
More than Ever Before, Entrepreneurship Requires Courage, Not Recklessness

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In this issue, we focus on the scientist as entrepreneur, a career path precarious even in the best of times—and certainly perilous in the United States now that the nation has gone to war.

In a variety of articles and opinion pieces in this issue, we assess and describe the current entrepreneurial climate. We also present an array of observations and examples that will assist our readers in determining who among them are best equipped to succeed in the effort to translate their scientific research into a profitable commercial endeavor.

While the views of our sources may differ on certain details, a consensus emerges: Before considering a move from the comparatively warm environment of his or her academic lab into the turbulence of the marketplace, the scientist entrepreneur today must be very well along in the process that transforms a bright idea into a viable, marketable product—much farther along than was necessary even in the recent past. Inspiration, genius, and an astounding new concept are no longer enough, if they ever were.

This is because the once-fertile fields of risk capital—which only a few years ago yielded an abundance

of seed money for fledgling high-tech and biotech firms—have largely dried up. Oases of financial support still exist, to be sure, but they are fewer and farther between. The risk takers still are out there in the venture capital community, but the past few years' faltering economy, among other things, has put a cap on the amount of risk they're willing to take. And now, with war in the Persian Gulf, all bets must be off as to when a mood of confidence will once again settle over the investment community.

Thus, perhaps more than ever before, courage of a sort is the main personality requirement of today's aspiring scientist entrepreneur. In an illuminating book, *Scientists as Entrepreneurs* (Boston, Kluwer Academic Publishers, 1990), author Karel J. Samson, a business consultant and lecturer at the University of Vermont, observes: "Coming from such a philosophical and occupational culture [as the science community] into entrepreneurship and business, the scientist faces extraordinary challenges...." And in this issue of *The Scientist*—in an article by Lisa Simon (page 23)—Amylin Corp. chairman Ted Greene wisely warns those who would seek to emu-

late the success of certain well-publicized scientist entrepreneurs: "You need vision and courage." Launching your own commercial enterprise, he says, "is a frightening thing to undertake."

Back in the early 1950s, when I launched the Institute for Scientific Information, I had little idea how risky the endeavor really was. I simply worked doggedly at developing for scientists a service whose time, I was convinced, had come. Since my research in information science at Johns Hopkins had come to an end, and I was an "unaffiliated" scientist, I couldn't apply for an NIH or NSF grant. At one point, in order to meet printing payments—and after being turned down for traditional bank loans—I saved the fledgling ISI by borrowing money from Household Finance Co.

Was I being reckless? I think not. I was convinced of the ultimate worth of my product, and I had tangible evidence that my customers agreed with me. That, I believe, must be the abiding indicator as to whether a would-be entrepreneur should go into business. (Keep in mind that you can get too far ahead of the marketplace; it took five years for the *Science Citation Index* to break even.)

Does the world really need your product? If you answer in the negative, you are courting financial and professional self-destruction. But if you have full confidence in your product and if you are sure about the validity of the science you have done and will do—plus the energy to promote it—you may very well possess the qualities necessary to be a successful science entrepreneur. ■