# Fundamentals of Academic-based Startups



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Northwestern | INVO
Innovation and New Ventures Office

Northwestern University
Innovation and New Ventures Office (INVO)
www.invo.northwestern.edu

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# BASICS ON STARTUPS

Northwestern's innovations are flowing at an accelerated rate. Our faculty and students are transforming their inventions into startups that trigger and drive economic development. This guide attempts to provide a roadmap for faculty and students who are thinking about starting a technology company, highlighting the common pitfalls to be expected along the way.

Starting a company is a life-changing event that brings together a breadth of experiences and extreme emotions: from the allure of anticipated wealth and societal impact to the frustrations of continuous set-backs and working with a tight budget. The best entrepreneurs are motivated by the challenges and thrive on the ups and downs. Instead of feeling defeated by a failed attempt, they are eager to get back in the game and start again.

Whether you are a new academic entrepreneur or a serial entrepreneur, the Innovation and New Ventures Office (INVO) will help you navigate the process.

## Why start a company?

While there are many motivations to start a company, from the commercial point of view there is only one reason: to make profits by selling products or services.

In general, academic entrepreneurs are "technology-driven," whereas investors are "market-driven." With these differences, there exists a dichotomy between academic and corporate cultures, the former focused on cutting-edge technologies which drive the market versus the other focused on how technologies respond to existing market needs. This difference reflects an essential disconnect between the academic and corporate cultures.

Perhaps the most important lesson to be learned from this guide is that entrepreneurs should ensure that their technology satisfies a need in the market. Investors would prefer to deal with researchers who espouse one of the five **bold-faced** motivations shown in **Table 1**. Such motivations indicate that the researcher is starting a company to satisfy a market need rather than to benefit their academic research.

**TABLE 1: Why Academic Researchers Say They Want to Form New Companies**

| 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. |
| Following others | 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 startup will be able to pursue the ideas from my lab through to commercialization.<br>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 startup 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. |
| **Niche opportunity, underserved market** | 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 |

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| | | 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 uses them to better advantage. |

## Are all startups the same?

There are many types of startups. Some of them are service companies that require very little incubation, while others, usually product companies, require years before profits.

Many Northwestern faculty have created successful consulting firms in a number of areas, including engineering, marketing, and strategy. Because revenue is generated from the sale of "time," the business can get meaningful traction within the span of a few months.

Technology companies, however, typically require many years of R&D before revenue can be generated. During their product development period, startups need a continuous infusion of capital. Any prolonged interruption can deal a death blow to the enterprise.

Technology startups generally belong to two fundamental categories:

(i) Equity-investment companies, which require large sums of capital, usually in the form of equity investment and;
(ii) Modest-investment companies, whose capital requirements are substantially lower.

In reality, a business can fall under both categories—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.

## Attributes of a successful startup

A good idea does not necessarily result in a good product. A good product does not necessarily result in a successful company.

To succeed, a company needs more than a good idea. Its success is largely due to how the idea is executed and whether it addresses a real market need. A talented staff and management team can ensure that the right decisions are made along the way. Capital is also essential to make everything come together and push the venture ahead. In order for a business to succeed in the long term, it should be able to scale up. One way to scale is to design not one but a pipeline of products. Below, some of the essential criteria that lead to a successful business are listed.

**INNOVATIVE PRODUCTS, INNOVATIVE SERVICES.** Startups should be based on innovative services or products that bring unique value to the customer. Academic discoveries, however, are usually embryonic concepts and not fully developed products, often making it difficult to determine the real value of such discoveries in the marketplace right away. Nonetheless, startups should take steps to secure intellectual property rights associated with core technology associated with services or products as soon as possible, to help create and preserve value in the company.

**INTELLECTUAL PROPERTY.** There is no requirement to have intellectual property rights to start a company, but protecting intellectual property that is key to the business is an essential element of the commercialization process. Holding intellectual property rights in technology serves as a barrier to entry against competing companies that might want to replicate a startup's product. For this reason, the majority of investors usually prefer that the core technology is protected. For example, in the case of a patent, technology that is protected can help give the startup an edge over competitors because once a patent issues, the startup can prevent others from making, using, or selling a product that is claimed in their issued patent.

Some academic companies are founded on intellectual material that lies within the public domain and for which no intellectual property protection is available. If this is the case, there may not be a need to secure a license from the academic employer. Companies without intellectual property assets ordinarily do not attract large amounts of outside investment capital, however.

Modest-investment companies do not need intellectual property in order to get off the ground. Most often, the importance of intellectual property to becomes apparent later on, when the company sells the product or service and knock-off competitors arise. Strong intellectual property protection helps a young company to put its stake in the ground and gives the company a way to defend their market position against those who may try and copy their products.

The management team will have to decide what sort of intellectual property protection is needed based on the market for their product and relative cost to secure the rights compared with the ability to recoup those costs. Some intellectual property rights are expensive to secure, like patents, and others are relatively inexpensive, like copyrights. Trademarks are another way a company can begin to create value when customers associate the trademark or 'brand' with their products or services. Where a company may have know-how or information that would be better kept behind closed doors, maintaining trade secrets is another way to build value for the company in the form of intellectual property. Many times, there are opportunities to use different protection strategies at the same time. For example, a product brand name might be protected by a registered trademark, and the product itself may also be protected by securing patent rights in the underlying technology.

