrepreneurs must be willing to invest the effort, assume the

burdens of flexibility in their own organizational roles, and accept loss of control to others in pursuit of such rapid growth.

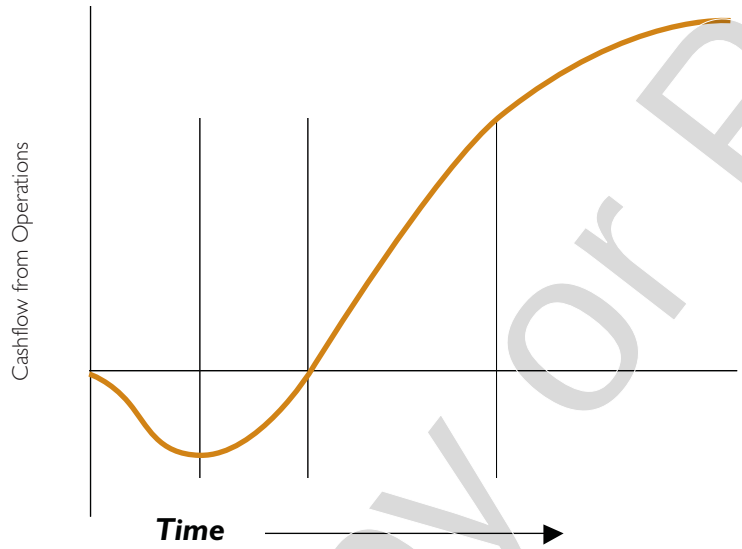
The analysis that follows explains how entrepreneurs benefit financially from such a system. There is also a strategic motivation. The window of time in which entrepreneurs find opportunity is based on the lethargy of their rivals, especially rivals with vastly superior resources. The stronger the business potential generated by the innovation process, the more rapidly rivals follow. Rivals are served notice of this opportunity by the success of the entrepreneurial venture. The irony is that superior entrepreneurial performance, as indicated by extraordinarily rapid growth, shrinks the window of time between startup creation and the market entry of rivals.[12] The important point is that the stronger the opportunity, the more imperative it is that the young company grow rapidly. A less attractive business opportunity provides the luxury of slow growth.

Rapid growth imposes two kinds of costs on entrepreneurs. First, to field a more rapid growth pattern, more capital is required. Capital is raised most often through the sale of shares (often called "preferred shares") with various provisions that shift control to the investors and away from the founders. Usually, by the close of a second round of venture capital financing, the investors own more than 50% of the voting shares. At that point they have explicit voting control. Prior to this time, however, they exert strategic control in that the provisions of their initial investment ordinarily include the right to participate in subsequent rounds of investment, the right to prohibit the issuing of new shares of stock, and the right to block the sale of stock by employees or other investors. Thus the entrepreneur's breadth of strategic choices is reduced by the terms of their investment long before they control a voting majority.

The second cost to the entrepreneurs of a more rapid growth trajectory is turnover of incumbents to high-level management positions in the company. That is, members of the founding team tend to be moved down or out of the company. This occurs most often because of the more stringent management skills burden that accompanies organizational complexity. The bigger the company becomes, the more organizational units there are, the more levels in the hierarchy of authority there are.[13] Growth ordinarily leads to formality in relationships as personal contact between those at the top and those lower in the structure becomes less and less frequent.[14] Trial-and-error learning is more likely to generate fatal mistakes when growth is very rapid. Of course, entrepreneurs who already possess the skills required to manage a rapidly growing enterprise need less assistance. Limits on organizational learning, sometimes called "absorptive capacity,"[15] place an increasing premium on built-in capabilities in preference to learning in real time. The faster the company grows, the more likely it is that founders will fall behind. Consequently, new managers with deeper experience replace them.

There are important parallels in the corporate and entrepreneurial innovation processes. These parallels are strongest when innovation emanates from the lower levels of the corporation, and innovators gain the support of general managers who know better how to secure resources and protect team structures

FIGURE 1. Evolution of the Entrepreneurial Venture



from bureaucratic constraint or political interference. Startups that are growing as fast as they can derive similar benefits from venture capitalists. Such investors provide capital, of course, but they also provide assistance in the form of social capital, access to their networks through which entrepreneurs gain professional services, market access, and a supply of scarce but important materials and personnel.

This kind of entrepreneurial role is "professional" in the sense that the business at hand is building a business. Ego motivations of entrepreneurs are less likely to be satisfied in that loss of control is built into the process. The desire to make a new technology real—a labor of love—is forced into the background as growth shifts funds, people, and effort away from research and into marketing and sales. As the company grows, its focus shifts from technology to market development. Along the way, entrepreneurs begin to act and think like investors. The venture capitalist's experience and perspective provide credibility. This credibility underlies the personal influence required to bring about the understanding that the business at hand is building value.

