

Georgia BioBusiness Center



Start-Ups for Smarties:

A Primer for the UGA Investigator
on Forming a New Company
Based on Your Research Discovery

University of Georgia
Georgia BioBusiness Center

www.biobusiness.uga.edu

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ACKNOWLEDGEMENTS

We would like to thank with loving kindness all the faculty entrepreneurs and industry partners who have provided us with a range of uniquely individual experiences, which over 25 years have contributed to the collective body of knowledge and expertise represented in this primer. In particular, we would like to honor Donald R. Baldwin, our self-effacing, understated but always strong and wise mentor from our University of Washington days.

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1 Introduction and Basics

Introduction

Academic researchers frequently suspect that a discovery of theirs may have what it takes to spawn a start-up company. Usually these investigators—whether faculty, staff, postdoc, or graduate student—have had little or no business experience, but they nevertheless have a notion that their research has commercial applicability, and they are intrigued by the prospect of starting their own firm. In fact, we are fast approaching the point when a senior investigator in a high-profile area of research, such as AIDS, neurobiology, or nanotechnology, feels like he or she may be missing the boat by not being involved in a start-up. This is a dramatic change from the situation that existed 20, even 10, years ago, when researchers were too busy to entertain some pie-in-the-sky idea of going into business.

There is little in postgraduate university training—outside of the MBA and a few scattered programs

in engineering schools—to instruct future academic researchers and scholars about business practice and culture. Most academics who wish to explore the commercialization potential of their research must rely on the insights of others. They obtain their information and impressions from sources, such as colleagues, friends, casual contacts, printed sources, and seminars, that may be reliable or not.

This primer, based on the past successes and failures of hundreds of academic entrepreneurs as well as on years of experience among investors and technology transfer professionals, aims to eliminate such uncertainty by addressing the key issues that every University of Georgia (UGA) researcher who wants to start a company should consider. It is not a step-by-step guide to forming a start-up. Rather, its “troubleshooting” approach and advisory tone are intended to help new entrepreneurs achieve success without suffering too many of the common pitfalls.

Of-Stated Reasons for Starting a New Company

Given that the corporate world is vastly different from the academic, why would someone with little or no preparation for the realities of industry want to make the crossover? When academic researchers first present themselves to their institutional technology transfer or business development office to inquire about forming a new company, they cite diverse motivations, reasoning, and expectations. Table 1 shows some of the most frequent.

None of the entries in Table 1 are absolutely right or wrong, but from the corporate perspective some are more realistic than others. More often than not, when academic researchers consider starting a company they are thinking about how it could benefit their research. This emphasis, however, is not consistent with the commercial world, which focuses on selling goods and services in a competitive market. The fact that researchers tend to be “technology-driven” while companies (and their investors) are “market-driven” forms the essential distinction between the academic and corporate cultures.

Perhaps the most important lesson to be learned from this primer is that academic researchers must have a market focus if they are to be successful at forming a company. Investors would prefer to deal with researchers who espouse one of the five motivations shown in boldface in Table 1. These researchers are looking outwardly at the market, and it is the market that appears to motivate them. They are not primarily focused on how the company would benefit them or their academic research.

| MOTIVATIONS | REASONING | EXPECTATIONS |
|--------------------------|---|--|
| A friend's suggestion | He or she heard about my research and suggested that I should look into starting a company. | Forming a company must be easy. |
| Envy | My research is every bit as good as that of a colleague who has been successful in starting and running a company. | If that person can do it, I should be able to do it too. |
| Additional grant funding | I sit on a panel that reviews federal SBIR [Small Business Innovation Research] grant applications, and my unfunded regular proposals are better than those that get funded under SBIR. A company might be an easy source of money to support my research, so why not form one? | We'll be able to do a lot more research by tapping into this new source of grant money. |
| Easy money | Getting investors to pay for my research may be a better prospect than writing federal grants. | Investors are happy to fund good research. |
| The rest is easy | All the hard work has already been done in my laboratory, so now it's time to turn the project over to a company for product development. | People will want to invest in my company because the remaining work is relatively trivial. |
| The captive company | A start-up will be able to pursue the ideas from my lab through to commercialization. Alternatively: The company will augment my research by doing things that I don't have the time or money for, such as running routine analyses and constructing prototypes. | I'll have this outside company that does whatever I tell it to. |
| Becoming rich | A start-up is a relatively quick way to become rich. | In five to ten years, I'll be really wealthy. |
| I'm the boss | Starting a new company sounds better than getting a job at an existing one. | I can be chief executive of my own company and not have to work for others. |
| Persistence | No existing company has wanted to license my technology and I am committed to getting it to the marketplace, so it's time to start my own company. | We'll do what it takes to form a company to get this technology out there. |
| Market demand | I have been approached by people asking, “How can I get one of those things?” | There appears to be a market for my product. |
| The sideline | This would be an opportunity to have a small operation that sells products in a niche market. | There's enough of a market there for me to have a nice supplement to my academic salary. |
| Maximal impact | Selling commercial products, as opposed to just publishing in a journal, increases the chance that my ideas will have a major effect. | We'll be able to hit a much wider audience through the commercial sector. |
| Seasoned veteran | I didn't get it right with my first two companies, but this time I have a better handle on the market realities. | Given our experience, we should be able to raise adequate investment funds and use them to better advantage. |

TABLE 1: WHY ACADEMIC RESEARCHERS SAY THEY WANT TO FORM NEW COMPANIES



Two Different Types of Companies

— A primary reason for failure of academic start-up companies is insufficient capital. Most of them, being technology-focused, require sophisticated facilities, equipment, and personnel to develop products. Even more significant is the fact that they need a great deal of time to get the products ready for the marketplace. Forming a technology company is not like starting a restaurant, where equipment may be purchased, the space remodeled, and the doors opened for business within the span of a few months. Technology companies typically require two years, and sometimes as many as 10-15 years,

of R&D before sales revenues are received. During their product-development period, start-ups need a continuous infusion of capital; any prolonged interruption can deal the enterprise a death blow.

This primer will often refer to academic start-ups as belonging to one of two fundamental categories: “equity-investment companies,” which require large sums of capital, usually in the form of equity investment; and “modest-investment companies,” whose capital requirements are substantially lower. In reality, a business can be of both types—for example, a modest-investment company may provide equity shares to investors—but this one-or-the-other model allows us to make some basic generalizations that are useful for the would-be entrepreneur.

The Basic Requirements for Starting a Company

— What does it take to successfully start a new company? A good idea, first of all, is necessary, but it is not sufficient. The idea must also address a real market need—that is, the market is not yet adequately served. Also required are talented and dedicated workers, together with well-equipped facilities for them to work in. The final and toughest prerequisite is the capital to make everything come together and push the venture ahead. Each of these constraints must be met to get a company off the ground.

CUTTING-EDGE IDEAS. It is now well established that many of the ideas for new products and services come from researchers at universities. Academic

discoveries, however, are usually embryonic concepts and not full-blown products, particularly in the biomedical field. Other academic innovations, such as software, may be much closer to a marketable product. Either way, having intellectual property protection on an invention or discovery is highly valued, if not essential, for commercialization.

Discoveries that could lead to multiple products or product lines, so-called “platform technologies,” are what many investors look for when funding a start-up. Often, you’ll hear potential investors ask, “Is it a product or a company?”—implying that single-product ideas are not suitable for the formation of an equity-investment company. One can certainly start a new business around a single product, but it’s unlikely that the company will be attractive to institutional investors unless the product represents a very large market opportunity.

MARKET NEED. Deciding on the company’s first product is often very difficult—especially for platform technologies, which may have many different applications. An important criterion is that it serves real-world needs. Individuals starting companies must provide compelling answers to questions such as: What market does this product serve? What products are already in this market? How is this product different from them? Who are the competitors, and how are their products better or weaker than yours?

SPECIALIZED PERSONNEL. The success of a start-up depends on highly skilled staff with technical expertise and business acumen, though it is rare for a single person to possess both. Most early-stage

companies, given their emphasis on research and development, will of course require scientists or engineers, technicians, and computer programmers both at the senior and junior level. But unless the academic researcher/entrepreneur happens to have significant experience in industry, equity-investment companies consider it absolutely essential that he or she recruit a credible business partner, along with others familiar with the marketplace. This individual should have demonstrated business experience, preferably within the industry in which the start-up plans to compete. Investors especially like to invest in people with prior experience in successfully starting up companies, as opposed to investing in ideas or technology alone.