**PRODUCT PIPELINE**. Discoveries that could lead to multiple products or product lines, or "platform technologies," are what many investors look for when funding a startup. Often, investors ask, "Is it a product or a company?" - implying that single-product ideas (also referred as "one-pony shows") are not suitable for the formation of an equity-investment company. One can certainly start a new business around a single product, but it is unlikely that the company will be attractive to institutional investors unless the product represents a very large market opportunity. For these cases, the inventor might want to consider licensing the product for further development to one or more established companies, rather than creating a startup.

**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 serve 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 those? Who are the competitors, and how are their products better or weaker than yours?

**SPECIALIZED PERSONNEL.** Perhaps the most common reason for a startup to fail is lack of adequate management. Early stage technologies will invariably encounter many hurdles before they reach commercialization. Being able to manage the hurdles and raise capital while building a motivated team requires experience, a sophisticated network and unique business talents.

**SPECIALIZED FACILITIES.** Academic startups often have limited access to space and facilities. Northwestern researchers often find space outside the Evanston campus in places such as the Illinois Science and Technology Park in Skokie. More about available facilities can be found on the INVO website - Space

**CAPITAL.** A startup's demand for cash depends on the costs to take the product to market. The faculty member creating a modest-investment company in his or her garage, funded by personal savings, does not need to seek investment capital from business "angels" (wealthy private investors) and venture capitalists. In contrast, the researcher who plans to start a new pharmaceutical company will spend countless hours trying to secure large amounts of investment capital. Once the company is started and the initial capital is secured, founders will immediately start planning when and how to secure the next "round" of financing. Such firms are voracious in their appetite for cash, so raising money is a never-ending process, they are at the mercy of the investment community.

The decision on how much money to raise is largely dependent on the timeline to launch and the nature of the product. While the desire to preserve ownership and control of the venture through modest-investment is understandable, many commercial opportunities require extensive partnering, both in investment and strategy, if they are to be successful.

## When is it time to start a company?

Researchers get so excited about the idea of forming a company that they often lose sight of the hard road ahead. It is easy to overlook the fundamentals of building a successful business, such as favorable timing. While there is no formula for determining the proper time to start a new company, raising enough capital to cover two to three years of operations may be a good rule of thumb. The "right" time has less to do with the stage of research than with the capital markets. Academic research discoveries are generally quite far from being products and have increased chances of dying during development. Therefore, the pathway from discovery to product entails risk, which presents a significant hurdle when it comes to raising funds. The more embryonic the discovery, the higher the risk.

In the 90's, it was easier to start up a company, even with very early stage research. Currently, investors prefer investing in companies that are much farther along in product development—for example, those with drugs in mid-stage human clinical trials, or those with successful beta tests of their software.

Investors can be stratified according to their comfort levels with the associated risks at each of the stages of the product development sequence. Those willing to invest  early (high-risk) end are often called "seed" investors, and those at the later (lower-risk) stages are called "mezzanine" investors. It is important that the researcher understand the risks associated with getting their project to the marketplace because it will enable him/her to assess the current investment climate through existing networking contacts. Even with a positive investment market, much effort should be devoted to fundraising.

## Steps towards a startup

With so many steps involved in the formation of a new company, academic entrepreneurs often inquire about the proper sequence. There is not a set sequence in which these tasks should be accomplished, as every new company has its own unique circumstances and needs. Nevertheless, as a guide, a generalized chronology is shown below for starting an academic startup company. The list emphasizes compliance with an academic employer's policies and practices regarding the inventor's participation in a startup.  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 or may occur out of the sequence below.

| | |
|---|---|
| **Talk to INVO** | Talk with your invention manager to determine what type of Intellectual Property protection you will need and for suggestions regarding next steps. Make sure to understand the intellectual property and conflict-of-interest policies. |
| **Protect Intellectual Property** | For most startups, the intellectual property is the only capital. It is the only tool for attracting investment (usually one or more patents and/or substantial software code). A patent application should be filed before any public disclosure is made. |
| **Network/Find a Mentor** | Contact INVO for suggestions on how to network or recommendations for potential participation in University |

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| | programs. These may include: Commercialization Clinics, INVO seminars, etc. In addition, the Farley Center for Entrepreneurship at the McCormick School of Engineering, the Levy Institute for Entrepreneurship at the Kellogg Student of Management and the Knight Innovation Laboratory provide access to management, students and/or business plan writing as well. |
| **Plan the Business** | A business plan should be drafted to be able to communicate the market opportunity and vision of the company. The plan should include a market plan and a financial plan. |
| **Disclose to INVO** | At this point you should communicate with your individual School on how you will be managing any potential conflict-of-interest/conflict of effort that might result from the startup. |
| **Assign a Business Person** | A business manager (or CEO) should be selected to initiate negotiations with the University and fundraising. |
| **Execute A Founder's Agreement** | This agreement memorializes the terms and conditions under which the founders have agreed upon to form the company. |
| **Incorporate** | The company needs to become a legal entity in a particular state. The company needs to be formed before a license can be executed. |
| **Negotiate the License or Option Agreement With INVO** | The businessperson leading the startup will negotiate a license for the startup with INVO. In some cases, a short-term option agreement may precede a license to demonstrate to potential funders that it has secured the rights to negotiate for a license to the technology. |
| **Fundraise** | Commercializing technology is typically a capital-intensive process. Fundraising becomes a non-stop activity until the company exit (either sold or IPO). |

## Building the startup

There are many issues that commonly arise when spinning-out a startup from academia. It is wise to start thinking about them early on in the process. These issues range from strategic planning to fundraising to anticipating sources of frustration.