Company Development Process

As the company grows, it evolves and qualitative changes are often observed in its internal organization. Figure 1 summarizes some of these changes, which are driven by the underlying economics of the business and by the exigencies of operations in which production and sales come to replace the creativity associated with invention.

This figure assumes a great deal of good luck and much hard work on the part of entrepreneurs and investors alike. The scales for both dimensions vary substantially across industries, business models, and organizational forms. For Internet companies, time may be measured in months; for software firms, in years; and for biotech companies, in decades.

The vertical dashed lines represent notable financial events. These events drive changes in organizational structure and management activities. This company-level evolutionary process begins with a founding event. An idea turns to action as founders commit effort and their reputations to the task of building a new business organization. The period ends when prototype versions of the product or service are sold to customers, generating income. Prior to this time, startups tend to be organic in structure. People's jobs consist of tasks that need to be performed, meaning that work roles are fluid and flexible. Lines of authority are muddled and authority to spend money, hire and fire employees, assign tasks, and evaluate performance is shared among members of the startup team. In this period, business plans are developed and resources are gathered. The search for capital occupies a substantial portion of the founders' time. During this period, the startup is drawing down on its initial endowment of resources. Leadership of the innovation process generally resides with the inventors, often with the most expert and technically sophisticated members of the team.

The second period commences when the company begins to generate revenues from sales. Customer demands become clear as the users of early versions of the product or service provide feedback about functionality, appearance, service, documentation, and the like. This forces founders to confront disparities in their views on the nature of the business, how they account for their actions to outsiders, and how to avoid re-inventing solutions to recurrent problems. Organizational routines are developed and formalized.[16] As more employees are hired, the division of labor grows more elaborate and is less fluid.

Often, the startup seeks its first round of institutional investment at this point. When this capital comes from venture capitalists, the governance structure of the company develops rapidly. Venture capitalists need a functioning board of directors to safeguard their investment, and they activate the provisions of the contracts that are created as part of the investment process. When boards consist of the founders, meetings are often infrequent, informal, and undocumented. The venture capitalists push the founders to build a complete management team if one does not exist at the start. This means hiring and compensating experienced managers who are over-qualified for the work currently being done. This generally requires compensating newly recruited managers with stock, which has a dilutive effect on the equity position of the founders. This is a form of investment to put in place the capabilities that will be required as the process continues. The need for such an investment is often not apparent to less-experienced entrepreneurs at this stage, so founders often prefer to wait. The more successful the venture, the faster this process proceeds, and the less they can afford to wait. Venture capitalists often encourage or require the founders to agree to the appointment of experienced industry executives to the board. Taken

together, these personnel additions reflect the gradual loss of control by the founding team and a shift in the innovation process from creativity to discipline. Such changes make the new venture more attractive to experienced managers that the company recruits to lead the commercialization process. They often see an experienced board and management team as a counterpoint or even source of political cover, as founders resist loss of control and insist on making strategic decisions.

With continued success, product designs are finalized, marketing and sales efforts expand, and business systems develop. Now the company has inventories to manage, assets to control, sales to record, orders to fulfill, and people to be hired, trained, and managed. As this process accelerates, cash flows turn positive. All of these factors impel the young company to develop business systems (e.g., accounting, human resource management, and supply chain systems). These system take organizational routines to a higher level of replicability and organizational roles are defined by the systems with which people interact. To build stable relations with suppliers and customers—and to insure legitimacy through reporting to investors, regulators, and the public at large—the company cannot function as a pickup game.

This process of structural development, managerial skill expansion, and resource growth narrows the set of feasible actions, but it expands the control capabilities of senior managers. The greater discipline provided by better-defined and more-hierarchical organization combines with an alignment of interests among various stakeholders to lower the disparities and inconsistencies of actions among people working for and with the new organization. The process culminates with the emergence of a corporation whose capabilities make possible successful competition with older rivals that often enter the market at about this time. The business may now be ready to scale to large size, and access to capital is required to fuel continued rapid growth. Often, this results in an initial public offering of securities and the company enters the fourth stage. In doing so, the full weight of financial regulation and fiduciary responsibility falls on the board and officers of the company. All of this structure creates the very inertia that allowed the entrepreneurial innovation process to move forward in the first place.[17]

Venture Capital Firms

The term venture capitalist is often broadly applied to all who invest in early-stage closely held ventures, whether as individuals for their own account or as professionals on behalf of others. For the purposes of this discussion we use the term to apply to a class of professional investors who invest relatively large sums of funds as managers and fiduciaries on behalf of others. As such, venture capitalists are typically partners in, and employees of, venture capital firms that operate a "mediating technology,"[18] in that they connect pairs of interdependent actors. This is called a "brokerage role" in network analysis terms.[19] Pools of capital are connected to entrepreneurs seeking funding. Venture capital firms raise one or more funds, each of which is a legally distinct limited partnership.