SPECIALIZED FACILITIES. Research and development companies require facilities that are more sophisticated than those of the average business. Companies engaged in biological research, for example, may require lab benches plumbed for water, gas, and vacuum, fume hoods for ventilation of chemical vapors, climate-controlled rooms, space for growing and maintaining plants and animals, photographic dark rooms, shop space for fabricating prototypes, and an array of specialized requirements for power, waste disposal, and Internet access, just to cite a few. Thus many universities have set up incubator facilities to assist start-up companies in their early years.

CAPITAL. A start-up's demand for cash depends on the type of company it is. The faculty member creating a modest-investment company in his or her garage, funded by personal savings, is spared

the arduous task of seeking investment capital from business "angels" (wealthy private investors) and venture capitalists. And, as an extra benefit, the academic entrepreneur may retain 100-percent ownership of the company. By contrast, the researcher who plans to start a new pharmaceutical company will spend countless hours trying to secure investment capital; and once the company is started and initial capital secured, founders will start planning when and how to secure the next "round" of financing. Eventually, the company may also need to offer stock to the public in order to fund product development. Such firms are voracious in their appetite for cash, as raising money is a never-ending process, and they are at the mercy of the investment community.

The decision on whether to form a modest-investment company or an equity-investment company is largely dependent on the nature of the product, what remains to be completed in its development and manufacture, and the timeline to launch. While the desire to preserve ownership and control of the venture through a modest-investment company is understandable, many commercial opportunities require extensive partnering, both in investment and strategy, if they are to be successful.

Capital for getting a company off the ground generally comes from one or more of five principal sources:

- Cash from the founding entrepreneurs and their friends and families
- Personal debt through credit cards and loans
- "Angel" financing

- "Institutional" financing (e.g., venture-capital-funds managed by professional investors)
- Grants such as those from the federal Small Business Innovation Research (SBIR) and Small Business Technology Transfer (STTR) programs and from institutional or state economic-development entities.

Infrequently, a start-up is fortunate enough to develop a strategic relationship with a larger company under which this partner helps the young company with product development, generally in the form of cash or collaborative assistance. Such "strategic partner" relationships are common among more developed companies, but they are rare for start-ups.

A good idea is necessary, but not sufficient, for successfully starting a new company. The idea must also address a real market need.

2 Personal Advice for Academic Entrepreneurs

This section addresses start-up issues that are personal in nature. It focuses on the relationship of the academic entrepreneur to his or her employer, founders' traits that promote success, and what to do and when to do it during company formation and launch.

Your Role(s) in the Start-Up Company

Most first-time academic entrepreneurs are uncertain about what role they should play in the formation and operation of a new company, though certain relationships are fairly predictable. Faculty, for example, almost always prefer to retain their academic position while working with the new company, while staff, postdocs, and graduate students ordinarily leave academia to become company employees. A faculty member's role in the start-up is likely to be proscribed by a number of his or her university's policies, including those on conflict of interest,

conflict of commitment, sponsored research, and outside consulting. The typical range of roles that faculty play in conjunction with start-ups includes:

- Founder/equity holder
- Consultant
- Member of the scientific advisory board
- Member of the board of directors
- Corporate officer (e.g., Chief Scientific Officer)
- Recipient of sponsored research funding
- Employee of the start-up, while on leave from the university
- Infrequently, dual employment in academia and the start-up.

Most academic institutions have their own set of policies regarding how faculty may participate in new companies, though a virtually universal rule is that aspiring entrepreneurs gain institutional

approval before engaging in start-up activity. Thus it is extremely important to consult with the institution's officials about your specific situation early in the planning process.

The academic researcher provides the technical vision to guide the company's initial research and development. He or she is integrally involved in developing and writing the business plan, recruiting an individual to lead the business side of the company, making presentations to potential investors, hiring initial scientific staff, and launching the company in its own facilities. These activities entail a fairly large time commitment, so if you already tend to be frustrated about not having enough time to devote to your research or clinical practice, you should think twice about whether you want to found a new company. You may assume that you can turn over all the early work of building the company to the chief executive officer (CEO), but inevitably you'll be pulled into the process. Indeed, one of the measures used by potential partners and investors in assessing their interest in working with a new venture is the amount of time that the academic founder devotes to the endeavor.

Once the start-up is launched, the involvement of the founder is often inversely related to the number of employees at the company: as the size of its staff increases, the day-to-day participation of the founder decreases. In established companies, the founder usually remains on the company's scientific advisory board and offers strategic consulting advice.

Working with Your University Employer

— If an employee of a company were to walk into his or her boss's office and state "I'm going to take the information I've learned here during the last five years and use it to start a new company," the answer would be a resounding "That's what you think!" But academia is markedly different: university employees who want to found new companies based on their research are not perceived by their employers as potential competitors. Thus you generally do not have to leave your academic employment in order to found a company—subject, of course, to your employer's advance approval.

UGA, like all academic institutions, has a variety of rules that may be applicable to your plans to start a company, including policies on intellectual property, conflict of interest, conflict of commitment, sponsored research, and outside consulting. Your ability to gain approval to start a new company is based on the full disclosure of your proposed activities as they may pertain to these policies. Once the start-up activity is approved, UGA may have a number of resources to assist you in forming the company. *Consequently, analogous to the three basic criteria for purchasing real estate (location, location, and location), the first three rules for the academic employee contemplating the formation of a new company based on his or her research are disclosure, disclosure, and disclosure.*

INVENTION DISCLOSURE. If the basis for starting the company is a discovery made in your laboratory,

the first disclosure is made by filling out an "invention disclosure" form and submitting it to the Technology Commercialization Office (TCO) within the UGA Research Foundation (UGARF). It may be helpful for you to consult with a technology commercialization professional within the TCO (www.ovpr.uga.edu—see *Technology Commercialization*), in advance of submitting the disclosure, for an overview of how this office works with start-ups. The TCO will determine whether there is protectable intellectual property (IP) associated with the discovery and, if there is, whether UGA has an ownership interest in such IP. If UGA does own it, the TCO will be responsible for filing for IP protection, usually in the form of a patent application, and for "transferring" the IP to the start-up through a negotiated license. This process is broadly described as "technology transfer." UGA policies regarding IP can be found on the Web at www.ovpr.uga.edu—see *Policies*.

CONFLICTS DISCLOSURE. The second disclosure to be made concerns your compliance with institutional conflict-of-interest and conflict-of-commitment policies. Such conflicts are a hot topic in the national media, professional organizations, and their journals, as well as in hallway gossip, and being accused of having a conflict can severely damage one's reputation and future prospects. Academic presidents come to the breakfast table each morning fearing that their institution will be negatively depicted on

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newspapers' front pages, with the specter of conflict of commitment or interest charges being among the most frightening. Consequently, academic entities have become quite attentive in enforcing their conflicts policies. UGA's policies in this area can be accessed on the Web at www.ovpr.uga.edu—see *Policies*.



A conflict of commitment occurs when outside activities interfere with an individual's responsibilities under his or her academic position. Typically, institutional consulting policies allow academic personnel to spend a set amount of time per week or month doing outside professional work, which may include helping to launch a new company. At UGA, each school and college has its own policy on such work.

A conflict of interest exists when an individual's personal interests (e.g., equity holdings in a start-up company) are perceived to influence that person's judgment when exercising his or her academic employment duties. Institutions require that such

potential conflicts be disclosed and managed. Because conflict-of-interest management can be a complicated business, especially if you are contemplating a start-up company while remaining an academic employee, it is essential that you understand the constraints on permissible activities. Conflict-of-interest management plans are above all concerned with protecting vulnerable parties, such as graduate students and human subjects participating in the research, who are under the charge of the academic entrepreneur.

It is highly recommended that you consult with your institutional-conflicts officer at an early stage in your planning to ensure that you do not run afoul of applicable policies. It is also recommended that you sit down with your department chair and dean, as soon as you get serious about forming a new company, to lay out your plans and answer any questions. Chairs and deans do not like to be surprised about matters that involve the entrepreneurial activities of their faculty, particularly in the area of conflict of interest. Early disclosure to fully brief them about your intentions and to seek their approval is politically a very good strategy.