There are two related questions that investors will often ask: *Are you building a one-product company or a platform company* and *what is your exit strategy*?

Investors in equity-investment companies like to see markets penetration 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 startup, 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 happens if the first product fails?" 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.

It is also important to think about exit strategies. If you are planning to bring the company all the way to an IPO, you will need to have a development plan that will take you all the way to the marketing and sales of the technology. You will need to anticipate potential partners that will help you reach that point, financing strategy, etc.

If your plan is to sell the company after a milestone is reached (say after Phase II in development), you might want to start checking potential acquirers' appetite for your technology at an early stage.

## The role(s) of the founders in a startup 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 typically 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 startup is likely to be proscribed by a number of university 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 startups include:

- Founder/equity holder
- Consultant
- Member of the scientific advisory board
- Member of the board of directors
- Recipient of sponsored research funding
- Employee of the startup, **only** while on leave from the university

Northwestern, like most academic institutions, has policies regarding how faculty may participate in new companies. The faculty member should consult the conflict of interest policy and discuss with his/her school/department before starting a company.

The academic researchers provide the technical vision to guide the company's initial research and development. They are integrally involved in multiple aspects of building a business which include: 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 require a large time commitment. A chief executive officer (CEO) may handle the majority of the early work of building the company, but inevitably the researchers will be pulled into the process. It is important to note that 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 founders devote to the endeavor.

Once the startup 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.

## Selecting the co-founders

Faculty members are often tempted to include their research collaborators and graduate students as partners of the startup, though this decision can usually bring headaches at a later time. 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 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.

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 want people that have had experience as entrepreneurs and are respected by the investor community. Of course, they also need to be honest, communicate in a straightforward manner, and follow through on what they say. INVO can help identifying potential managers for the startups.

The founders of a business nearly always retain equity rights. There are two forms of equity: stock and options. The purchase of stock by founders should happen prior to an external company valuation. Once a value is placed – through a term sheet, for example – there are tax implications. Founders' stock can be restricted with regard to transfer and vesting. For example, if a founder ends his business relationship with the company, the company may have the right to repurchase his/her stock at the founder's original purchase price.

The other form of equity, options, are the right to purchase shares of a company's stock in the future. Options are typically granted to new employees and consultants and vest over time. Sometimes, however, shares from the option pool are given to founders as a way to reward notable contributions by junior team members.

Vesting is a process by which stock or options become available to the employee over time according to a predetermined schedule. Vesting is meant to ensure long-term commitment to the company. The length of a vesting schedule is typically three to five years. Vesting schedules tend to be faster on the West Coast than on the East Coast. There are different types of vesting. For instance, cliff vesting is when a person's business relationship with a company has to continue for a set period of time (e.g. one year) before that person has a right to purchase stock in the company. Vesting can occur on a monthly, quarterly, or yearly basis. When a company is sold, vesting usually accelerates, and the rights of founders and employees – whose options also accelerate – need to be balanced.

Identifying founders and setting up stock plans is something with which an experienced attorney, who is knowledgeable about startup companies and stock-ownership norms in your industry, can help you during incorporation. Please contact INVO at invo@northwestern.edu for referrals to attorneys who specialize in startups.

## Networking and finding the right mentors

There is much to learn about organizing, funding, and launching a new company from the experience of others. The best way to access the know-how and wisdom of others is through "networking." Ideally, a researcher should aim to find a mentor (or a group of mentors) that will be able to offer qualified advice and help open the necessary doors.

There are many other opportunities for networking in the Chicago area. A list of some networking resources is listed at www.invo.northwestern.edu/resources. These include: specific venues for entrepreneurs to get together to present their concepts for new companies; regular meetings of local industry groups; small companies making presentations at professional conferences; and regular meetings of "angel networks" at which leaders of new companies often present their business plans.

The concept and practice of networking is essential for entrepreneurs. It is through networking that CEO and CSO (Chief Science Officer) candidates, consultants, corporate attorneys, insurance carriers, and potential investors may be identified. Tips on writing a business plan or applying for SBIR and STTR funding may also be gleaned from these interactions. Further, networking with fellow entrepreneurs, provided that they are not direct competitors, is an additional resource, as they share their own experiences.

A variety of seminars are regularly offered to help entrepreneurs develop skills and confidence in networking – visit INVO's web site – www.invo.northwestern.edu for a list of upcoming on-campus and local seminars.