The general partners in these structures are the venture capitalists. The limited partners are typically much larger pools of capital that may include wealthy individuals (who must be "qualified investors" under the law), financial institutions such as pension funds, or universities, or other kinds of endowments. They are limited partners in the sense that their liability is limited to the extent of their invested capital, and also by their role as passive investors. Thus the venture firm provides a buffer between the source of the capital and the young company (benefits of mediating technology) and also benefits from being able to fill the resulting communications gap (benefits of brokerage).

Incentives for venture capitalists are based on raising the value of the young companies in which they invest. When a liquidity event occurs (e.g., an initial public offering or an acquisition) and their stock sells at a premium above their investment cost, the venture fund general partners receive a portion of the capital gain (usually 20%). When the stock value rises, they benefit handsomely. So do their limited partners, the entrepreneurial ventures founders, and the employees holding stock or vested stock options. A second form of incentive is that the increasing value of the portfolio companies drives the internal rate of return of the fund. This is the most commonly applied yardstick on which investors in subsequent funds base their investment decision. Funds that do well lead to follow-on funds. Venture capitalists receive a yearly management fee (usually about 2.5%) based on the size of the fund. So the more capital they raise from limited partners, the larger their fees are. Lastly, individual venture capitalists benefit in reputational terms when their investments do well.

Founders and employees holding equity benefit from the same increase in value. Dilution occurs as each round of financing results in issuance of new stock. So long as percentage growth in value rises more rapidly than dilution, the shareholders are in the position of taking a smaller share of a larger pie. The more rapidly the pie grows, the more likely it is that the process leaves them better off as larger and larger amounts of capital are raised.

All parties benefit from growth in value, but when value is flat or drops, this alignment of incentives breaks down. Venture capital deals are structured in such a way that investors of capital are better protected against adverse events than are other equity holders. So why is this a good deal for founders? The answer is that venture capitalists provide services as well as capital. These services sometimes add greatly to the young company's value.

Contributions by Venture Capitalists

One of the more obvious services for which venture capitalists are paid is the sourcing and evaluation of investment opportunities. In short, they place bets. The innovation process in general involves high levels of risk. The capital pools taking limited partner positions do so in part because they believe that the venture capitalists are more adroit than they are in making such judgments. The performance of venture funds varies widely, not only among various funds, but also the year (or "vintage") in which such funds are organized and subsequently

deployed. Such disparity makes it clear that success at investing in new ventures is difficult to achieve, even for professional venture capitalists.

The creative process of invention tends to generate complexity in organizations and in deals. Venture capitalists reduce this complexity. They do this by imposing an established deal structure framework on the investment process. They push entrepreneurs to develop business systems, organization structures, and operating processes that both can be understood by those outside the company and are scalable. While there are virtually infinite variations within these frameworks, they do provide for the analysis required for eventual liquidity events to occur.

Because their compensation and the returns to their partners depend on increasing value, venture capitalists are strongly motivated to active involvement in the management activities of their "portfolio companies." Their business is highly social. They source their deals by developing and maintaining broad social networks. Indeed, some of the value they bring to the new company is based own their social capital. They connect entrepreneurs to others in established companies who can provide resources such as access to channels of distribution, legitimacy through branding, scarce but important technology, and access to other providers of services (e.g., lawyers and executive search professionals). Furthermore, venture firms have a long tradition of syndicating their investments with other venture firms. One of the reasons for doing this is the reinforcement and extension of their networks. This benefits the immediate venture and also provides longer-term benefits to the venture firm and its other investments.

Second, venture capitalists provide strategic advice. Venture capitalists often have deep knowledge of an industry or market. They have worked with other entrepreneurs and have participated in the growth process before. Further, they have access to the knowledge and experience of their partners. More specifically, however, they coach entrepreneurs to understand the logic of this model and what the requirements of the professional entrepreneur model are. In short, they teach the entrepreneurs to behave in ways that fit their own requirements. This means a shift of mentality to align interests more closely to those of shareholders as compared with employees. Thus, the agency relationship breaks down, and *agents become principals.* When growth is rapid, such transitions often provoke personal trauma as the shift in alignment of interests strains existing personal relationships. A stark example is having to terminate a close friend in the company's interest when that friend cannot develop expertise to match the managerial challenges attending the company's growth.