INSTITUTIONAL FACILITATION. The third disclosure is the university's—in making you aware of the support it offers toward helping you realize your business aspirations. Academic entities now take pride in the number and diversity of companies spun out of their research laboratories and the contributions that these companies make to regional economic development. For example, a recent study has identified 88 companies started since 1974 by UGA faculty and

staff from the fruits of their research. These companies have accounted for a significant amount of economic activity, both within and outside Georgia. To promote further economic development, UGA has developed a variety of resources that may help you form a new company. For example, the TCO manages IP protection and technology transfer while the Director of Business and Economic Development at the Georgia BioBusiness Center (GBBC) (www.biobusiness.uga.edu) can assist with other aspects of company formation. Both offices are within UGA's Office of the Vice President for Research.

Because individuals in the TCO and GBBC have many years of experience in working with academic start-ups, it behooves you to avail yourself of their expertise as early as possible in your planning. The resources offered by the GBBC may also include introductions to business entrepreneurs as potential CEO candidates, to angel and venture capital investors, to consultants for help with the preparation of business plans and SBIR/STTR grant applications, and to attorneys for help with incorporation. Another resource at UGA, the Small Business Development Center (funded in part by the U.S. Small Business Administration), offers assistance to entrepreneurs in the basics of planning and starting a business.

Many universities have incubators with state-of-the-art equipment for their start-ups and “gap funding” to help reduce some of the financial risks associated with development of academic discoveries. At UGA, the GBBC is a bioscience incubator that offers sophisticated facilities to help young companies get off the ground, and it also manages

gap-funding opportunities through the Georgia Research Alliance (www.gra.org).

A few academic entities go further by trying to pick the companies that they believe will be “winners” and to add as much value to them as possible for maximizing their chances of future success. In that spirit, these institutions have taken a more hands-on role in starting companies by performing activities traditionally restricted to early (“seed”) stage venture capitalists. They often write business plans and recruit CEOs, make equity investments in faculty companies from internal “venture capital” funds, and facilitate other investment through networks they have established with the institutional venture-capital community.

Research Sponsored by the Start-Up

— A primary motivation for academic researchers to form new companies is to have them fund some of the researchers’ work in their university laboratories. While this phenomenon does frequently occur, it is a turn-off to investors if they believe that it is the entrepreneur’s *only* motivation. In any case, investors must see a compelling reason why the research funding for your lab is essential to the company’s success. Frequently cited reasons include the academic laboratory’s superior facilities, extensive experience, sophisticated (i.e., expensive) equipment, skilled personnel, and the fact that the research is still at a relatively basic—as opposed to commercial—level. Sometimes the academic lab pursues basic research that is complementary

to product-development work going on within the company. In other instances, if proof-of-concept or reduction-to-practice experimentation still needs to be done, the academic laboratory may be best equipped to perform it.

Some academic institutions forbid an investigator from receiving research funding from a company in which he or she has a significant financial interest (i.e., stock or other ownership interest). Because every institution is different on this score, it makes sense for the investigator to look into his or her university’s policies during the early stages of planning the company if sponsored research funding is desired or anticipated. In those institutions that allow investigators to receive funding from companies they have founded and in which they hold equity, a financial conflict-of-interest review will be performed. This should lead to a plan for going forward with the research in such a manner that potential conflicts have been mitigated. Such plans generally pay special attention to graduate-student and human-subject involvement in the research and to public disclosure, in publications resulting from the sponsored research, of your corporate ties. Ultimately, a research contract will be negotiated between the company and your academic employer through which the company will gain prospective licensing rights to the results of the research and any associated intellectual property. At UGA, such contract negotiation is handled by the UGA Office of Sponsored Programs (www.ovpr.uga.edu —see *Sponsored Programs*.), in collaboration with the TCO.

Networking

— Business-naïve academic researchers stand to learn a lot about organizing, funding, and launching a new company from the experience of others. While such knowledge can be transmitted through books, seminars, and over the Internet, the most powerful way to tap the know-how and wisdom of others is through “networking.” You may not be thrilled by the concept, much less the practice, of engaging complete strangers in conversation, but if you’re going to successfully start a company, networking is an activity that you’ll need to embrace and become proficient at. Through conversations with others you may be able to identify CEO and CSO (chief security officer) candidates, consultants, corporate attorneys, insurance carriers, and potential investors. You may get tips on writing your business plan and applying for SBIR and STTR funding. Generally, your fellow entrepreneurs, if they are not direct competitors, are more than willing to tell you their stories so that you won’t have to reinvent the wheel.

There are multiple opportunities for networking with others, particularly if you are in or near a city. These include: specific venues for entrepreneurs to get together to present their concepts for new companies; regular meetings of local biotechnology, electronics, software, or engineering industry groups; small companies making presentations at professional

The most powerful way to tap the know-how and wisdom of others is through networking. Your fellow entrepreneurs will generally be more than willing to tell you their war stories.

conferences; and regular meetings of “angel networks,” at which leaders of new companies often present their business plans. Moreover, the business school in your institution may sponsor seminars and

programs on entrepreneurship and have opportunities for young companies to work with MBA students. Any forum at which the topic of discussion relates to innovation is potentially a good place to network.

Academics are not by nature effective networkers. Prowess in planning and executing experiments and writing grants and publications does not always

translate into skill in initiating conversations with strangers in a large room filled with people dressed in jackets and ties. Seminars are regularly offered, however, to help entrepreneurs develop skills and confidence in networking. At such a seminar, you might learn the following basic tips on maximizing your opportunities in a networking situation, such as a reception after an all-day meeting of your local biotechnology society:

- Wear your name tag, as it helps people remember your name. (Pin it to your right side, because that’s where people will look when they shake your hand.)
- Set a goal to speak to at least five people you have never met, and refrain from consuming adult beverages until you have met your goal.
- If you are looking to gain information in specific areas (e.g., investment), ask someone you

know in the room to introduce you to people so engaged.

- Refrain from talking about the weather, travel, or other mundane topics; you are expected to get to the point in these types of settings. Have in mind three questions you are trying to get answers to as a way to frame your conversations.
- Have your business cards within easy reach; if you don’t have any, get some. Exchange business cards with people you speak to and make a point of sending a follow-up message within 72 hours to anyone you may have further interest in.

These seemingly prosaic tips, which come from experienced networkers who understand the power of this activity, should not be underestimated.

Cofounders and Business Partners

How does one select the founders of a start-up? Academics are an egalitarian lot who, if they err, tend toward inclusion rather than exclusion of their colleagues. Inclusiveness is particularly evident in multi-author publications that report on collaboratively performed studies. While laudable, such inclusiveness does not always translate well into the business arena. Because partners usually share in the future value of the company—whether in the form of profits, stock holdings, or other arrangements—decisions as to who will be a founder should be made according to the expected contribution of each individual to the enterprise. It is much easier, however, to look back at a scientific study and determine who made the contributions

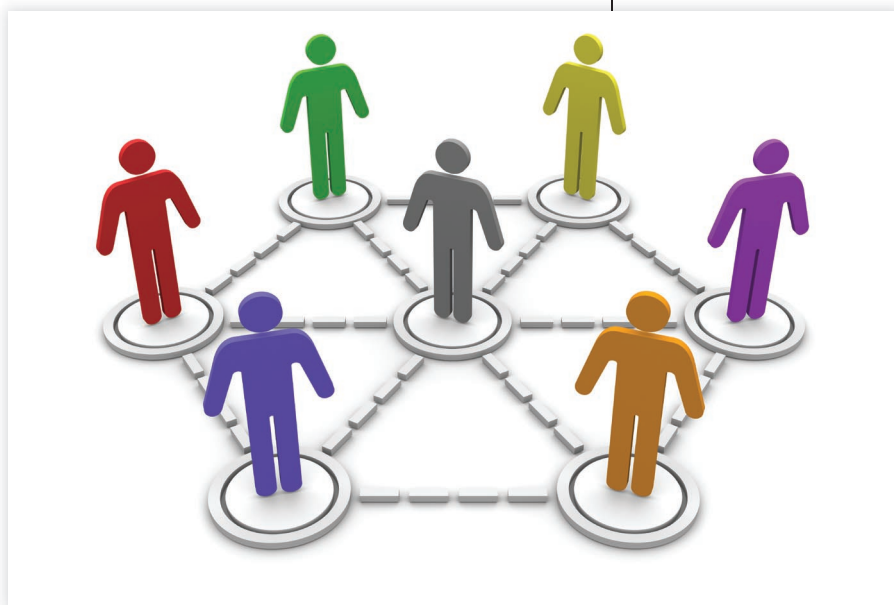
necessary for inclusion as a report’s coauthor than it is to look into the future to determine who should share, and in what proportion, in the value created by the company. All too often, academic entrepreneurs have been heard to say, “We gave him all that money and he never did a thing.” The message for academic entrepreneurs is not to abandon their egalitarian instincts but to choose their business partners very carefully.

