

Funding for University Startups

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Introduction

Obtaining funding for university spinoffs is generally quite difficult and requires a comprehensive approach on the part of the technology transfer office. It also requires understanding the marketplace and the realities of how the process works. This is very different from traditional and often exaggerated discussions regarding funding of university spinoffs. Each year at university and venture events held around the country a great deal of university technology transfer offices report an astoundingly high amount of venture-backed startups. Audiences there, often comprised of university personnel and entrepreneurs, emerge with a very unrealistic picture of the process.

The truth is university spinoffs rarely emerge from the academy with true venture backing—this is the exception rather than the rule. The overwhelming majority of university spinoffs emerge from the academy with angel and/or entrepreneur funding. The hope is that after a year or more of development some percentage of these spinoff companies will be ready for a traditional institutional venture financing.

Is it true that sometimes an appealing mix of an extraordinary technology and an experienced and committed team results in a university spinout with institutional venture financing? Yes, this does happen, but most of the heavy lifting at this nascent stage is done by angels and/or angel entrepreneurs.

The emphasis on venture financing thus misses this essential point and contributes to the fact that many technology transfer offices do not recognize the importance of angels and angel entrepreneurs to this ecosystem.

Another major emphasis is on the resource requirements of technology transfer offices seeking to focus on spinouts. The technology transfer office needs to have a dedicated person or persons on staff in the form of a new ventures/venture lab type group to handle the startup and investment activity of the office.

Foundation: Cultivating and Supporting an Entrepreneurial Culture on Campus

Inventors

It may at first seem obvious, but while intellectual property may provide a commercial advantage, a key to success for a startup is transferring the actual know-how to the new venture. This know-how typically resides with the inventor and the people in his or her lab who, over the years, have developed intimate knowledge of the technology. A fundable startup will often require someone from the lab to eventually dedicate himself or herself full time to the venture. In most cases this key person is a member of the research team who is completing his or her studies or a postdoctorate student intent on a career in industry.

Institutional Commitment

Technology transfer as a profession is relatively young, and the practice of spinning off startups is even younger. To create successful startups, universities need to have policies and programs in place that give new ventures the best possible chance of securing funding. Policies in this area include allowing inventors to participate in early-stage companies provided there is no unreasonable conflict of interest, as well as allowing the technology transfer office to provide company formation advice. Universities also ought to have programs that foster entrepreneurship. Such programs can include business plan competitions, incubation space, validation funds, seed funds, mentorship programs, etc. The key is to provide an environment where there are a minimum of institutional barriers to startup formation.

Having the Right People and the Need for a New Ventures Office/Venture Lab

The foundation of a successful program begins with the experience and background of the people running it. We recommend having people on staff who are totally dedicated to spinning off companies and have strong entrepreneurial and investment backgrounds. These new

ventures or venture lab people should come from the city's entrepreneurial/investment ecosystem and bring the requisite experience of having launched multiple companies and raised capital for these companies. They should be respected members of the early-stage community that investors and entrepreneurs trust and know well. They should then be the central contact for the technology transfer office for investors, entrepreneurs, and all startup activity. Essentially they act as entrepreneurs in residence and can cultivate a sophistication, vibrancy, and buzz around the program.

Entrepreneurship Office Hours: Outreach

The new ventures team should offer entrepreneur office hours to the university community. This is a terrific way of creating awareness on campus that the technology transfer office is a welcoming place that cultivates entrepreneurship on campus. Instead of a transactional atmosphere, a welcoming and startup-friendly atmosphere is created. This establishes an environment where anyone associated with the university—including adjunct faculty, undergraduate and graduate students, faculty, alumni, and the like—can share their startup ideas with the office and receive assistance, advice, and mentorship. Remarkably, it also has the benefit of getting faculty to emerge from the woodwork and helps cultivate deeper relationships with them over time.

Crosspollination across Schools and Campuses

It is also important for the new ventures/venture lab team to establish relationships with the various deans and department chairs around campus. By making occasional departmental visits, faculty members will be encouraged to keep their eyes open for startup opportunities and reinforce recognition of startup services available on campus.