The venture capitalist's power as a board member and shareholder often conveys the legal right to make changes in management, and they sometimes do so when managers fail to develop this professional orientation toward the business; but if accomplished through these means, the changes often come too late and at a greater cost to the venture. Therefore, the process works better when the venture capitalist employs a coaching method or style rather than more forceful means.

In a corporate setting, innovation involves the use of existing business processes and systems as the new technology moves toward market launch. Innovators within large corporations use the parent firm's financial controls, human resources systems (e.g., recruiting, training, compensation), equipment and facilities leases, and data. Making decisions about how to set up these systems within a young company are time-consuming and are often simply uninteresting to technology-based startup teams. Entrepreneurs display what Cyert and March called "uncertainty avoidance."[20] People naturally work on problems they understand and attribute importance and value to areas of knowledge with which they are familiar. They are less likely to focus attention, search activities, and the work of making decisions on matters they know little about. Uncertainty built into the rapidly changing innovation and company-building processes is magnified by the specialized experience of the entrepreneur. A complementary difficulty emanates from the fact that search processes are generally motivated by problems (i.e., "problematic search"). On encountering problems, managers search for information to feed into the decision process. This reactive property of search processes imposes risks when time is short. The faster the company grows, the less time there is for such reactive searches. Part of the venture capitalist's contribution is to help entrepreneurs be alert to problems before they become acute. As a result, the time entrepreneurs spend on matters of natural interest declines. Time spent on less interesting problems rises.

Cognitive psychologists and behavioral economists often analyze economic decision processes applying the insights of Khaneman and Tversky's "Prospect Theory,"[21] which identifies various shortcuts, biases, and heuristics that aid in arriving at decisions under conditions of risk. This method of analyzing decisions concerns two phases of the process that are subject to error. First, decision makers identify set of objectively possible outcomes and edit that set of outcomes, arranging them in order of desirability. Then they estimate subjective probabilities for each of these outcomes. Both the editing and probability estimation processes are subject to error. For example, entrepreneurs often fail to take advantage of opportunities to gain liquidity. They manifest an "overconfidence bias" in which the probability of success is overestimated and the probability of loss is underestimated. The broader experience of venture capitalists sometimes counters the biases inherent in the entrepreneur's natural tendency toward optimism. Over time, venture capital investors learn about the risks they face and are acutely aware of the passage of time. Entrepreneurs who start out thinking of their companies as extensions of themselves, and as permanent elements of their lifestyles, learn to think of them as investments in which timing of entry and exit are equally important.

A particularly important variant of this theme is attention to organization scalability issues. If rapid growth is contemplated, the business systems mentioned above must be designed in such a way that they can handle growing volume and complexity of operations. Similarly, people are hired with skills appropriate to problems that will be encountered as the young company grows. Both business systems and the people who operate them tend to be over-quali-

fied for immediate tasks. They also tend to be more expensive than would be required to feet current needs. Their compensation usually comes disproportionately from the equity holdings of founders in the first round of venture capital financing, but it has similarly dilutive effects in subsequent rounds.

Venture capitalists are often heavily involved in recruiting efforts, especially non-technology senior management and board members. Their social capital is employed for this purpose, as is the relationship they often have developed with successful senior managers from prior investments and with executive search firms. In addition, however, venture capitalists bring credibility to the young company. When young companies seek strategic relationships with existing corporations, reliability concerns often discourage prompt action by the potential partner. The reputation and previous experience of the venture capital investor often serves to counter such fears. Essentially, the venture firm provides the legitimacy for the entrepreneur that the sponsorship of the parent provides for corporate innovation.

Venture capitalists in the early rounds often spend substantial amounts of time on the premises of the young company. They establish relationships with managers who do not sit on the board. In doing so, they serve as a bridge between those managers and the board. This provides confidence to managers below the board level that they will not be impaired by working for the less experienced entrepreneur/CEO.

Finally, the venture capitalist usually has deeper financial experience than do the founders of young companies. They have broader experience with equity sharing structures among founders and employees who are hired as the company develops. Venture capitalists usually insist on establishment and replenishment of a pool of equity that is used to support grants of employee incentive stock options. They see deals their partners put together and they see how equity is used in the firm's portfolio of companies.

The more deals the venture capitalists have done, and the more success they have had in the past, the stronger their connections to the investment banks. Their experience in strategic transactions, mergers and acquisitions, and initial public offerings is frequently greater than that of the entrepreneurs or the company's management team, and it is a significant resource when such opportunities arise. As liquidity events are crucial to a venture capitalist providing returns to their limited partner investors they are always active in this process. The venture capitalists' influence is quite strong and perhaps even overriding when public offerings or mergers are considered.