(The above comments do not address the issuance of stock to investors in an equity financing. Decisions associated with corporate valuations and the granting of equity interests to investors are beyond the scope of this primer and are best taken up with an experienced attorney, entrepreneur, or investor.)

Picking your business partners is a bit like picking a spouse. You want to form relationships with people who you know and trust and who share your values and aspirations. You expect that they will be honest, communicate in a straightforward manner, and follow through on what they say.

The founders of a business nearly always retain stock rights, which can be issued in a variety of forms such as unconditional grants, grants that take effect (“vest”) over time, grants that are subject to achieving agreed-upon milestones, or options to buy. But once stock is issued, the company cannot revoke it. One of the biggest mistakes a start-up can make is to grant stock with no strings attached to an inexperienced individual. Many an entrepreneur has given the title of CEO and a large chunk of stock to a friend or acquaintance, only to see that person’s deficiencies exposed within the first year. Ultimately, such

poorly chosen officers are let go, but despite having contributed little to the success of the company they walk away with their stock. A more rational basis for founders' shares in the company's future value is performance. For instance, a CEO without a track record might be granted 10 percent of his or her stock outright, with the remainder contingent upon achieving certain tangible milestones—such as raising a given amount of investment capital. Identify-



ing founders and setting up stock plans is something that a skilled attorney, knowledgeable about start-up companies and stock-ownership norms in your industry, can help you with during incorporation. (Attorneys can often be identified through networking referrals.)

Confidentiality

Academics typically do not worry about confidentiality, as public disclosure of their research results is at the core of their profession. But in the business world, people keep things secret as long as they believe there is a competitive advantage to doing so. Freely disclosing the core plans and essential nuggets of the future company creates a risk that someone will

appropriate your ideas for their own use.

It is generally unwise to reveal such information to people other than partners and potential investors. Usually, statements such as “We believe that we have a new drug target for the treatment of atherosclerosis” or “We have a new way to make crops resistant to herbicides” or “We have a more powerful way to search the Internet for content”

will suffice. They tell the listener what industry you are in and the nature of your product; that should be enough information to stimulate dialogue if there are common interests.

Even when common interests are clear and further and more serious discussion is indicated, it is not necessary or appropriate to provide all the details

about the new company and its underlying technology in a first meeting, or perhaps even a second or third meeting, without the benefit of a confidentiality (nondisclosure) agreement. Toward that end, the start-up should develop a template confidentiality agreement with the advice of its legal counsel. (See <http://contracts.corporate.findlaw.com/agreements/glasser/onewaynondisclosure.html> for an example of a confidentiality agreement.) Note that until your company has optioned or licensed underlying IP from your employer, or any other licensors, confidentiality agreements will need to include such parties, as they hold the rights to the IP.

A Suggested Chronology for Forming the Company

With so many steps involved in the formation of a new company, academic entrepreneurs often inquire about their proper sequence. Unfortunately, there is no one order in which to accomplish these tasks, as every new company has its own unique set of circumstances and needs. Nevertheless, as a guide, we offer a generalized chronology below for starting an academic spin-off company. The list emphasizes compliance with your academic employer's policies and practices regarding your participation in a start-up, and it attempts to minimize early capital expenditures. [Please note, however, that in reality many of these events do not unfold one at a time but typically occur in parallel.]

1. Read this primer in its entirety and then confer with UGA's TCO and GBBC to discuss your ideas

for a start-up and to seek their advice and comments.

2. Formally disclose to the TCO the idea/discovery/invention upon which the start-up is to be based. It is important to cultivate good working relationships with your technology transfer officers. Make them feel good about working with you; their being on your side will pay off in the long run.
3. Begin networking with others who have entrepreneurial experience, especially within your intended areas of product application.
4. Develop the business case for the new company: What product will the company develop and what market will it serve? Why is this a compelling new product? Why will the market positively receive it?
5. Consider who the founders of the company will be and begin to look for a business partner (CEO).
6. Look into SBIR/STTR grants and gap-grant funding options. Discuss the Georgia Research Alliance's VentureLab program with the GBBC as a possible source of financial assistance.
7. Confer with your department head and dean, and then with your institutional conflicts officer, about your plans for a start-up in order to determine if they are consistent with UGA's conflict-of-interest and conflict-of-commitment policies.
8. Develop plans regarding the company's founders, initial capitalization, facilities, and early hires. Make sure that these plans are realistic enough to justify the time and money spent in writing up a formal business plan,

incorporating, and negotiating options or licenses.

9. Bring in a CEO.
10. Write a formal business plan.
11. Gain your employer's approval to proceed by making the required disclosures under institutional conflict-of-interest and conflict-of-commitment policies, by cooperating with the review process, and by developing a conflict-management plan.
12. Finalize the company's initial capitalization plan.
13. Incorporate the company.
14. Secure rights to any IP required for company formation from your employer (and other entities, as appropriate). Note that negotiations for an option or a license are best engaged in by someone other than the academic founder(s), as many institutions will not negotiate with their own employees because of conflict-of-interest considerations.
15. Finalize procurement of capital, equipment, facilities, and personnel, and commence research and development at the start-up! Begin preliminary planning for regulatory issues that could conceivably affect manufacturing and distribution plans.

3 Building a Business

This section provides direction on the kinds of business-related issues that the academic entrepreneur is likely to confront.

Is It a Product or a Company?

— Investors in equity-investment companies like to see markets penetrated in a variety of ways. That's why they prefer "platform technologies," which are amenable to the development of multiple products. When reviewing a discovery proposed to be the nucleus of a start-up, one of the first questions an investor might ask is: "Is this a product or a company?" Implied in this query is a second question: "What are the growth prospects of this enterprise?"

Thus when reviewing a business plan, venture capitalists in particular will ask: "What is the next series of products we can add to ensure growth?" Without

a clear answer to this question, it's unlikely that the company will attract institutional investors.

The product-or-company question also applies to the modest-investment company, though on a more modest scale. If you contemplate building a "garage-based" company to sell a product into a niche market, you should ask yourself, "If the sales of my lead product slowly ramp up to, say, \$75,000 per year and then flatten out, am I going to be satisfied with all the time and money I spent to get to that position?" If the answer is no, you must consider how the company may bring in additional revenues to justify your investment.

When Is a Discovery Ripe for Starting a Company?

— People can get so excited about the idea of forming a company that they often lose sight of the hard

road ahead. Start-ups conjure up images of future wealth, of building the next Amgen or Microsoft, of launching what will become the next billion-dollar product line. But while these dreams are swirling in one's head, it's easy to overlook the fundamentals of building a successful business, such as favorable timing.

There is no formula for determining the proper time to start a new company, though a rule of thumb may be: whenever you can be assured of the capital necessary to make a go of it for two to three

years. Thus, the "right" time has less to do with the stage of research than with the risk tolerance of investors. Because academic research discoveries are generally quite far from being products and there are numerous ways for a concept to wither and die during development, the pathway from discovery to product entails risk, and the more embryonic the discovery the higher the risk. (See also the discussion below on the "virtual company.")

Investors, whether venture-capital firms or individuals with checkbooks, go through cycles in their tolerance for risk. In the biotechnology, software, and Internet industries, as well as in others, there are times when institutional investors are quite

comfortable in investing at a very early stage in the development of a technology. During other periods, those same investors might only invest in companies much farther along in product development—those with drugs in mid-stage human clinical trials, for example, or those with successful beta tests of their software.

When contemplating the formation of a company, you must appreciate where your product is in its development pathway and the risks associated with moving forward. The earlier you are in the pathway, the higher the risk in getting to market. For a drug, a simplified development sequence might involve in vitro proof of concept, proof of concept in animals, demonstrated non-toxicity in animals, successful Phase I, II, and III clinical trials, and approval by the U.S. Food and Drug Administration (FDA). For a software product, the sequence might entail constructing a functional prototype program, creating appropriate user interfaces, conducting successful beta tests, and market launch with early customer acceptance. Investors can be stratified according to

their comfort levels with the associated risks at each of the stages of the product-development sequence. Those at the early (high-risk) end are often called "seed" investors, and those at the later (lower-risk) stages are called "mezzanine" investors.