## Identifying the right CEO

Finding the right CEO might be the most important decision that the academic founders will make for the startup. Founders are often tempted to play that role. The truth is that it almost never works. The skill set that makes you a good researcher or inventor rarely translates to running a business effectively. Fundraising, 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 the researcher's experience or interest. Experience in building startups is critical to be able to raise capital.

There is a tendency in academia to underestimate the value that the business partner brings to the table. Avoid hiring the first potential CEO you consider. It is important to check references and determine how credible they are with investors and competitors. Initial conditions in a startup determine the future path of the company. Few startups survive a second-rate business partner. Also, when it comes to granting the CEO equity in the company, you may want to make it strictly performance-based.

## Defining the market

In order to write your business plan and effectively network with others, you will need to have an "elevator pitch" of your company. This means that you should be able to explain within one minute the *raison d'etre* for your company. The description should be compelling enough for an investor to want to continue the conversation about the opportunity.

The first step in designing your elevator pitch is to have a well-defined market. Be careful, however, not to exaggerate the size of the market or gloss over the critical details. Investors tend not to take academic entrepreneurs seriously when they talk about a startup with a market size of billions of dollars.

Products should address unmet needs, so as to create a compelling argument for a potential new product. The elevator pitch must describe the unmet need, the potential customers and why they will be interested in purchasing the product.

In acquiring such an understanding, realistic answers to the following questions should be developed:

- What is the unmet need?
- How many people, companies, or other entities are seeking to address this need? 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?

Obtaining this information, however, is not easy. You should plan to devote time to do research from both primary and secondary sources. You will need to spend significant time talking with industry leaders, searching databases, etc. Fortunately, Northwestern has the advantage of having the Kellogg School of Management, one of the best schools in marketing. Kellogg has hundreds of students with the expertise to do high quality marketing research analyses. Many of these students are willing to volunteer their services in exchange for the opportunity to be part of a startup.

## Writing a business plan

After you have identified your customers and competitors and created a model that demonstrates the financial needs and viability of your business, it is time to write a business plan that will both explain your business to potential investors and guide the company's operations moving forward. You will preferably involve someone who has written business plans in the past when putting together the plan for your new company. Ideally, you will have a CEO on board to assume that role.

Business plans come in a wide variety of forms and sizes. There is no one "right" format for a business plan. Presented below is an outline, with brief comments, of one possible business plan that would be provided to prospective investors. While the organization of the information is not the only reasonable format, the content suggested for inclusion is typical across all industries and types of businesses. As you are thinking about forming a company, you should include the following subjects in your thought process:

**Business Plan Outline**

1. Executive Summary - The summary tells your whole story, in about one page. Your summary should be a concise, high level description of what your business will be, in terms of the market opportunity, the technology, the investment required, and the rewards associated with the project. It is often best to write your summary after you have completed the rest of the plan.

2. Introduction - Your introduction should give a description of the core technology and how it

can and has been used. You set out marketing goals and objectives and what you are offering to reach those goals and objectives. You can give a history and the current status of the research that led to the technology. You should succinctly summarize why your solution is different/better than other ways the customer solve the problem. It can be helpful to discuss the intellectual property – both yours and others – that will be relevant in your target market.

3. Market Analysis - The marketing plan (along with the financial statements) is the most important part of a business plan. You need to demonstrate a thorough understanding of customers and their needs, and your competition (any alternative approach to what your business is offering) for those customers. It is important to have a market focus, and not try to do too many things at once. The number of customers, what percentage of customers you plan to capture, and how much each customer will pay for your product or service need to be quantified. Your approach for convincing customers to buy from you also needs to be well thought out and explained.

4. The Product/Service - This section provides a concise explanation of the needs of your target market (as identified above) and describes how your business will meet those needs. This is accomplished through a clear description of your product and/or service, highlighting significant features. Most importantly, you will describe the benefits of those features to your prospective customers.

5. Strategy - Your business strategy represents the synthesis of all of the factors that will determine the success of your company. A strategy provides a plan to enter and capture customers in your target market in what either is, or will be, a competitive environment. Three general ways you can position your business are: 1). be the low cost supplier; 2). offer something different than what is otherwise available to your prospective customers; or 3). segment the market and go after only a portion of the total market on either a cost or differentiation basis, or some combination thereof. These are only broad strategies, and are not the only possibilities. Whatever your approach, the strategy you develop needs to be consistent with respect to all internal and external factors related to your business.

6. Management Team - While your marketing plan and financial statements are the most important part of your business plan, the management team is the most important component of your business. Management is responsible for executing the business plan.

The team should inspire confidence in potential investors that they can accomplish what is presented in the plan. Understanding of, and experience in, the company's core technology, all facets of business, and small business operations should be represented on the team. Be prepared, and open, to having outside members, who can, among other things, help facilitate strategic partnering, raise money, and provide general guidance to company management. You might also want to consider establishing a technical advisory board, which can give credibility to the company's technology platform and advise in development of both current and future innovation.

