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COLUMN PhD scientists can learn from the woes of law and medical students **p.381**

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START-UPS

In search of venture capital

To secure elusive funding, entrepreneurs must understand the financial landscape and the motivations of investing firms.

BY SARAH KELLOGG

Somewhere between borrowing money from friends and family and maxing out their personal credit cards, many scientists and researchers trying to take their discoveries from the lab to the marketplace decide to seek the counsel and financial support of a venture-capital firm. Such firms

have long had a key role in establishing legal structures and marketing strategies for start-up companies, as well as in providing them with the funding to stay afloat until they are robust enough to secure a commercial bank loan, be purchased by a larger competitor or achieve sales that signal long-term success.

Yet, like insurance-claims adjusters, venture-capital firms are often the kind of friends that

scientists might not want. That doesn't mean that they aren't highly valued partners, but the relationship frequently starts out on an unequal and problematic footing. "It's not just about money, it's about chemistry," says Ellen Rudnick, executive director of the Michael P. Polsky Center for Entrepreneurship at the University of Chicago in Illinois. "You want somebody there whom you trust and who really understands your business. You have to think of them as a marriage partner."

Scientists can improve their odds of success in securing capital by knowing their options and responsibilities. The likelihood of achieving victory and avoiding pitfalls, such as surrendering one's fledgling company, increases if researchers know their goals from the outset, put a plan into motion to achieve them, recruit established hands to support their pursuit and go into the search with realistic expectations.

DEVISING A GAME PLAN

Firms aren't drawn to great ideas alone; they're attracted to great ideas that have the promise of financial success. It's a painful truth that many astonishing innovations won't ever win the favour of venture-capital firms, because they lack a market. "You need to ask yourself from a purely scientific standpoint: is this idea differentiated in the eyes of my peers? Is there something unique scientifically about my idea?" says Robert Nelsen, co-founder and managing director of ARCH Venture Partners in Seattle, Washington. "We're looking for the revolutionary rather than the evolutionary."

For scientists working in universities or government labs, the vetting process starts with technology-transfer offices, which protect, manage and license research. Scientists who receive university or federal grants need to work out any potential licensing sticking points before embarking on a venture-capital search. Firms want to ensure that scientists are free to develop the discovery, and will need to determine whether the licensing of the technology is exclusive to one company, and for how long. When working with university-based scientists, the firm will also want to know whether the institute receives equity in the new company and whether the licence reverts back to the university if the start-up does not meet certain milestones or financial requirements.

A good technology-transfer office will employ business experts with experience in developing pitches and building management teams for start-ups. They can help in protecting discoveries, filing patent applications ▶

► and outlining and resolving the researcher's licensing concerns.

But the challenges don't end there. Eva Harth, a chemist at Vanderbilt University in Nashville, Tennessee, who is trying to market a degradable nanosponge for the treatment of cancer and eye diseases, says that her search for the right firm to optimize her invention's commercial potential has been a struggle. "Getting from the science to putting it into the hands of physicians has been challenging, especially since I'm not an expert in business or finance," says Harth. "If you don't have the connections and don't know how the system works, you're just lost."

VENTURE COLLAPSE

To get a handle on the current financial landscape, scientists need to understand the impact of the global economic crisis. The financial collapse of 2008 not only shrank the size and availability of investment capital, but also reduced the number of venture-capital firms. In the United States alone, the number dropped from 996 in 2007 to about 791 in 2010, and the threat of closures continues.

The largest impact on venture-backed companies may have come from the declining initial-public-offering market, says Emily Mendell, vice-president of communications for the National Venture Capital Association (NVCA) in Arlington, Virginia, the trade group for US venture-capital firms. Companies that had been in a position to go public were forced to wait, says Mendell, so firms had to invest more money and time than they had planned to keep promising companies afloat while the market righted itself. "There will be firms that will not be able to raise follow-on funds," says Mendell. "We are seeing a shrinking industry going forward." She notes, however, that the venture-capital industry in the United States, although smaller than it was, is not moribund. That was demonstrated in 2010, which saw the first year-on-year rise in investments since 2007. Venture-capital firms invested US\$21.8 billion in 3,277 deals last year: a 19% boost in dollars compared with 2009 and a 12% increase in the number of deals, according to the 2010 *MoneyTree Report* by the NVCA and PricewaterhouseCoopers, a financial-services firm based in London.