Once you better understand the risks associated with getting your project to the marketplace, you can assess the current investment climate through your networking contacts. If yours is an early stage technology and the investment climate is unfavorable, you may not be able to get the company off the ground—at least, for the moment. Meanwhile, networking has another great benefit. Learning about the business successes and failures of others can help you learn valuable lessons for your own efforts. Most academic entrepreneurs will be quite willing to share their "war stories" with you.

Do You Need Intellectual Property?

Generally, companies seeking outside investment should have IP rights related to their anticipated products, and it never hurts for any new company to have such rights, particularly patents, at the time it is formed. The necessity for IP protection when starting a company depends on the size of the markets being considered and the expense of developing the products for those markets. Typically, IP rights are necessary if the company's products address large competitive markets or if the costs of product development are high. IP rights serve as a barrier to other companies that might want to replicate your product concept and compete against you. These same rights also help investors justify the tens to hundreds of millions of dollars spent in getting a new product to market. Imagine investing \$350 million over 10 years on a new drug, only to see another company apply for FDA approval for the same drug

three months after your market launch. No private investor would risk such an outcome, and patents are one way to ensure that it cannot occur.

When a new company has IP protection related to its products, this suggests that it understands the competitive marketplace and has taken positive steps to carve out a niche. Thus patents can add a certain amount of “value added” or glamour to a new company in the eyes of investors and competitors. Of course, it is the *nature* of the patent rights controlled by the company that is significant, not just the fact that the company has patents. Nevertheless, a business plan with a section listing the company’s IP assets is likely to be more impressive to a reviewer than one that does not.

Some academic companies are founded on intellectual material that lies within the public domain and for which no IP protection is available. Ordinarily, with no protectable IP, there should be no need to secure a license from the academic employer (though that does not abrogate the need for disclosure). Companies without IP assets ordinarily do not attract large amounts of outside investment capital. Indeed, a modest-investment company, funded out of the founders’ pockets, does not need IP in order to get off the ground. The importance of IP to such a venture may be more apparent later on, when the company is selling products and knock-off competitors arise. To prevent such a situation, young companies should be reviewing their R&D results for aspects that could impart a significant IP advantage down the road.

The founders of start-ups often seriously underestimate the amount of money required for IP protection when writing their business plans. It is expensive, with issuance of a U.S. patent costing as much as \$40,000–\$50,000 and foreign patents costing several times that amount. Such expenses can be quite burdensome for a young company. Typically, a balance must be sought between controlling the company’s costs and protecting valuable intellectual property. This usually means not pursuing patents in some foreign countries.



Defining the Market for Your Product

— In order to write your business plan and effectively network with others, you’ll need to have a strong command of what your product is and what market it is intended to serve. Be careful, however, not to exaggerate the size of the market or gloss over the critical details. It’s easy to say, “Our drugs target the cardiovascular market, which last year was estimated at \$30 billion” or “This is a potential

add-on to any PC in the world,” hoping that the eye-popping size of the market will make investors rush for their checkbooks. While the market sizes associated with these examples might be compelling, we’ve been told nothing about the product or who in that market will be purchasing it and why.

Products solve problems, so to create a compelling argument for a potential new product one must describe exactly what problem is being solved, who will buy the product, for what reason, and how often. In the first example above, instead of vaguely alluding to the “cardiovascular market” it would be preferable to say something like:

This drug addresses restenosis of coronary arteries after insertion of a stent. Approximately 750,000 stents are placed in the United States each year (with a 6-percent annual growth rate), and restenosis occurs in 30 percent of the placements. Current treatment involves either stent replacement or the use of drug-coated stents. Having a pill that a patient could take for the first 30 days after stent placement would be less expensive and dangerous than current remedies.

This description of the target market provides a level of resolution that investors can verify during their due-diligence inquiries. Similarly, in the PC add-on example above, a statement such as “This device will improve networking in households with DSL service” certainly illuminates the market better than the generalization that preceded it. Knowledgeable

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investors are too sophisticated to be misled by nonspecific market descriptions such as “cardiovascular” and “PC.”

Clarity and succinctness should be the rule when pitching your company to businesspeople. You may have heard of the so-called “elevator pitch,” in

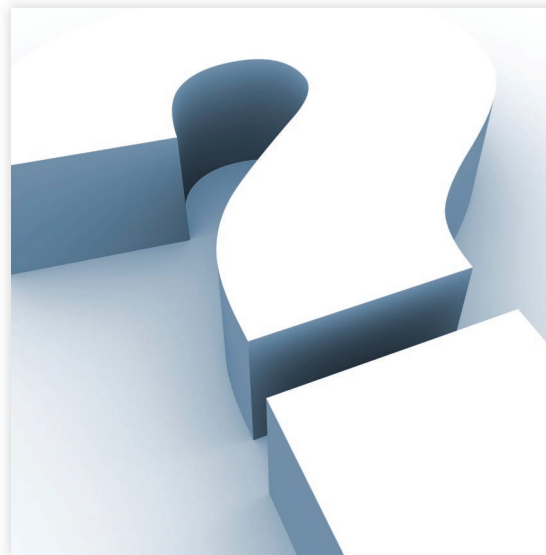
which an entrepreneur encounters a person (e.g., a prominent venture capitalist) he or she has wanted to meet and only has a minute or so to make a case for the company. Successfully doing so requires a thorough understanding of your business—not only in its minutiae but also from “35,000 feet.” Being able to pull off the elevator pitch could distinguish your company from others

and give you credibility in a competitive arena.

In acquiring such understanding, you and your partners should develop realistic answers to questions such as:

- What problem does the product solve?
- How many people, companies, or other entities currently have this problem? In the United States? Worldwide?
- Is the incidence of the problem growing or declining? At what rate?
- How is this problem currently solved or avoided?
- Who sells products that address this problem? What are their annual sales? What is their estimated share of the market?

- What products for solving this problem are in other companies’ development pipelines?
- What are the strengths and weaknesses of existing products in this market?
- How do people make buying decisions in this market?
- Why would a buyer choose your product over the others?



If you can answer questions like these using real-world information, you should have an excellent sense of the opportunities for your business. Obtaining such information, however, can be difficult and costly. Reliable data are not always publicly available, and trade reports that survey specific markets can cost thousands of dollars. Consultants having experience in the relevant industry may be very useful,

but also quite expensive. One possible alternative is to obtain a small-business development grant, which can be used to commission market studies in advance of launching a start-up.

Here are two general recommendations regarding the process of compiling market data:(1) be as rigorous as you would be in performing a study you aim to publish in a high-prestige journal and (2) look at the market data with the same degree of skepticism you’d bring to bear if you were investing your own money in the enterprise.

Identifying a CEO

Very few academic researchers have had enough exposure to the business world to move ahead with confidence in handling the business side of a new company, especially if it’s their first attempt. Researchers are up to the task of setting out the company’s initial scientific agenda, but writing business plans, negotiating leases for facilities, and setting up and managing human-resources, purchasing, accounting, regulatory-affairs, manufacturing, and sales and marketing functions are generally not within the realm of their experience or interest. Consequently, they must bring in a business partner—generally, a CEO.

This partner will complement your technical skill and scientific vision by expertly handling the start-up’s business matters. If you are starting an equity-investment company, raising investment capital will be his or her major responsibility. The CEO should be an individual with credible business experience,

preferably in the new company's industry, and who has successfully raised investment capital in the past. If you live in an area where there is not a lot of entrepreneurial activity within your industry, it might be difficult to find or attract such an individual. This is often the case with academic start-ups: a line of quality CEO candidates is not waiting at the door for a job. Under such circumstances, you'll need to rely on your institution's technology transfer or business development office, together with networking contacts, to help you identify a suitable person.

In choosing a CEO, beware the temptation to underplay that individual's importance; do not settle for someone without sufficient business experience—often, a friend or family member—to fill this role in the equity-investment company. Hastily chosen CEOs may have no credibility with investors and, given their inexperience or other limitations, may be inadequate for the job. Too often, they taint a perfectly good opportunity and hamper a company's funding potential. Even when a CEO candidate appears to possess the skill set you would like to see, hire him or her only after you confirm that the individual shares your vision and can add value to the company. Talking to the person's references is an essential part of this process. Also, when it comes to granting the CEO equity in the company, you may want to make it strictly performance-based.

If you are starting a modest-investment company, it is likely that you, a friend, or a member of your family will play the business role. If the designated CEO has not had a lot of prior business experience, he or she will

need to acquire additional basic business skills as well as learn about the start-up's industry and the markets to be served. Bookstores and libraries are full of books about forming businesses, but consultants may be more effective. Though consultants can be expensive, the investment may pay big dividends.