7. Capital Recapture/Exit Strategy - This section of your business plan answers the question, "How do investors get their money out of your business, with their desired return, in roughly 3 to 5 years?" Options include selling shares/company stock in a venture capital financing round or a public market, such as the NASDAQ or NYSE, a buyout of investor shares buy management or the company, the sale of the business to another firm, or dissolution of the business, with proceeds from the sale of assets going to the investors. In thinking about an exit strategy, you will want to try find out how companies similar to yours paid back their investors. If you do not plan on having investors, you will not need this section in your business plan.

8. Risk & Risk Management Plan - As Scottish poet Robert Burns noted, "The best laid plans of mice and men often go awry". No matter how well you have researched and planned your business, the one thing you can expect with certainty is that things will not go exactly as you had hoped. Risk areas should be identified in advance for all aspects of the business. In addition, you will want to give some thought as to how these areas of risk might be dealt with, or contained. Examples of risks you may want to consider include: intellectual property risk (your patent is not allowed, or issues with narrower claims than you expected), market risk (eg. your customers don't adopt your product or service as quickly as you planned), financial risk (eg. you need more money earlier than you planned), technology risk (eg. you run into unanticipated technical hurdles in developing your product or production capabilities), and management risk (eg. you are unable to hire a key employee when you need him or her). Investors are usually more favorably disposed toward a business where the management is aware of potential problems downstream and has given thought about how to mitigate those risks.

9. Financial Statements - An Income Statement, Balance Sheet, and Statement of Cash Flows provide, respectively, information about your expected revenue streams and the costs

associated with generating those revenues, with calculations of the various profit margins you plan to generate, the company's assets, liabilities, and ownership interests, and the various ways that money will come into and go out of the company. They should convey a complete financial picture of what your business looks like at the present time and going forward. The assumptions you have made in preparing the financial statements are a critical part of the statements, and should be explicitly included in your plan. It is a good idea to examine the effect of changing your assumptions on the financial statements. You do not need to include an analysis of this, but you should be prepared to discuss the subject. In addition to providing information to potential investors, financial statements will serve as a check for the company's management going forward to see if things are going according to the plan. Most university researchers do not have the background to put together financial statements for a business plan, so you will want to find help in doing so.

# ESTABLISHING A COMPANY

## For-profit or not-for-profit?

Northwestern's researchers have developed both for-profit and not-for-profit companies. The decision of whether to build one over the other is usually driven by the mission of the firm.

The missions of not-for-profits usually center on "societal good" of the community, nation, or the world. Not-for-profits are tax-exempt, meaning they do not pay certain taxes, but in return they must use their funds for the mission for which they are formed. It is important to remember that non-profit organizations may make a profit, but it must be used solely for the operation of the organization or, in the case of a foundation, granted to other not-for-profit organizations. When a not-for-profit goes out of business, its remaining assets must be given to another not-for-profit. The Northwestern Global Health Foundation is an example of a Northwestern not-for-profit spinout.

The most common spinouts at Northwestern are for-profit technology based spinouts. The mission of for profit startups is to bring profits to the shareholders. Profit is the goal and the business pays taxes on that profit. When a for-profit organization goes out of business, its assets can be liquidated and the proceeds distributed to the owners or the shareholders.

## Virtual or bricks and mortar?

Virtual typically do not have headquarters or an office space and run with a very small staff. Most aspects of their business, including research and development, marketing, and sales, are typically outsourced. The primary role of the virtual company is to monitor and manage the outsourced activities. By obviating the need for creating its own infrastructure (“bricks and mortar”), the virtual company keeps its costs to a bare minimum.

In general, a virtual company is formed if the company is in its early stages. There are numerous examples of startups 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 within a realistic timeline. When the milestones are achieved, the entrepreneurs should be able, in theory, to sell their startup idea to investors. However, technical milestones are often difficult to achieve on a timely basis within the academic environment. This 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 it is possible to incorporate on your own for a relatively small filing fee. While this option saves money in the near term, it is important that you get qualified advice from an attorney. The money will be well worth it and will likely save frustrations in the long run. One of the primary motivations for incorporating is to protect the principals from being held personally liable for the company’s debts. A good attorney will ensure that accurate filings are fulfilled. .

## Choosing a corporate attorney

If the prospect of company formation is nearing, a founder will need to consider seeking legal advice before making decisions that may impact the business throughout its existence. In the context of starting up a business out of the University, the first decision is likely centered on remaining at a center within the University or creating a startup company and moving off campus.

Deciding when to hire a lawyer for your startup, who to select, and how to make the selection, can be a challenging and daunting experience. For example, one should consider taking advice early before any public disclosure (including public presentations, news releases, or talking to journalists), before mentioning the sale of shares or other securities (there are strict securities regulations to protect investors), or before entering into external relationships (including with consultants, research collaborators, or anyone offering brokering services). Loose, informal, or ambiguous verbal arrangements can result in costly disputes later. Compromising on the filing of a patent application (particularly a PCT "International" application), the ownership of IP, or ending up with a claim by a broker for a percentage of a deal or a finder's fee are also potential pitfalls of early stage startups.