Agreements between Entrepreneurs and Venture Capitalists: Critical Factors in Aligning Interests

A typical investment by venture capitalists in a startup or early stage entrepreneurial venture has several elements, including valuation of the enterprise, preferred rights for the investors as to the amount and timing of distributions, protective provisions that restrict the company from taking certain key decisions without the approval of the venture investors, control provisions

that provide governance processes, and finally information rights that provide investors regular access to financial and management reporting. Inexperienced entrepreneurs tend to place the greatest emphasis on maximizing the valuation their enterprise, equating a high value with retention of control and creating value. This tends to relegate the negotiation of other issues to their attorneys and reflects a failure to grasp that creating value over the long term is enabled by a financial structure that aligns the interests of the investor and the entrepreneur. The resulting relationship encourages securing resources from additional stakeholders and has the stamina and resiliency to sustain itself through the vicissitudes of the business development process, which often takes years and has no easy exit for any of the parties involved.

Examples of elements of such agreements that tend to keep the parties aligned over time include:

- Liquidation preferences for the venture investors that provide protection for recovery of their investment should the sale of the company occur before significant valuation increases are achieved.
- Redemption provisions for return of investors capital should the venture experience modest success but not achieve a liquidity event, such as a sale or initial public offering. Both this and the liquidity preference above encourage the entrepreneurs to strive for a "big win" as quickly as possible.
- Vesting provisions that require founders and new employees to work for the company for a period of time before gaining the right to sell shares.
- Rights of co-sale that restrict the ability of any of the participants to sell their shares without offering the opportunity to all parties.

Such provisions are imbedded in what are often considered "standard terms," so their importance and subtly may be overlooked. These constraints on founders' ownership rights encourage alignment to be sustained over time. Experienced entrepreneurs learn that such constraints are even valuable to them in their agreement with their co-founders and employees. Changing external and internal conditions can stress alignment. Well-crafted agreements provide mechanisms to diffuse this stress, and variations abound. There is no one correct or best set of terms.

The forces that erode alignment are massive. They range from internal factors (such as the failure of any element of a venture to perform as anticipated) to external factors (such as macro-economic shifts that alter the venture capitalists' access to capital or expectations for the future). Both the venture capital market and the technology opportunities they invest in are known for their volatility over time. A key tool for managing this dynamic environment is the financing of enterprises in a series of staged investments, using the above-mentioned standardized agreements. Each stage of the financing is designed to carry the venture to a higher level of achievement and validation, thereby reducing risk and increasing valuation. Often each round of investment involves an additional venture firm to lead the round, setting the valuation and terms.

Existing investors often continue to invest on these new terms. Such staged financing allows venture capitalists to mitigate their exposure while providing successful entrepreneurs access to increasing amounts of less-expensive capital. This staged financing approach, utilizing generally well-understood structures, is a critical element of the innovation engine that encourages rapid growth in innovative young venture capital funded ventures.

Strategic Latitude and Control

This entrepreneurial model of innovation produces a shifting level of discretion for entrepreneurs. At the beginning of the process depicted in Figure 1, founders have complete control over the venture. The board of directors at this stage is usually inactive. As others invest in the company, and the number of stakeholders rises, founders' discretion drops. In particular, when an entrepreneurial venture accepts funding from venture capitalists *for the first time*, provisions of the typical preferred share arrangement vest control of certain overriding issues in the hands of the investors. These include the ability to raise more money and the ability to sell the company. In addition to the control that attends sale of preferred shares, there is eventually a loss of voting control as dilution spreads shares among investors and employees hired after the startup.

Venture capitalists generally require board representation as a condition of their investment. As the number of investment rounds increases, new venture firms join the investing syndicate, and voting representation shifts in their direction. This makes sense as their collective capital commitment to the young company rises, so does their control. Of course, if the company does well, such issues are less important as investors are less likely to intervene. When the company is doing poorly, the terms of the venture capital deal assume greater importance because it is then that the company's management will be scrambling to raise additional capital or perhaps sell the company, matters over which the venture capitalists have great influence.

Finally, control by the founders drops as the company begins to produce meaningful performance data. The more accurately performance can be measured using conventional business methods, the less latitude top managers have to run the company as they see fit. Adherence to budgets, achieving forecasts, and meeting pre-identified benchmarks become critical. So growth, complexity, and rising levels of outside financing lower control by founders.

On the other hand, as the process continues, the company's resource base grows. The more people, technology, and financial resources the company has, the more founders are forced to act as executive officers. However, this gives them strategic options they did not have when the company was young and poor. This transition is often complete by the time of a successful entrepreneurial venture's initial public offering (IPO) of its securities. Furthermore, complexity makes the board dependent on information and opinions provided by management. Also, venture capitalists who have now been invested in the venture for some time may be seeking to exit their positions, through sale of the company or distribution of their portfolio company's securities to their limited partners.