Role of the Business Plan

— A formal, written business plan is essential for the equity-investment company and is useful, though not absolutely necessary, for the modest-investment company. The business plan articulates the founders' vision and how they intend to execute it. As such, the plan describes the company and its products, markets, competition, financing needs, product-development timelines, and projected revenues. The business plan is not a procedural manual but more of a high-level view of the start-up's intended structure and function. And because business plans are subject to frequent revision as directions change,

they are snapshots of the company over time. The exercise of writing the plan is itself invaluable in that it makes the entrepreneur confront the key aspects of building a new business and form realistic rationales for why he or she believes the company



will be successful. The rigor and thoroughness in preparing the business plan should be no less than what is devoted to writing a federal grant application.

Here are some of the reasons why a business plan is important:

- If the company must negotiate a license to intellectual property rights, a thoughtful business plan will increase its credibility in the eyes of the licensor.
- The plan is a prerequisite to raising an equity-investment company's capital. It will be "peer reviewed" by investors, who will be analyzing its assumptions and arguments. Thus the better thought-out the plan, the greater the likelihood that the company will secure funding.
- For modest-investment companies, researching and writing a business plan provides a useful estimate of the resources to be expended and the timelines required in starting and growing the company.
- The business plan can be given, in confidence, to parties such as corporate counsel, accountants, and consultants, as well as potential strategic partners or other collaborators, who are interested in the business. A well-thought-out plan will inform others about the company and enhance its credibility.
- Having a business plan is often a prerequisite for admission to a business incubator.

Writing a business plan makes the entrepreneur confront the key aspects of building a new business and form realistic rationales for why he or she believes the company will be successful.

- Writing the business plan may be enough to convince the principals that the venture needs substantial modification, is inappropriate under the current investment climate, or, in the extreme, should be abandoned.

Unless you are independently wealthy, raising capital will be one of your earliest obsessions and the most difficult of all the tasks in starting a company.

If you have never written a business plan, it is recommended that you seek the advice of those with experience, and a variety of books are available that can serve as guides. Reading the business plans of other start-ups and comparing those that were funded with those that were not is an especially valuable exercise. You should not outsource

the complete preparation of the plan, as your own vision will be necessary to direct the writing, but you should have knowledgeable people vet your plan before you provide it to potential investors.

Raising Money

Technology companies have varying needs for capital, depending on the nature of the intended product. Start-ups aiming to develop human drugs could require hundreds of millions of dollars over a period as long as 10-15 years before successfully getting their first product to market. Such companies usually require tens of millions of dollars in venture capital, a public stock offering, and funding through strategic partnerships with larger companies to meet this goal. By contrast, a medical-diagnostic or software company may need only a few million

dollars to develop and market a new kit or program, and a modest-investment company only a few tens of thousands.

Unless you are independently wealthy, raising capital will be one of your earliest obsessions and the most difficult of all the tasks in starting a company.



In nearly all situations, raising capital is the province of the CEO, who ideally has a successful track record in this regard. There are no clear roadmaps to directing an entrepreneur in how to raise money, even though there are dozens of book-length treatises out there offering advice. The simplest counsel on raising capital is that if the money is not coming

out of your own pocket, you'll need to talk to a lot of people who either have money or know others who do.

Potential investors can be found at investment conferences and entrepreneurial forums and by consulting with your institutional technology transfer or business development office as well as with local

entrepreneurs, bankers, organized angel investment groups, and venture capitalists. When raising money, you should start locally, as investors like to be no more than a few hours away from their companies, and business angel investment in new companies is generally from local wealthy individuals. It is highly preferable to work with investors who have

had experience with high-risk technology-based ventures and understand the need for patience before realizing a return.

Equity investors receive stock in the company, with the amount dependent on the value ("valuation") of the company in proportion to how much they have invested. The cash value placed on a new company

(“pre-money valuation”) is arbitrary and subject to negotiation, with entrepreneurs usually thinking high and investors low. It is inevitable that after multiple rounds of equity investment, the investors will own a majority of the shares of the company. Academics often view this outcome as “losing control” of the company (often called “founder’s syndrome”), but without such external investment, it’s questionable what exactly there would be to control. If you have an absolute requirement for control of the company, bringing in outside investors is obviously not the best way to go.

Usually, the founders each put some of their personal funds into the enterprise during its early days to help with expenses such as travel and incorporation. More committed entrepreneurs, especially those without cofounders, may put a considerable amount of their own money into the company, frequently using credit-card and home-equity debt as an adjunct. Often, entrepreneurs will tap their friends and families as mini-angels to provide initial funding. Given the failure rate of start-up companies, the latter approach could make some Thanksgiving dinners a bit uncomfortable!

The modest-investment company may be fortunate enough to begin generating sales almost immediately, in which case its early funding will be focused less on R&D and more on production, marketing, and sales. Revenues can provide capital for the company to begin researching and developing complementary products and thus potentially reduce or even eliminate the need for raising additional investment capital.

SBIR, STTR, and Other Grant Programs

— Small Business Innovation Research (SBIR) and Small Business Technology Transfer Research (STTR) are federal grant programs that fund research in companies with fewer than 500 employees. These programs recognize that much of the United States’ innovation occurs within the small-business sector, and they seek to stimulate further innovation in select areas of research. Over two billion dollars in grants are provided each year by agencies of the federal government under published solicitations. Awards have three phases: Phase I (up to \$100,000), in which new concepts are explored; Phase II (up to \$750,000), in which successful Phase I projects are developed into products; and Phase III (up to \$1.5 million), in which the Phase II projects are commercialized.

SBIR/STTR awards are made to the small business, but a portion of the funds may be subcontracted to a university laboratory, which can be a great source for managing proof-of-concept projects without having to pay for expensive infrastructure such as instrumentation in a private sector laboratory (up to 33 percent for SBIR and 60 percent for STTR during Phase I). SBIR/STTR awards are attractive to academic start-ups for two reasons: they play to the grant-writing strengths of academic researchers; and they are outright grants, not equity investments (e.g., you don’t have to give a piece of the company away to get the money). The major downside to the awards is that there can be a significant lag between

Phase I and Phase II awards, and it may be difficult to keep research teams together (i.e., meet payroll) while the Phase II application is pending.

Many an academic has been tempted to use the SBIR/STTR programs to extend his or her academic research instead of building a company to develop products. Expert panels review the grant applications both for technical and commercial merit, however, and it is generally not a problem for them to spot applications that are academically focused. But used in their intended manner, SBIR/STTR awards are excellent ways to fund early research in a new company, and the Phase II awards are robust. Still, a company trying to build its entire line of products from SBIR/STTR grants without other investment is not likely to secure sufficient resources.

Many universities and states now offer grants from “gap” funds to help nurture new businesses. They manifest themselves in a variety of different forms but generally are focused on laboratory activities designed to help bridge the gap between an academic research discovery and something that is less risky and more amenable to attracting investment funding. As such, gap funding is used for reduction-to-practice and proof-of-concept experimentation, construction of functional prototypes, and similar purposes. It may also include monies to execute market-research studies and write business plans. Like the SBIR/

Many universities and states now offer grants from “gap” funds, designed to help bridge the gap between an academic research discovery and something that is less risky and more amenable to attracting investment funding.

STTR awards, gap awards are usually in the form of a grant, so no transfer of equity occurs.

The State of Georgia has developed a unique grant program that specifically targets university-based start-up companies for business development/risk mitigation activities in order to increase the likelihood of such companies becoming “fundable” to investors. Managed under the auspices of the Georgia Research Alliance (GRA), it consists of several types of gap funds with specific areas of emphasis (biotechnology, biofuels, and vaccines for example). A description of those funds can be found at the GRA website (www.gra.org), under the link to the “GRA Innovation Fund.” At UGA, the GRA programs are administered through the Georgia BioBusiness Center.

“Virtual” Companies

— Suppose a start-up aiming to develop a new drug has only been able to raise \$250,000, hardly enough to pay a CEO and other staff, lease a lab, buy laboratory equipment, and begin research and development. How does the company move forward on such a limited budget?

One option is operate in a “virtual” mode while it directs most of its cash to efforts for raising additional capital. The virtual company keeps its other costs to a bare minimum by outsourcing core activities, such as research and development, rather than creating its own infrastructure (“bricks and mortar”). In the academic virtual company, R&D is often done at one or more academic entities, usually in the laboratories of the founders.