Collaboration with Other Universities and Industry

Technology transfer is one of few industries in which competition does not play a dominant role. This is to say that value can often be increased by collaborating with other universities and, in many cases, is required when an inventor's work is done at more than one university. On the licensing side, this is commonly done, but in the startup arena this can be critical for success. Very rarely does an inventor discover a truly disruptive technology that will be sufficient on its own to form the basis of a company. Often there are other enabling discoveries in other fields or labs, and often there is more work to be done

to establish proof of concept. Investigators are often well-connected with the thought leaders in their field both in industry and academia. It is important, therefore, to explore and identify other enabling technologies in other universities, companies, and industries that together can turn an interesting idea into a company with reasonable chances for success and, therefore, have a higher likelihood of being funded.

Incubation

More universities are taking a hands-on approach and provide additional support to startups after they begin operations. In many cases, this leads to the creation of an incubator or venture lab. While some universities take on a more virtual approach, others go so far as to provide funding, office space, and other resources such as mentorship and student involvement. An example of a best-in-class program is the Advanced Technology Development Center at Georgia Tech. This program attempts to be a focal point for entrepreneurship in the community. It does this by identifying promising technologies and joining them with talented entrepreneurs, student teams, development grants, and other resources.

Presence in the Entrepreneurial, Angel, and Venture Capital Community

The Importance of Venture Mentors

The venture lab/new ventures group should also cultivate relationships venture advisers/mentors with domain expertise and who are willing to assist with positioning emerging pipeline opportunities. It's important to have these go-to people as advisers/mentors as they offer real-life market-savvy insights about the value of technologies and help position them properly. Most mentors are happy to do this for free as it brings them close to the program and provides them with a first look at projects emerging from the university.

Stable of Talented People with Applicable Skills

There is no such thing as a permanent stable of talented entrepreneurs as there is rapid changeover in this community. Nevertheless it is very useful to maintain a flexible list of talented entrepreneurs who have an appetite for spinning companies out of a university.

Events and Resources

The venture lab/new ventures staff should always attend local startup events in the town or city where the university is located. Being a regular, steady presence at these events is

important as it raises the profile of the venture lab program and its pipeline opportunities in the early-stage community. This will also lead to many opportunities to work with talented entrepreneurs and investors—all of whom are the lifeblood of a successful program. In many cases the university is a central part of the community. In such circumstances, the venture lab can serve as a focal point for entrepreneurship and startup activity.

Identifying Legitimate Startup Opportunities: It Starts Early

Many factors determine whether an opportunity is suitable for a startup.

Solving a Significant Problem

The technology should be addressing a real problem in the industry, as opposed to being a solution looking for a problem.

Market Size

Niche markets typically don't attract investors or talented entrepreneurs who are typically looking for an addressable market of \$1 billion plus.

Competitive Advantage

The technology should ideally provide what is colloquially termed an unfair competitive advantage rather than some kind of incremental advantage over an existing product.

No Logical Licensee

If the technology has a logical licensee in industry, there is no logic behind trying to create a startup. Just license it.

People/Teams and Investors for New Ventures

If much of the above criteria are in place, you should be relatively confident that you can find a talented entrepreneur and investors to launch a new venture. However, finding the right team with suitable experience and industry background is critical. Even the most promising breakthrough technology is unable to overcome the handicap of an inexperienced management team.

Funding Scenarios

University Sources

Many universities have formed seed or validation funds over the last few years. Although there are many variations on how these funds operate, their stated missions are to bridge the gap for promising technologies. That is, provide funding for proof-of-concept studies to make the technology more commercializable. What is relatively uniform, however, is that these funds are not intended to replace grant funding—they are intended to bridge extremely promising technology from out of the lab and into a viable commercial market.

If you are a member of a university faculty with this kind of work going on in your lab, it is a good idea to inquire what the possibilities are with your technology transfer office.

Nondilutive Sources

Of course the best form of early funding for a university startup are Small Business Innovation Research (SBIR) or Small Business Technology Transfer funds in that they are nondilutive government funding. If you can get through Phase I (which involves a grant of \$150,000) and get accepted into Phase II, then your company will typically receive \$1 million and the government will eventually be a customer. This is ideal, and you should always check if your work fits in any of the SBIR categories put forth each year.

