

# The academic career as a platform for launching a company



'Considering that we talk now of a "knowledge-based economy", it is hardly surprising that many enterprises originated at universities.'

Peter T. Kissinger, Bioanalytical Systems and Purdue University

This is a topic about which I am frequently asked, having started a company from a university setting in 1974 and also advising several other faculty members on the same process over some 27 years. The climate for this activity has changed dramatically over these years, at least in the USA. In the mid-1970s, the association of faculty members with any commercial activity was at best tolerated for its potential as a source of consulting revenue, which helped faculty remain as faculty. At the other end of a narrow spectrum was the notion that such activity implied association with the devil incarnate. This opinion was more likely to be that of poets, philosophers and historians and less likely to be that of scientists and engineers. Nevertheless, this view was widely held in academia, and still is to a lesser extent by those who feel that the 'profit motive' upon which free societies are based is impure. This is not to say that these individuals are not supported by taxpayers and/or endowments that are made real by such motives.

We now are in an environment where many universities in the USA, both public and private, have established programs to encourage the start-up of businesses by faculties, postdoctoral scientists and students. Is it possible that the pendulum has swung too far from the left to the right? I suspect this is a real possibility. Likewise, I worry about academic research being judged too much by its potential applications rather than by its inherent quality. I believe strongly in serendipity in science. Physicists having fun

with hydrogen magnetic resonance over 50 years ago did not foresee a revolution in the way chemistry is done. They did not see an enhancement of medical diagnostics impacting millions of patients. This is just one of many examples. Yet we continue to look for accountability and frequently fund 'practical' work that is not needed to meet needs that have already been addressed, while short-changing quality basic science that, ultimately, has the most practical consequences. However, I digress.

## Launching an academic career in science and engineering IS launching a company

An academic setting is an excellent platform for building the skills to start business enterprises because there are many parallels. The new faculty member must write business plans called research proposals to obtain capital (research funding). The new faculty member must make decisions about which areas of research are most likely to sell to government agencies and foundations, obtaining the concurrence of analysts (peer review). Faculties must be able to market their research; they must learn how to 'get themselves invited' to speak at important conferences so that their work becomes more visible to the community that will 'buy' it. Professors should develop skills in human resources; they must attract talent to their new company (research group). They must then develop that talent and stimulate its enthusiasm to work doggedly for a common cause. They, likewise, must earn the respect of their fellow entrepreneurs (other faculty members), convincing them that they are dedicated professionals and will meet their obligations to the institution (community service). They must be reasonable people who can get along with others and demonstrate that the high ethical standards embedded in the scientific enterprise are the same high standards they apply in their professional and personal lives. The best faculty demonstrate a strong dedication to 'we' (teamwork) and minimize their absorption in 'me'. These same characteristics are those that work best for the typical business entrepreneur. However, I caution us not to rely on some formula. There is a wide range of characteristics that can work in both the commercial and academic worlds. Quiet scholars and rambunctious egotists have both done well.

## What is different about the academic and start-up company worlds?

First, in the academic world, the infrastructure is provided by the institution. In the business world, all of this, if it exists, must be paid for by customers. Customers have far more free-will than taxpayers. They can choose not to buy your products and services. If they vote for your competitor, then you might not be able to provide the infrastructure.

Second, in academia, people are highly transient. This brings constant 'new blood' into the organization, which, in turn, brings new ideas. However, much time is also spent bringing new, often young, people up to speed. Some people might not be committed and will change their minds (perhaps moving from physics to poetry or escaping science for medical school). This fact about academia makes many things go slowly, or let us say that progress moves forward in 'fits and starts'. Great patience is needed and it can often be afforded because of the largess of taxpayers and endowment funding. The 'time axis' for scholarship is more forgiving in such situations, although grants do run out.

By contrast, in business, if the cash flow is negative, the entire company can 'run out'. There might be no support from customers or investors. No outside agency will meet the payroll or buy the needed inventory. Thus, business can be unforgiving to the entrepreneur who does not react quickly to fix problems.