But the bottom line, from years of observing virtual companies, is that if you have to operate in a virtual mode, perhaps it’s too early to form a company. There are numerous examples of start-ups that never graduated from the virtual mode and ultimately withered and died. Success in the virtual mode requires a well-thought-out business plan with achievable technical milestones, laid out on a realistic timeline. When the milestones are achieved, the entrepreneurs should be able, in theory, to sell their start-up idea to investors. However, technical milestones can be difficult to achieve in a timely fashion within the academic environment, which is one of the reasons why virtual companies often fail.

Incorporating the Company

— From the moment of its inception, a new company takes on its own identity, but for legal purposes a business is not “real” until it is formally incorporated in a particular state. There are numerous how-to manuals on incorporation, and following their direction, it is possible to proceed on your own for a relatively small filing fee. While this option saves money in the near term, it may be better over the long run that you spend additional sums, and involve appropriate specialists, so that the incorporation is best suited to the operation of the company and consistent with investors’ expectations.

It is thus highly recommended, and considered essential for equity-investment companies, that an attorney skilled in new business-incorporations (preferably, with companies in your industry) be engaged to manage the incorporation process. Consult

with your institutional technology transfer office and networking contacts to obtain the names of candidate attorneys, generally located in the “corporate securities” division of a law firm, and interview several of them. They should give you an hour or so of their time pro bono, as it is in their interest to have a new company become a client. In that way, you may find one who has relevant experience and with whom you are comfortable working.

Once you have chosen, the attorney should take the time to understand your plans for the company, work closely with you to select the correct corporate form, and assist you in other legal matters such as how to divide up ownership interests. This is not an inexpensive process—billing rates can range from \$200 to \$500 per hour, though some law firms have established fixed fees for certain types of high-tech start-up incorporations—but the money will be well worth it, as there are many ways to botch an incorporation. The latter is something you’ll very much want to avoid, as one of the primary motivations for incorporating is to protect the principals from being held personally liable for the company’s debts.

Though the company needs to be a legal entity to receive investment capital, negotiate options and licenses, hire personnel, sell products, and execute other transactions, there is generally no reason to rush into incorporating it. You can give the company a name and proceed with writing the business plan and talking with potential investors without having to incorporate. The best time to do so may be when you know that investment capital will be coming in or when you anticipate signing an option or license agreement. At that point, you will likely have

decided whether the company is to be an equity-investment or modest-investment enterprise, and you can structure the incorporation accordingly.

Academic Business Incubators

Many academic entities now perceive regional economic development to be one of their missions. As such, they have developed facilities and programs dedicated to housing and nurturing young companies. These business “incubators,” sometimes called “accelerators,” share the goal of providing an environment in which young companies may grow, thrive, and “graduate.” The National Business Incubation Association (www.nbia.org) has reported that 87 percent of all firms that have graduated from their incubators are still in business.

The incubator allows new companies to focus their capital and energies on research and development without the distraction of having to build and manage facilities, as well as other administrative tasks. Moreover, the rental of incubation space is often a lot lower than market rates. Generally located on the same campus as the institution’s academic laboratories or in nearby off-campus business parks, incubators offer young companies the basic facilities necessary for R&D within their industry (e.g., wet-bench laboratories and fabrication shops) and may also offer sophisticated equipment that is shared with other resident companies.

Some incubators take the concept a step further by providing assistance (“coaching”) to young

companies on matters such as writing business plans, protecting IP, and raising capital. The coaches may be resident staff, faculty, or students (say, from an MBA program), seasoned entrepreneurs, or outside service providers, and the coaching is usually offered to incubator residents gratis. Moreover, given its other resident companies, an incubator can offer a wonderful networking microcosm.

Incubators usually have strict entry criteria and do not accept every company that applies for admission. These criteria might include having a CEO,



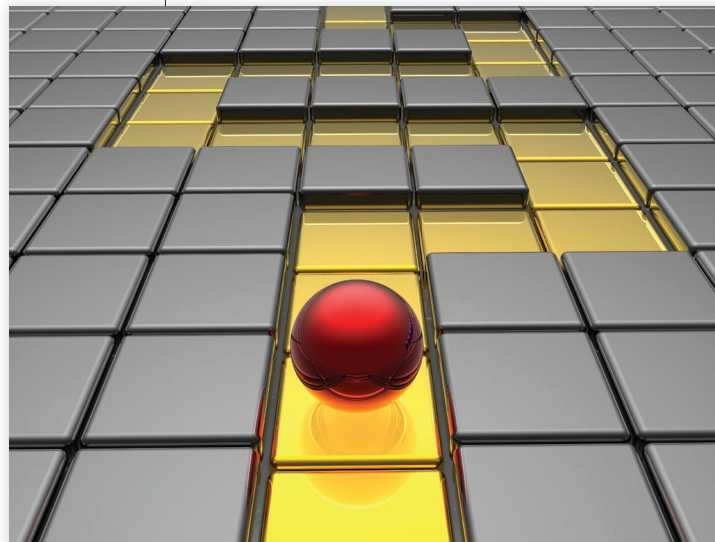
a preliminary business plan, protectable IP, and seed funding. Exit (graduation) criteria, usually discussed before admission, are often based on the company’s economic viability or a defined period of residence, typically three years.

The GBBC, located in the Center for Applied Genetic Technologies on Riverbend Road in Athens, is UGA’s incubator for bioscience start-ups. It offers laboratory space for lease to young companies as well as shared access to equipment, networking programs, and referrals to business resources. For more information about UGA incubation programs, contact the GBBC (www.biobusiness.uga.edu/).

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4 Leading Sources of Frustration for the Academic Entrepreneur

Starting a company is unlike anything the typical academic researcher or scholar has ever done in his or her career. It is time-consuming and often exasperating, and the odds are against the company's survival. Not all of the frustrations lie solely



with the company; some of them can be associated with the relationship between the academic entrepreneur and his or her employer. And, at the risk of dampening the entrepreneurial spirit, it is necessary to say that academics often have impractical visions of the marketplace. Many of the companies they start have poor chances for success and should not have been attempted in the first place.

On the other hand, one of the great things about American enterprise is the dogged determination of entrepreneurs to reach their goals. It is highly recommended that you review Table 1 for the typical reasons why academics start new companies and that you calibrate your expectations against reality. But while its entries in boldface are generally perceived as being the most realistic (“right”) reasons, there are certainly many examples of successful companies that had been started for other reasons.

In any case, you will likely have some frustrations along the way. Here are 11 of them that are commonly suffered by academic researchers when growing

young companies, together with some advice on how to avoid these frustrations.

1. **AFTER STARTING THE COMPANY AS A MEANS OF BRINGING IN ADDITIONAL FUNDING, YOU FAIL TO RAISE INVESTMENT CAPITAL.** A company without a clearly articulated and credible business opportunity (the so-called “value proposition”) will not be able to raise money. Even federal grant programs such as SBIR and STTR require a viable product-commercialization plan for Phase II awards. *Academic entrepreneurs must make sure that the company is pursuing markets, not technology.*
2. **FRUSTRATIONS-WITH-YOUR-EMPLOYER I: YOU THOUGHT THAT YOU OWNED THE IP ON WHICH THE COMPANY IS TO BE BASED.** Unless your research findings are already in the public domain, a company formed around them will most likely need to negotiate an IP license with your academic employer. Remember to make full disclosure of your plans to the institution’s technology transfer office before going too far down the road in starting the company—especially before dealing with potential investors.
3. **FRUSTRATIONS-WITH-YOUR-EMPLOYER II: YOUR INSTITUTION DOES NOT OFFER THE START-UP A PREFERENTIAL LICENSING DEAL.** Some academic entrepreneurs believe that their employers should give faculty start-ups better licensing terms than they would to an unaffiliated company. Actually, because academic entities are required by law to negotiate license terms that are at market rates, they cannot offer “special deals” to companies started by faculty or staff. The best thing you

can do to prepare for a license negotiation is to understand what the market rates are within the start-up’s industry.