The Entrepreneur

Entrepreneurs and angels are the most important part of the university spinoff ecosystem. Often, they are one and the same, but angel investors are covered separately in the next section. In short, the venture lab folks should always be networking and on the lookout for talented entrepreneurs looking for their next company.

As the professor/inventor is often best-suited to remain at the university and serve as a chief scientific officer to a new venture, to have a chance for success, a university spinoff must at some point have a dedicated, talented entrepreneur to lead the company. This will be essential for both funding and eventual success as investors only back talented, experienced teams.

Angel Investors (Individuals and Syndicates)

Angel investors are the absolute lifeblood of startups and early-stage investing in this country. Angels are the ones who get involved with entrepreneurs at the earliest, highest-risk stages of a venture, bringing that essential capital, as well as a high degree of support and enthusiasm.

It is a common misconception that university spinoffs *emerge* from the academy with venture backing. Despite an enormous amount of promotion of this in the technology transfer industry, this is the exception rather than the rule. The overwhelming majority of university spinoffs emerge from the academy with angel funding. The hope is that after a year or more of development, some percentage of such companies will be ready for a traditional institutional venture round of financing.

Is it true that sometimes an extraordinary technology and a committed team will spinout a company from the academy with institutional venture financing? Yes, it does happen and that's terrific. But again, most of this heavy lifting is done by angels and/or angel entrepreneurs at this nascent stage.

This is why it is key for the venture lab staff to come from the investment community and always be in touch with angels and entrepreneurs at local events in the city where the particular university in question is located.

It bears mentioning that in addition to independent angels, a great number of angel groups have also sprung up in cities around the country. Most of these are excellent resources, especially in areas where there is not a developed early-stage ecosystem. So long as they are not charging entrepreneurs to present, these are usually excellent forums to attend.

Venture Capital Funds

Despite the fact that very few university spinoffs get funded ab-initio by venture capital funds, it is nevertheless very important for the venture lab people to constantly be engaging with the venture community for a number of reasons. First, they develop an awareness of what the sweet spot of these funds happens to be and on occasion they will indeed have a

hit resulting in a new venture getting funded out of the box. Second, it is likely that some of the better companies they have previously spun out have been able to generate traction in the marketplace and they can now introduce them to interested venture funds for Series A funding. This is incredibly valuable to the university's portfolio companies. Lastly, the office should always be learning from venture funds and cultivating venture mentors from that community as they can help the venture lab folks package the most promising technology in an intelligent way. Insights from venture capitalists (VCs) are incredibly valuable to the technology transfer office, and they are a vital part of the early-stage ecosystem.

When it comes to understanding what venture funds are looking for at universities, it is best to hear it from the proverbial horses' mouth so to speak.

Last year's annual University Startups Conference organized by the National Council of Entrepreneurial Tech Transfer ([NCET2](#)) was well-attended by investors and university personnel alike. Through the course of multiple panels and discussions, a good cross-section of venture investors from very reputable firms weighed in candidly on both what they like to see and what they don't like to see when they try to spinout companies from university technology transfer offices. Many colorful stories were exchanged to say the least.

Here are some highlights from that conference:

VCs like to see:

- platform technologies
- great faculty stars, great scientists, great science
- rich entrepreneurial culture and community throughout the university
- a go-to person at the technology transfer office with entrepreneurial experience
- a technology transfer office that's all about throughput and getting deals done quickly
- Deal terms that are flexible because business models change over time

VCs do not like to see:

- slow-moving offices that take too long to get a deal done
- mismatches in terms of respective legal counsel (turnaround time, skill, expertise)
- greedy technology transfer offices with onerous deal terms
- big egos at the technology transfer office that get in the way of deals
- no business plans (VCs prefer to have a short summary and decide for themselves)

Deal Terms: Business Friendly

The reality is that *every deal is different*, and it's difficult to generate a one-size-fits-all template for deal terms. Also, the criteria for a business-friendly deal is different from industry to industry and can change with time. Be mindful that university technology transfer offices across the country vary greatly in their approach to startups: Some pursue a one-size-fits-all approach and seek to rapidly execute licenses that are the same across all industries, while others take a more tailored approach specific to each licensee.