As a result, conventional principal/agent distinctions arise and control by venture capital investors becomes more problematic. Founders who can make the transition to investors become increasingly powerful as their residual equity positions often allow them to speak with a stronger voice than any other single (or small group of) investors. This reversion of influence to the founders and top management is heightened subsequent to an IPO, as all preferred shares are typically converted to common shares as part of the IPO, and all special rights and provisions incumbent with the venture capitalists' investment vanish. Furthermore, management can now assert more leadership and control through traditional corporate mechanisms. Thus, the cycle of startup entrepreneurial innovation is complete. The startup has evolved into a mature corporation.

The Models in Concert

We have discussed the Corporate and Entrepreneurial Models of innovation as if they operate in isolation. In fact, various meta-structures combine them, building symbiotic relationships between larger, older corporations and entrepreneurial ventures. When these interlocking mechanisms are understood, they can be actively managed to support the innovation cycle to the benefit of all parties. Certain industries and regions may be more adept at this active collaboration, resulting in accelerated innovation and value creation.

Separating Innovators and General Managers

One source of this relationship is the cost to the large corporation of pursuing the large number of possible applications of a new technology. Rather than build development teams for each of them, corporations often find it more economical to invest in multiple young companies either by making equity investments or by engaging in strategic alliances with them in which the large company pays some or all of the cost of innovation processes conducted by the younger company. In exchange, the large corporation gains knowledge in areas of technology development for relatively modest sums of funding. This can be viewed as a transaction cost minimizing strategy in which the larger corporation "buys" rather than "makes" new technology.[22]

Corporations often have trouble pushing the innovation process through to commercialization when innovations are discontinuous or disruptive precisely because the "creative destruction"[23] process occurs within the firm as well as in the broader society. Dramatic innovations disrupt markets, and they disrupt organizational structures and operating processes as well. Routines cease to function under these circumstances, and expertise underlying careers becomes obsolete as well.

Information is difficult to share between innovators and general managers. As the process of invention proceeds, innovators begin to use language that their colleagues do not recognize. Decision processes do not synchronize with those employed elsewhere in the corporation.[24] All of these factors slow down the redeployment of resources from existing allocation patterns to those

required by the innovation's development process. Those who have those resources resist such redeployments and use the dominant decision process to slow the process down.

In addition, innovators, higher-level managers, and owners of equity benefit from the innovation process in different ways and take different risks. Innovators in a corporate setting are usually compensated in ways that match their level in the hierarchy, as if the work they do is ordinary task completion. Standards of fairness are applied *post hoc* across comparison groups that may have heterogeneous risk profiles. Oliver Williamson refers to this as the "impairment of high-powered incentives."[25]

Our analysis revolves around the factors that make resources (e.g., money, people, technology, equipment, and facilities) more or less mobile, and the degree to which incentives of innovators, managers, and holders of equity are aligned.

The innovation process involves both creativity in the form of invention as well as a commercialization processes. The former generally requires organic organization in which job definitions, reporting relationships, and rewards shift with the difficult to anticipate requirements of the invention process. The latter generally requires discipline, as increasingly large amounts of resources are allocated to the innovation process and ever-widening sets of managers become interdependent with the innovators. Because these other actors have their own agendas, the innovation process increasingly falls hostage to the organizational and managerial requirements of non-innovators.

Corporations often try to manage these inconsistencies by separating the creative process from the commercialization process, either physically or legally, by having the innovation process take place in remote locations or in entities that are legally not part of the corporation. Examples of the former are research laboratories, such as the famous Xerox Palo Alto Research Center, that are set up away from the rest of the corporation to prevent stifling of the creative process. A common problem of such a strategy is caused directly by its remoteness, as innovators lose contact and influence with line managers and thereby encounter difficulty in transferring new technology out of such geographically and organizationally isolated centers.

The latter "separation" strategy is exemplified by the acquisition of new technologies and innovations via merger with startup ventures. This method has the advantage of allowing the business to proceed—often with the support of the eventual acquiring corporation—to grow and test its product in the market place. This "outsourcing" of the innovation process benefits both the entrepreneurial venture and the acquiring corporation. While potentially expensive in real terms, this strategy not only succeeds in taking advantage of the beneficial innovation environment of the startup, but has the added advantage of protecting the acquirer from collateral damage that might be caused by initial product or service failures. Such early missteps can be evaluated and corrected before the innovation is associated with the acquiring corporation's brand.