4. **FRUSTRATIONS-WITH-YOUR-EMPLOYER III: YOUR INSTITUTION SEES YOUR ROLE IN THE ENTERPRISE AS BEING AT ODDS WITH ITS CONFLICTS POLICIES.** This can often happen if the researcher’s relationships with the company have not been fully disclosed. Conflicts review and approval entail more than checking a few boxes on a form; full disclosure, often in face-to-face meetings, is necessary. Apart from actual conflicts, even the *perception* of a conflict can be damaging to your career and the institution’s reputation.
5. **RELATIONSHIPS WITH BUSINESS PARTNERS DISOLVE.** Being partners with people in a business is not the same as being in research collaboration with them. The pressures associated with a business may bring out behaviors in friends and colleagues that you’d wish you had never seen. A frayed personal relationship can be one of the most difficult things to endure in a start-up, especially when you are legally still partners with the individual (e.g., through stock ownership). It is thus essential that you understand the motivations, visions, and goals of your cofounders, both on the science and the business sides, before you enter into partnership with them.
6. **YOU HAVE TO REPLACE THE CEO—AGAIN.** Don’t pick your CEO merely by the fact that he or she has had “business experience.” All too often, the business person in a nascent company lacks the right experience or skills to run a start-up in the company’s

particular industry. Replacing the CEO can take a great deal of time, is hard on staff morale, and may dissipate any momentum the company has built.

7. YOUR AND THE CEO’S VISIONS FOR THE COMPANY ARE AT ODDS.

No matter who is right in such a situation, if the investors decide to back the CEO your vision is unlikely to prevail. Thus you may have to compromise “for the good of the company” in order to remain a key player. The fundamental role of compromise in a young company’s success is a departure from the academic culture, which typically rewards independence. If the business is to be successful, you must be willing to listen, communicate effectively, and trust the expertise and business acumen of your partners.

8. **RELATIONSHIPS WITH INVESTORS SOUR.** Sometimes investors, having thought that academic discoveries were much closer to the market than they actually are, don’t have the patience or stomach for the ups and downs of an extended period of R&D. This disconnect may result from the investors’ lack of familiarity with the industry (so-called “dumb money”) or their having been given an unrealistically optimistic plan for product development. It is therefore very much in the academic entrepreneur’s interest to be as realistic as possible about R&D timelines when courting investors.

One of the great things about American enterprise is the dogged determination of entrepreneurs to reach their goals, however “impractical” they may seem to some.

9. VERBAL PROMISES HAVE NOT BEEN KEPT. In the heady days of forming a new company, when everyone is excited about growing a new venture, a plethora of items are discussed and many promises are made. All too often, however, promises are not documented, and a year or two later those

who made them either claim they don't remember doing so or are disinclined to make good on them. *Handshakes are nice, but you should get such matters in writing, especially when related to money or stock.*

Handshakes are nice, but promises, especially when related to money or stock, should be put in writing.

10. STARTING AND GROWING THE COMPANY ARE CONSUMING TOO MUCH TIME. Do not underestimate how much time it will take to form a new company. As the technical founder with the initial vision for the company, you will be called on to impart that vision to CEO candidates, potential investors, and numerous other people during your networking activities. You will also be responsible for a host of other things. Thus before you get in too deeply, it's wise to talk with founders of other companies about how much time you'll likely have to devote to the enterprise.

11. YOU FEAR LOSING CONTROL OF THE COMPANY. Capital infusions from outside investors are a double-edged sword. On the one hand, they are the lifeblood that allows the company to move forward, but on the other, they result in the transfer of ownership interests. In an equity-investment company, it is virtually inevitable that the entity's founders will one day become minority shareholders. A modest-investment company,

however, has a much greater chance of remaining under the founders' control. At numerous times in the life of a company, choices will have to be made with regard to accepting the money of others. Is the investment capital so important to the company's future that you are willing to live with the input, and possible control of the venture, by others?



5 Closing Comments: Statistics, Luck, and Culture



This primer is not a recipe that must be followed exactly for a start-up to thrive.

Rather, it reflects the consensus thinking of hundreds of knowledgeable individuals on the most realistic pathways toward that end.

As such, one may visualize that “successful companies” follow a normal statistical distribution (where “successful” is defined, say, by a company’s continued viability one year after incorporation), and that the advice in this document reflects the experiences and strategies of those companies at the mean of the bell-shaped curve, plus or minus a couple of standard deviations. This part of the curve represents the most common pathways to success, but not the only pathways. Clearly there are companies that have not followed the conventional advice and have succeeded. Conversely, some companies have followed that advice to the letter and have failed. In other words, following the consensus thinking will likely be useful, but it is no guarantee.

One factor that can be significant when launching and growing a company, and that cannot be taught in a primer, is luck. Whether good or bad, luck is a significant factor in companies’ success or failure, and most entrepreneurs will attribute a portion of their start-ups’ fate to serendipity. This often translates into happening to be at the right place at the right time: catching an investor on a propitious day, following up on a seemingly insignificant observation in the lab, meeting your future CEO at a cocktail party you did not want to attend. On the negative side, bad luck may emanate, for example, from an unexpected event in the personal life of a potential investor. While you cannot build luck into the business plan for your company, you can try to follow Louis Pasteur’s maxim, “Chance favors the prepared mind.” That is, you should anticipate how various environments outside your control might be beneficial or harmful to your entrepreneurial efforts

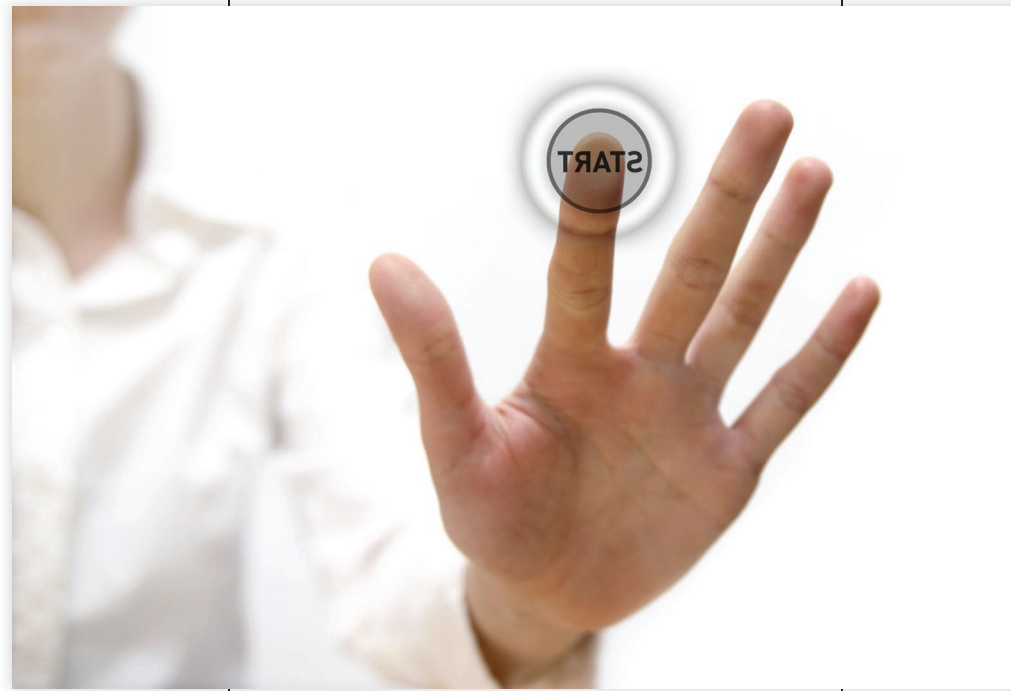
and take steps to respectively exploit or mitigate such outcomes, should they occur.

Finally, please don't let this primer, in its discussions of the rigors and complexities of forming and running a new company, discourage you from your entrepreneurial aspirations. If the process seems dauntingly complex, a lot of that complexity may be attributed to the fact that you are crossing over into a new culture. While you may have experience with the business culture as a consumer, you are probably unacquainted with it from the perspective

of products' developers and manufacturers or of the individuals and entities that fund them.

Think of forming a company as if you were preparing to live in another country with which you are unfamiliar. You have to learn the language, social customs, and laws, as well as how to make a living in your new environment. All this may be intimidating at the outset, but if you are strongly motivated you'll take the time to make the crossover work, which will allow you to enjoy the many benefits of the new culture.

Similarly, the rewards for crossing the academic/ industrial divide may be extensive: experiencing the stimulation of new ideas and relationships, creating jobs and wealth, and the marketing of products that enhance people's lives. These things and more are potentially available to those researchers with the time, patience, and desire to learn and thrive within that different culture.



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Graphic design and cover photo composition: Cathey Oldroyd

Cover photography: Robert Newcomb

Published by the Office of the Vice President for Research, University of Georgia



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