The university setting buys you time. The vast majority of faculty is well aware of their own failure to maintain grants, attract students or to be invited to present their research. They recognize the need to constantly learn new things and take their research in new, more fundable, more popular directions, and this is reality.

The two significant differences between a university and a business setting are, therefore, the cost of infrastructure and the time constants. Keeping these in mind, I believe the university setting is an excellent platform for starting a career in business. This is nothing new: many members of faculties have been successful in business, and many have started companies based on the knowledge they have gained as professors. Considering that we talk now of a 'knowledge-based economy', it is hardly surprising that many enterprises originated at universities. Many of these have spun off even more entrepreneurship. Classic models of this clustering of new businesses are clear in many US cities, including Boston, San Francisco, San Diego, Austin, Raleigh and the suburbs of Washington DC, as well as in Europe (e.g. Cambridge, Oxford, Dublin, Stockholm and Paris), and India (e.g. Bangalore).

## How to do it

Much has been written about this, but one of the key advantages to starting a company from a university setting is

that it can be done with relatively little risk. The university setting provides a greater flexibility of schedule than an appointment at, for example, Shell, Exxon, Pfizer or GlaxoSmithKline. One can bootstrap a company more easily from a university setting using the incubator or garage models. However, those with experience of working with a large company might have a greater chance of obtaining substantial initial funding and be able to leverage their commercial experience and contacts into larger amounts of capital in a shorter period of time. Likewise, such people are not tied up meeting their obligations to students and can dedicate themselves 110% to the new enterprise.

One way to get the best of both worlds is for the faculty member to team with an experienced business executive to move the enterprise along, while he or she maintains full-time commitment to the university and plays an advisory role in the new business, perhaps with a title such as Chief Technology Officer or Principal Scientific Advisor. Potential wealth and responsibility is thus shared and risk is minimized. Some take this intermediate approach because they have the maturity to realize that they are simply not that good at managing people or do not have the financial skills; they recognize that their best role is in creating innovative technology.

A faculty member who puts a large amount of energy into nurturing a business enterprise will run out of time; conservation of time is not possible. The faculty member will soon have to cut back to a part-time status at the university or leave altogether, perhaps maintaining a thin connection via adjunct status.

## How not to do it

It is not practically feasible to simultaneously do both jobs well. Such attempts will lead to a degradation of performance at the university and likewise stifle the success of the company. I know from personal experience that single Assistant Professors can devote incredible amounts of time in their late-20s and early-30s, but this can be done only for so long without causing adverse consequences to health and social life. Both running a business and teaching are largely 'social.' Pounding away day and night in front of a computer screen or mass spectrometer or chromatograph will not make either a good entrepreneur or a good professor.

## Conclusion

The university career is a fine platform for starting businesses. This has been proven since before World War II, after which higher education and technology expanded enormously. Now that we have the life science revolution

coupled with the age of the Internet, there are once again many opportunities for innovative people to put their energies into developing new business enterprises. Advances in communication technologies are effectively making the world smaller and more accessible. Start-up companies with a handful of people can, therefore, make a global impact, reaching customers and forming alliances worldwide. The advent of English as the language of business further facilitates the process of business development on a global scale.

Starting a business is great sport. It's a lot of fun! I believe it should not be approached as work, but as a challenge. This is the same way I approached getting grants and tenure at a university. It was something to be done to see if it could be done. Once it was done, I thought it might be a good sport to try to build a business enterprise as well. This, likewise, has been most gratifying. After all, the drugs that our company has contributed to developing now sell

at >US\$15 billion each year. Many of these are CNS drugs or anti-infectives, which impact the lives of millions of people. I do not think I could have had such an impact had I stayed at the university full time. However, a faculty position provides everlasting life as information is transferred from one generation to the next, just like DNA; that is also highly satisfying. In both venues it is the team of highly talented people one associates with who make it interesting and, therefore, fun.

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