Here are some very general guidelines to a business-friendly deal:

- In most cases a startup will seek an exclusive license to the technology for the fields in which it intends to operate. The intention is to provide an early competitive advantage to gain market share as well as make the company more fundable to later-stage and venture investors.
- In most cases you should seek to back end the economics of the deal and stay away from high upfront license fees. Startup companies are often cash poor, and aggressive fee payments can drown the company before it is able to gain traction in the marketplace.
- The entrepreneur should be prepared to partner with the university and let it have an equity stake in the company. The equity stake varies from situation to situation.
- The parties should mutually agree to some diligence milestones that specify timelines for items like first product sale and, in some cases, capital raised or revenue targets. As is often the case, the marketplace and the business plan can change. Therefore, the agreement should have built-in flexibility and not be unduly burdensome on the company.
- Royalties depend a great deal on the industry in which the company will be operating but should never be a yoke around its neck, allow it to operate with a comfortable margin.

More and more offices understand the challenges of launching a startup and, when a talented entrepreneur is at the table, increasingly have the right approach.

Royalties/Fees/Milestone Payments

Almost all startups are severely cash constrained. As such, they do not have the resources to pay upfront fees typical to a license to industry. To accommodate this fact, a university

should seek to back end milestone payments and fees in exchange for equity. Depending on the underlying economic environment it can take from months to years for a startup to develop a viable product, and the university should structure payments to allow for product development.

On the other hand, if the startup is unable to meet these milestones, sufficient protections should be in place to recover the intellectual property (see the “Bayh-Dole Compliance: Development Milestones” section). Of course every transaction is different but payments should be structured in a way suitable to the industry. For example, royalty rates for a drug therapy will be much different from those related to software. Similarly, milestones across industries will also vary. In general, these milestones should be tied to concrete developments in the company’s life and should be justified as a way for the university to participate the company’s success. Examples of suitable milestone payment events are: sale of first product, investigational new drug application, 510k filing, etc.

Equity

As mentioned above, equity consideration in lieu of a substantial license fee is critical to the viability of a startup. The amount of equity that the university takes will vary according to: how essential the intellectual property is to the company’s product, the relative importance of the technology to the company as a whole, and the company’s stage of development.

On the other hand, in cases where the startup is already a going concern and needs a license to complement a larger intellectual property portfolio, then a very small equity stake is more suitable. In all cases, negotiating the right amount of equity is an art rather than a science and depends greatly on the underlying marketplace and the specifics to each transaction. Some offices negotiate equity stakes on a case-by-case basis while others, in order to expedite the licensing process, take a one-size-fits-all approach and take a predetermined equity stake for all transactions. I favor a case-by-case process if you are working with a broad range of technologies that touch a broad range of industries as the deal terms across industries are bound to vary greatly.

Diligence Milestones

While all companies are formed with the most optimistic of intentions, it is well-known that most new ventures fail within a short time of being formed. The purpose of diligence milestones is to ensure that the company continues to be a going concern despite the ability to maintain payments under the license agreement. Failure to do so may result in valuable intellectual property being tied to a company that is not sound enough to commercialize it. As is the case with all licenses, these milestones need to be suitable to the industry and technology in question. Examples of diligence milestones may include: completion of a business plan, successfully raising financing across different time periods and in different amounts, successfully securing paying customers within a certain time-frame, etc.

Patent Reimbursement

Patent fees can be a significant source of anxiety for a startup company. Management often underestimates the costs related to a patent portfolio, and this can result in friction between the company and the university if the university seeks to be remunerated for patent prosecution costs. In this situation, patent prosecution remains with the university, and the company is invoiced at a later date for this activity. To avoid surprises and put undue financial strain on the startup, it is best for the university and the company to work together to determine a patent strategy that is both suitable for a competitive business as well as economically viable for the licensee.

Participation in Liquidity Events

When a university takes equity as partial compensation for a license, it becomes a shareholder in a startup. As is the case with any shareholder, it is prudent to secure rights allowing participation in liquidity events. Often the license is executed at the beginning of the company's life, and the university may or may not participate in follow-on investment rounds. Either way, as the company grows and develops into a more complicated capital structure, it is, therefore, important to think through a comprehensive list of shareholders rights. With regard to participating in the upside the following are common provisions:

Piggyback Rights

Piggyback registration rights ensures that you as an equity shareholder will be able to register your shares of common stock when the company conducts a public offering. This

is typically not disruptive and does not require a special effort. By obtaining this right you ensure that your shares are not excluded from an initial public offering, which may be one of the few orderly ways to sell your shares.