**Firm Size: Small or Large**

It is worth giving careful thought whether to go with a small local law firm, or with the local office of a larger (possibly national) firm with deeper legal resources, and most likely, higher fee rates. While some would recommend retaining only the best, high-rate, firms, the legal needs of the start---up may not be able to support the high costs of doing so. However, if the startup's needs are likely to require substantial amounts of capital from institutional investors, strategic partnerships with national or global corporations, an IPO on an established stock exchange, or legal work associated with an anticipated acquisition, then a larger firm's services may be more appropriate.

**How to pay for services?**

A founder that is bootstrapping is likely to be minding every cent. Your law firm might assuage the cash-flow strain by offering services at a reduced rate for a period of time, hoping to the company down the road. Depending on the firm, the company can pay in cash, defer payment by agreement, issue equity, or combine any of the above.

**Selection Process**

Aside from size, cost, and payment structure, there are other considerations in selecting a law firm, including:

- How many partners are in the firm?
- Does the firm specialize in a specific field of law or is it a one---stop shop for all of the services the company will require?
- What depth of expertise and experience do they have?

- Are they local, regional, or national?
- What is their reputation?
- What is their expertise and experience with the type of company/industry being created (startup experience, and experience with the types of deals you are likely to do)?
- What deals – startups, financings, collaborations, IPOs, M&A deals, etc. – have they advised upon? Advisers who have significant experience with the appropriate types of deals should provide the most efficient services and have a substantial pool of benchmark information about deal terms, and proven ways to structure deals and draft agreements.
- Outside of their area of personal focus, who would they bring in (from their own firm, or recommended external providers) to meet the company's other legal needs?
- If the firm provides a legal team to support the business, who will do the actual work? You will want the right level of attention from the senior partner, but will want more routine work to be done by competent junior lawyers, at lower fee rates.
- How active are they in your industry? Do they attend conferences? Do they publish white papers, articles, updates of interest to the company's industry sector? Are they opinion leaders, evidenced by their public profile, invited presentations, public recognition, etc.?
- What are the fee rates per team member? What extras will be billed? How will they bill the company? What will they accept as payment?

Having a legal question or two to ask may also be very enlightening regarding how the firm approaches the answer, and how interested the firm is to give you an answer. The purpose of asking these types of questions is not to receive free legal advice, but to analyze the way they respond.

Once you engage a law firm, you will likely work with an individual lawyer and his/her team. The founders will want to assess whether this person/team is compatible with the company's management team – not only with respect to personal chemistry, but to having a good understanding of company needs, and risk tolerance. Remember, entrepreneurs take calculated risks to exploit opportunities, while lawyers seek to remove or minimize risks.

Part of the lawyer's pitch might be the added value they can bring – access to their network of investors, etc. A good level of skepticism is appropriate. If this is delivered, it is a bonus. The company's priority should be on satisfying its specific legal needs.

Please contact the Innovation and New Ventures Office for referrals of attorneys with experience in the area.  Alternatively, entrepreneurs are encouraged to consult with the Donald Pritzker Entrepreneurship Law Center (DPELC) at the Pritzker School of Law for advice on this topic.

## Executing a founders' agreement

Forming a company is a tremendously complicated process on many different levels.  The information contained in this section represents important considerations that founders of a new startup company must discuss and agree to before moving forward to create the company. The essence of this conversation is to talk through a number of key points regarding founders' respective roles, relative ownership interests and other important governance matters.
It is quite likely that the founders will need to retain the services of an attorney to prepare a Founders' Agreement.  This document memorializes the terms and conditions agreed to by the founders.

INVO recommends that the founders work through this process at the same time the entity is being formed.  In addition, INVO can provide a list of attorneys qualified to prepare such a Founders' Agreement.

Premise - One Academic Founder ("AF") and one Non-Academic Founder ("NAF" and, collectively, the "Founders") will create an entity to commercialize and grow a business around certain intellectual property owned by Northwestern University with respect to which the AF had a hand in creating

Founders' Roles - At the outset, the Founders should begin to think through and frame out each Founder's initial contribution to the entity, as well as the parties' expectations regarding future contributions to and roles within the entity.  Such evaluation should include:

1. Relatively detailed listing of each Founder's initial and anticipated responsibilities towards the entity (e.g. business development, marketing, operations, raising outside capital, filling out the management team, software development, creation of additional intellectual property, etc.)

2. Anticipated time commitments from each Founder - Will both Founders be working with the entity on a full-time basis, or will one or both of the Founders maintain separate full-time or part-time employment or engagements?

The foregoing expectations, once mutually-agreed between the Founders, will likely serve as the basis for each Founder's "sweat equity" structure

Initial Ownership

Cash Investment: Cash contributions in most IP-heavy businesses are typically minimal at this stage, but to the extent either or both Founders will be contributing capital to the entity, the parties should allocate a portion of the initial equity ownership towards those investments. For example, if both Founders will be making an initial capital contribution of $25,000 to the entity, maybe the Founders will deem 10% of the equity to be issued to each Founder to be fully "earned" and "vested" as of the date of that contribution (with the remaining 80% to vest as described below).