Still, the current status of the industry helps to explain why many scientists feel that firms are increasingly reluctant to fund projects without a guaranteed return on their investment. "Venture implies that they take risk, but I think many of these firms take no risk at all," says Harth. "They are looking for guarantees only."

The United States and Europe are important centres for innovation and investment, and look set to remain so. But emerging markets are expected to drive the industry over the next five years, according to the 2010 *Global Venture Capital Survey* by the NVCA and Deloitte of New York. The survey, which measures the opinions of more than 500 venture capitalists

worldwide, found that 92% in the United States think that the number of venture-capital firms in the country will decline in the next five years, a view echoed in France, Israel and the United Kingdom. Meanwhile, 99% of venture capitalists in China, 97% in Brazil and 85% in India expected to see an increase in numbers of local venture-capital firms.

The upshot: scientists in less-developed countries will probably see rising investment opportunities through private entities. But there are some caveats attached to the boom. Venture capitalists in emerging markets may be inexperienced — leaving scientists ceding control to firms not familiar with regulations — or ill-prepared to raise the large amounts of capital required for biotechnology and other health-related investments. With so much at stake, it is essential that scientists exercise due diligence in selecting a venture-capital firm.

KNOCKING ON DOORS

Before selection begins, experts say, scientists should avoid trading away pieces of their company to less-experienced individual entrepreneurs and angel-fund investors for early investment funds before approaching venture-capital firms. If scientists have already signed binding agreements with other funders or licence holders, firms will see only unappealing prospects: limited profitability and months of legal negotiations. "The biggest mistake faculty members make is to partner with entrepreneurs who are not of the quality or experience that venture investors will accept," says Nelsen. And it is often best to secure only the investment needed for the next 12–18 months, rather than seek funding for an extended period of time. To win more-substantial, long-term funding for a smaller, less-established company often means trading away more of the enterprise than it would once the company has recruited its first client or validated its first innovation.

Once that concern is dodged, the capital-start-up relationship must be considered. If it's akin to marriage, then the first step in establishing it is finding and courting a firm that fits the personality of the technology or discovery at the heart of the fledgling company. By studying a firm's track record, scientists can learn about the type of company that they support and the successes and failures they've had in the past. It helps to call a few colleagues or university entrepreneurship officers to gauge a firm's reputation among scientists in the field, because word travels fast about flawed and failing venture-capital firms.

More importantly, researchers should look for that vital link, person or connection that can open the door. Firms say that for every 100 proposals they receive from researchers and entrepreneurs, they will fund only a single start-up. Being taken seriously as a prospect often starts with a good reference from a colleague or department chair who has the

credentials to attract high-powered investment. "In any university or national lab, find the person who has had success in creating a start-up, and they most likely can introduce you to someone," says Nick Galakatos, managing director of Clarus Ventures in Cambridge, Massachusetts.

Once they have a foot in the door, researchers need to make a compelling case. They must explain what need their product fulfils, and



"It's not just about money, it's about chemistry."

Ellen Rudnick

how they intend to market and sell it. These preliminary conversations, which must be both aspirational and grounded in reality, help the firm to understand the level of risk involved in the prospective investment. They also provide early opportunities to assess the business acumen of the scientists on the project.

The best firms treat entrepreneurs as important customers and add tremendous value to a start-up in terms of recruiting, strategy, coaching and connections. But they are not doing so out of the goodness of their hearts, says serial entrepreneur Steve Blank, a lecturer in entrepreneurship at the University of California, Berkeley, and author of a blog for start-ups (<http://steveblank.com>). "Entrepreneurs need to understand that VCs are simply a sophisticated form of financial investors who in turn need to satisfy their own investors," he wrote on his blog this year. Some investors acknowledge that there are bad actors in the field, who mistreat scientists and want to wrest companies away from their founders. But scientists' general lack of business experience makes them ill-suited to run multi-million-dollar companies in competitive environments for themselves. Furthermore, any firm willing to invest heavily in a start-up will expect to guide and manage that company's future.

Ultimately, scientists should take heart in the market forces that drive venture-capital firms. Those firms that fail to invest robustly in science, or that treat scientists unfairly, only damage their own reputations and undermine their own success. "Our business is to make people money, and that includes entrepreneurs and scientists," says Nelsen. "If we make a huge company that is quite successful and the scientist doesn't make money, and the university doesn't make money, that's a huge failure for us. We want people to keep coming back to us again and again with their discoveries — so we all make money." ■

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