Tag-Along Rights

Similar to piggyback rights, tag-along rights seek to ensure that a liquidity preference is not given to other shareholders ahead of yours. Most privately held companies are controlled by a single shareholder. By securing tag-along rights you ensure that if the majority shareholder sells his stake, the university will have the right to join the deal and sell its stake at the same terms and conditions. This is also a fairly standard term in a shareholder agreement.

Antidilution

The whole topic of antidilution is highly charged. In our experience, it makes sense for universities to ask for antidilution through a certain threshold of institutional funding (so long as there are no institutional investors involved ab initio).

The threshold can be through a Series A round, for example. This removes any opportunity for artful manipulation of valuations prior to professional investors arriving.

If at the time of a professional Series A the investors wish to tweak the antidilution provisions, the university should, in most cases, be willing to do so as the “goal” of avoiding mischief earlier on in the company’s lifecycle has been achieved.

Speed

Probably the most important factor to being business friendly is speed. Entrepreneurs are doers more so than planners meaning they are quick to make decisions with the goal of moving their business forward a few inches every day. It is important to appreciate the potential opportunity cost of having a license negotiation drag on for six months or more. The entrepreneur community is very tight-knit and one bad experience can create a reputation that cuts off a vital ingredient for creating a viable startup program. Conversely, a reputation for speed could be the factor that converts your technology transfer office into a focal point for new ideas and venture creation.

Protecting Your Institution

Shareholder protections should not focus solely on preserving the economic interest of the university. Once a company begins operations it becomes one of your institution's portfolio companies and may carry with it some reputational risk. The vast majority of companies are run by well-intentioned professionals. Nevertheless it is important to consider the following provisions.

Adverse Effect

Licensing university technology can be a valuable asset to a fledgling startup. In fact, in addition to providing a competitive advantage it can be a valuable marketing tool. While this should be encouraged, steps should be taken to protect against improper use of the university name or any other activity or association that might adversely affect the reputation of your institution.

Bayh-Dole Compliance: Development Milestones

As with any licensee, care should be given to Bayh-Dole compliance. This can be addressed in development milestones in that the company agrees to develop the technology for commercial purposes. In the case where the company goes in a different direction or simply does not require the technology, then the license should terminate and revert to the university.

Keep Your Intellectual Property out of Bankruptcy or a Company in Limbo

In the long term there are three possible outcomes for a startup: It is (1) successful and either becomes a going concern or is acquired by another company, or (2) after a heroic effort it runs out of money and enters bankruptcy, or (3) it is just successful enough to avoid bankruptcy but not enough to do much else. Careful consideration should be taken to avoid your institution's intellectual property being tied up in the latter two cases. In order to avoid intellectual limbo any license to a startup should contain provisions that terminate the license in the event of bankruptcy or in the case of business development milestones not being met (see the "Diligence Milestones" section). Failure to do so could result in possibly valuable intellectual property being wasted on a company that cannot execute or worse, being tied up for years in bankruptcy court. In the case where a company is clearly headed toward bankruptcy, it is best to exercise a breach of the license based on diligence milestones well ahead of any bankruptcy proceedings.

Have a Board Observer

Universities rarely have an interest in actively participating in the management of a company; however, remaining current with company events can both alert you to potential problems as well as help cultivate future opportunities in the form of follow-on licenses or relationships with venture capital firms. Asking for a board observer provision is rarely disruptive and can be a way to foster a more cooperative environment between the university and the startup.

Conclusion

Securing seed and venture financing for a university startup has never been easy, and the recent economic turmoil ensures that only the most promising ventures will secure early-stage funding. This is not necessarily a bad thing as it forces the current generation of scientists, engineers, and entrepreneurs to develop economically sustainable ventures that will comprise the next generation of technology-based companies. In the face of this higher standard it is up to the technology transfer profession to rise to the challenge and enable this next generation of companies to have every possible chance of success.