Sweat Equity: Beyond any cash investments into the entity, the *Academic Founder* “AF” will likely be deemed to be contributing a combination of intangible / intellectual property as well as time / "sweat" to the entity, while the *Non-Academic Founder* “NAF” will likely be deemed to be contributing time or "sweat" to the entity, such as (i) serving as CEO / President, (ii) utilizing contacts in the industry, and (iii) overseeing business development and marketing functions during the early stages.

(a) The Founders will first need to determine overall equity ownership based on the assumption that each Founder remains with the entity for a pre-determined period of time and adequately performs all of the applicable services referenced in the "Determination of Roles" section above. For example, assuming the NAF is highly qualified and experienced in the company's industry, the parties may allocate equity on a 50/50 basis. Initial ownership percentage of the NAF will likely range from 20% at the low end to 50% at the high end.

(b) The next step after carving up the equity is to determine what will be required of each Founder to "earn" the equity which is being issued as compensation rather than on account of a cash contribution. There are many options here, one of which is to vest one portion of the Founder equity over time (e.g. quarterly over a 3-year period) and the remaining portion based on either the entity or the applicable Founder achieving specific measurable milestones (e.g. unique users, licensees, revenues, etc.). Regardless of the vesting schedules, to avoid adverse tax consequences (both on future vesting dates and upon a sale of the company), each Founder should work with his or her accountant to ensure an 83(b) election is filed with the IRS no later than 30 days from the date of issuance of any compensation equity to such Founder.

Equity Repurchase Rights - There are various scenarios under which the Founders will likely want to provide the company with the ability to repurchase or recapture some or all of the equity issued to a Founder. Some of the more common repurchase rights, each of which merit discussion between the Founders at the outset, are as follows:

1. Termination of Employment or Consulting Arrangement - In the event either Founder either voluntarily leaves the company or is terminated by the company, the company will often be entitled to repurchase all equity held by such Founder for a purchase price equal to (i) the amount paid for such equity for all vested equity (which will be $0 for compensation equity), and (ii) "fair market value" for all vested equity ("fair market value" to be defined within the investment documents).

2. Death of a Founder - Often unvested equity will be forfeited and vested equity is subject to repurchase from the deceased Founder's estate for "fair market value."

3. Divorce or bankruptcy of a Founder - In these "involuntary transfer" situations, to the extent the applicable judge/trustee elects to award equity to someone other than the Founder, unvested equity will be forfeited to the Company and vested equity will often be subject to repurchase at "fair market value."

There are a number of related issues which sometimes come into play with regard to repurchase rights, including (i) how to address a situation where one or both Founders are not full-time with the entity, as it sometimes becomes difficult to ascertain whether or not a Founder has terminated his or her relationship with the entity, (ii) the right of the company to pay a portion of any purchase price by issuance of a promissory note, (iii) the purchase of key man life insurance policies to support the repurchase of equity upon the death of a Founder, and (iv) accelerated or partial-accelerated vesting upon any sale of the company and/or in the event a Founder is terminated by the company without "cause" (to be defined within the investment documents).

Management - While not required by the limited liability company statutes, it is often a good idea to set up the entity such that it is manager-managed rather than member-managed. The "Board of Managers" would be the strategic / high-level decision making body, while officers can be designated to handle day-to-day affairs of the company.

In a 50 / 50 scenario (2 equal Founders), the Founders should discuss methodology for resolving deadlocks/disagreements. Potential solutions include but are not limited to:

1. Mediation or arbitration when disputes arise

2. Forced Buy/Sell (either Founder can submit a dollar figure to the other Founder, and the other Founder can either buy the submitting Founder's equity at that price or sell to the submitting Founder at that price)

3. Submission of issue to the members (equity holders) if there are other equity holders who or which have the full trust of the Founders

4. Simply requiring that the Founders work through the issue (often the case in very early stage businesses)

In any event, in a 50/50 scenario it is often beneficial to find a third board member at the appropriate time to, among other things, avoid deadlocks.

If one Founder will control the voting/decision-making within the entity, the other Founder may request that certain material actions not be permissible without a "super-majority vote"; such actions include for example, (i) going into a different line of business, (ii) selling the company, (iii) paying compensation in excess of $_______ to any individual, and (iv) issuing incentive equity beyond a pre-agreed amount.

## Other agreements

The Founders should enter into a**n Operating Agreement** for a limited liability company or a **Stockholders' Agreement for a corporation,** which are agreements that address specific governance related topics for the entity, such as:

1. Future Capital Needs - The Founders will each likely want pre-emptive rights to ensure both can, at their option, participate in future capital raises to maintain their relative ownership percentages in the entity.

2. Capital Calls - If the Founders know that capital is going to be required in the short term (in advance of an outside round), they should address the investment expectations relative to each Founder and the repercussions a Founder will face in the event such Founder does not meet his or her capital call obligations.

3. Sales of Equity - Presumably, at a minimum, the company and/or the other Founder will have a right of first refusal to purchase any equity proposed to be sold by a Founder (sometimes such sales will simply be prohibited without board approval).

4. Tag Along/Drag Along - The Founders may want to ensure that to the extent they are not 50/50 owners at some point in time, the smaller owner(s) do not have the ability to block an otherwise approved sale of the company's equity while the larger owner(s) do not have the ability to sell just their equity leaving the smaller owner(s) behind with a new and potentially undesirable partner.