Entrepreneurs and their venture capitalist supporters also have strategies for staging risk[26] and separating innovators from managers. They accomplish this by staging the investment and the related corporate management development processes over time. At the very beginning, inventors operate in vague and constantly evolving organizations. The staged injections of capital—typical of venture capital investing, along with the increasingly strenuous controls that follow from them—involve rising discipline and tighter managerial controls. Frequently, there is a succession of incumbents in managerial jobs as creative inventors are supplanted and often replaced by experienced managers, who bring with them more disciplined approaches to planning, budgeting, and management. When the startup is very young, it is dominated by inventors. When it is older, it is likely to be dominated by general managers.

Regional Structure

Another meta-structure that combines the corporate and entrepreneurial model of innovation is geographical, both physical and social. Social relationships and business alliances are facilitated by propinquity.[27] This is especially true when the transactions in question are not standardized. Innovation produces large volumes of such transactions, which are necessarily incomplete contracts because the level of innovation, as compared with routine (replicated) action, implies the unknown. Future states are difficult to predict when those future states are generated by innovation processes. Decisions under such circumstances are often based heavily on social information processing and intuition.[28] Thus we can observe geographical clusters of firms that produce similar products or manifest interdependencies based on transactional patterns of supply.[29]

Such regional and industrial concentrations facilitate the mobility of resources when innovation generates uncertainty. Venture capitalists trade information about deals, often joining to form consortia in financing new ventures. They also add value to the companies in which they invest by connecting entrepreneurs with larger corporations. The big companies may provide capital, access to channels of distribution, legitimacy through the endorsement implied by a strategic relationship, and people as well. Entrepreneurs carry knowledge from former employers, often large companies, to their new ventures. They recruit employees from the large companies. Often, entrepreneurs are replaced as senior managers of young companies by people who come from the ranks of the experienced managers of big companies. Thus there is a flow of talent from large companies to small ones, but there is also a flow in the reverse direction as small companies are acquired and people working in the acquired entity become managers in the companies that acquire them. The acquisition process usually involves paying a premium for the acquired company. This premium partly reflects the value of the people who come to the acquirer with intimate knowledge of the technology flowing out of the innovation process.[30]

Various professional services organizations (e.g., accounting firms, law firms, investment banks, and executive search firms) assist the mobility of resources by brokering relationships with others in the community. Venture

capitalists recommend accountants. Law firms introduce entrepreneurs to venture capitalists, thereby enriching their "deal flow." Their tendency to do this is based on trust and reputation. These relationships of trust are rooted in a historical pattern of deals done together. Of course, this process also works with opposite valence as bad experiences with another provider of services lead to subsequent avoidance. As a result, the network among providers of resources has a texture. Through this network's ties flow resources.

If we shift the unit of analysis from the firm to the innovation, we can see a flow of new technology and business model innovations from entrepreneurial ventures into larger companies. Such flows are easier to effect when the various entities are geographically proximate as the underlying social network depends on trust generated by replicated transactions. "One off" transactions turn into social relationships that transcend not just individual deals, but also economic exchange itself. The parties building enduring economic relationships do so in an embedded manner.[31] The people involved socialize together—as do their families. A community is built through the reciprocally reinforcing nature of replicated economic transactions and non-economic social life.

Geographic regions are also social and economic structures that provide resources such as capital and information to some participants while denying them to others. Innovation being pursued in entrepreneurial ventures joins with innovation happening in large corporations.

Comparability and the Financial Markets

Another such invisible meta-structure that encourages the integration of the Entrepreneurial and Corporate Models of innovation is the implicit apparatus necessary for the initial public offering of a startup's securities to the public. While on its face the IPO is a financing event for the startup, the explicit actions required to comply with the securities regulatory regime (the marketing activities necessary to make a startup an attractive IPO candidate), and even the financial arrangements typical of venture and IPO transactions, combine to make the IPO preparation process an enhanced environment for corporate acquisition.

The regulatory regime for the initial registration of a company's securities for sale to the public in the United States is governed by the Securities Act of 1933. The Act, and the entire regulatory regime, relies on "full and fair" disclosure to protect investors. This disclosure includes a cogent description of the business, it incumbent risks as well as its opportunities, and the independent audit of historical financial statements and disclosures. Such enhanced, reliable, and publicly available information enables a marketplace for acquisition, not just for the shares being offered, but for the company itself.

An important consequence of the movement of entrepreneurial ventures into the capital markets is that much of the complexity of the company's strategic position is summarized in the price of its securities. To sustain this summarization of information (about the company, its risks, and its prospects), idio-

syncratic ideas and language have to be translated into standardized concepts that can be understood by people who are not deeply immersed in the business.

The marketing and eventual valuation of a startup's securities calls for the establishment of valuation metrics based on comparability with other already public companies. The challenge for developing good comparables is not trivial and often is an important element in the selection of investment bankers. Millions of dollars are at stake on the ability to make a strong and compelling analogy that the startup is comparable to an attractive set of successful ventures. The problem arises from the essential nature of the innovation process, which generates new ideas for which language must evolve to provide understanding among those whose familiarity lags technical developments. As technology moves from the province of scientists and engineers (the inventors) and moves toward commercialization, terminology is invented to make the new developments understandable to those who lack the technical background to understand the original terminology. Organizations are understood to be "biotechnology firms" or "B2B Internet companies." Both of these terms were invented by market analysts and represent attempts to capture innovations not just in technology, but also business model.

Venture capitalists and investment bankers try to impose order on rapidly evolving conjunctions between entrepreneurial ventures and corporations, both of which participate in the innovation process in various industrially specific areas. Most often, such clarity depends on providing analogues that provide comparability. Such textual accounts play an important role ingenerating the legitimacy that new companies often lack. Such lack of legitimacy depresses rates of founding and accelerates rates of failure.[32] Similarly, investment bankers bridge entrepreneurial ventures with participants in the capital markets by providing the language that described young companies seeking to sell securities through an IPO. A great deal of time and effort is spent on the text of documents used to describe the benefits and risks associated with such investments.

Financial arrangements typical of venture capital financings and IPOs also encourage the acceleration and consideration of acquisition offers. Liquidation preferences intrinsic in most venture capital investments are lost upon the registration of securities, as underwriters require conversion of preferred stock to common stock in order to simplify capital structures of newly public companies. This simplicity makes them more attractive to common stock investors. "Lock up" provisions of underwriters' agreements restrict the sale of unregistered (e.g., venture capitalists and founder's) securities for extensive periods, exposing these holders to public market risks for six to twelve months with little or no ability to hedge their exposures. Investment banker fee agreements typically require the payment of full commissions if a sale of the company occurs proximate to the public offering process. Therefore, as the IPO process evolves, the previous bonds of alignment of interests (that were so essential to the innovation process) can become strained as the company enters into its new phase as a "corporation."

Conclusion

Central elements in the innovation process according to our analysis are the mobility of resources and alignment of incentives. Where innovations are most disruptive of existing markets, organizational structures, and management processes, existing mature corporations find innovation especially challenging. This stems from decision processes that treat choices more favorably when they fit the timeframe and risk profiles that characterize on-going business. When risks are accentuated by prolonged and difficult to predict product life cycles, and where demand is difficult to predict, existing resource allocations and incremental changes in those allocation patterns are likely to dominate.

Under such conditions of risk, the people involved in pushing innovations forward are often put in a position of risking much in personal terms for unclear payoffs. Such extraordinary risks are complemented by extraordinary rewards when entrepreneurs succeed. In a corporate setting, however, such extraordinary rewards are likely to run afoul of norms of equity. Consequently, innovators often do not benefit innovators in ways that match their risk exposure.

Such factors slow the innovation process in mature corporations, opening a window in time for entrepreneurs to start and grow new companies. Their challenge is to proceed with sufficient celerity to achieve scale and operating efficiencies that will make the young company viable and competitive when this window in time closes. Venture capitalists play an important role in such an innovation process as they encourage rapid growth and assist entrepreneurs in focusing attention on building value reflected in the price of equity. A key element of this transition is developing understanding by the entrepreneur of the community of interest with other holders of equity.

An interesting irony of this structure is that the better the job that the entrepreneur does, the more attention is drawn to the young company. Such attention draws competition both from other startups, imitating the innovator, and from existing mature corporations. Nothing breeds competition faster than success.

Another interesting irony of these models is that the entrepreneur's success often leads to earlier rather than later replacement by more experienced top managers. This results from the rapid increase in problem complexity attending structural and business process complexity. Managerial work requires more sophisticated skills, and these are developed over time. An entrepreneur capable of managing a company when it has twenty employees may be incapable of managing that company when it has two thousand employees. The faster that company grows from twenty to two thousand, the more likely is such succession of leadership.

Finally, these processes of growth include a transition in the company itself. When such companies succeed, they transform themselves into corporations. The business systems, organizational structures, and highly trained managers who run them produce an organization built for efficiency. Rapid scaling of the enterprise and rising competition demand such efficiency. However, this robs

the young company of the very properties that allowed it to innovate rapidly and seize opportunities engendered by innovation.

Ultimately, the Entrepreneurial and Corporate Models of innovation combine. By focusing on the vector of the innovation, rather than the legal enterprise, we see that bringing new innovations to market often involves a partnership, where entrepreneurial ventures and mature corporations each contribute—ultimately for the benefit of both, as well as their key stakeholders, founders, investors, employees, and customers. This is not simply a result of opportunistic transactions, but often an explicit implementation of business strategy, supported and encouraged by the institutionalized elements of the Entrepreneurial and Corporate Models of innovation.

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