5. Allocations/Distributions - Depending on the form of entity selected by the Founders, there may be annual profit/loss allocation decisions to be made, and regardless of the choice of entity, the Founders will want to think through expectations regarding dividends/distributions over time (most often profits in an early stage business are re-invested in the entity to promote growth).

6. Outside Activities - What will each Founder be entitled to do outside of providing services to the company (e.g. similar or competitive businesses, academic engagements, other boards of directors, etc.)?

## Choosing the startup legal entity

Generally, there are four considerations as outlined on **Table 2**. Usually, sole proprietorship is not appropriate for technology companies due to liability concerns and the limitations with raising capital. The C Corporation is the first choice for most venture capitalists. When the to-be-venture-funded startup is a C Corporation, various administrative and other burdens are minimized for the venture firm, allowing them to transfer capital more easily and focus on developing the startup.

**Table 2: Common Legal Entities for Corporations**

| | **Sole Proprietorship** | **C-Corp** | **S-Corp** | **Limited Liability (LLC)** |
|---|---|---|---|---|
| **Requirements** | None | Must File with State, small fee required | Must File with State, small fee required | Must File with State, small fee required |
| **Personal Liability** | Unlimited liability | Shareholders are not held liable | Shareholders are not held liable | Members are not held liable |
| **Governance** | Relatively few requirements | Election of board of directors/officers, annual meetings, and annual report filing | Election of board of directors/officers, annual meetings, and annual report filing | Few Requirements. |

| | | | | |
|---|---|---|---|---|
| | | requirements | requirements. | |
| **Management** | Full control | Shareholders elect directors who manage business activities | Shareholders elect directors who manage business activities | Members can set up structure as they choose |
| **Term** | Terminated when proprietor ceases doing business or upon death | Perpetual: can extend past death or withdrawal of shareholders | Perpetual: can extend past death or withdrawal of shareholders | Perpetual, unless state requires fixed amount of time |
| **Taxation** | Entity not taxable. Sole proprietor pays taxes. | Taxed at corporate rate | No tax at the entity level - income passed through to the shareholders. | No tax at the entity level. Income passed though to members |
| **Transferability of Assets** | No | Shares of stock are easily transferred. | Yes, observing IRS regulations | Depends on restrictions outlined in operating agreement |
| **Fundraising** | Individual provides capital. | Shares of stock are sold to raise capital (Securities laws apply) | Shares of stock are sold to raise capital. Limitations prevent S Corp stock ownership by corporations | Subject to operating agreement (Securities laws apply) |

## Fundraising

The type of investors that you will seek for the company will depend on the type of company that is being built, the stage of development and the capital needs. The most common are:

### Sweat Equity, Friends and Family

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 co-founders, 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. Asking for money from family and friends can be a difficult. It is wise to be clear and upfront about your goals and intentions.

### Non-Profit Grants

Not-for-profit foundations are often good places to seek funding if the mission and goals of your company aligns with the missions and goals of a non-profit foundation. Occurring more frequently in healthcare and social issues, foundations such as the Cystic Fibrosis Foundation have funded cystic fibrosis research in both industry and academia.

**SBIRs & STTRs**

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 $150,000), in which new concepts are explored; Phase II (up to $1 million), in which successful Phase I projects are developed into products; and Phase IIb (up to $3 million) in which the Phase II projects are moved close to commercialization.

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 startups 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 academics have been tempted to use the SBIR/STTR programs to extend their academic research instead of using the funds to build a company and develop products. Expert panels are utilized to review the grant applications both for technical and commercial merit. Applications that are academically focused are generally not accepted. 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 substantial. 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.  For more information on SBIR/STTR programs check [www.sbir.gov.](http://www.sbir.gov)

**Angel Investors**

An angel investor is usually someone who has led the launch and development of one or more successful companies, followed by a successful exit. Angel investors often form groups so potential investments can be better evaluated. Each angel typically invests between $25K-$100K.If a group pools their money, the total amount of investment can reach over $1 million dollars. Angel investors usually come in at an earlier stage than venture capital financing.

Active Chicago area angel groups include:

| | |
|---|---|
| Hyde Park Angels | www.hydeparkangels.com |
| Heartland Angels | www.heartlandangels.com |
| Cornerstone Angels | www.cornerstoneangels.com |

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. At first, founders may view this outcome as "losing control" of the company (often called "founder's syndrome"), but without external investment, the company would not be able to move forward.

**Industry Partnerships**

A startup may also develop a strategic partnership with a larger company in which this partner helps the young company with product development, generally in the form of cash or collaborative assistance. Partnerships are an excellent source of non-diluted capital and also usually have an impact on the company's valuation because they are used to validate the technologies. Partnerships are dependent on product stage of development and milestones. Care must be taken that these relationships do not alter the core company focus and are not structured in a way that will hamper future fundraising or sale of the company.

**Venture Capital Firms**

Venture capitalists (VCs) are professional investors and money managers who manage and invest a pool of money from high net worth individuals and institutional investors who are looking for higher returns on their investments than the average stock market returns. There are thousands of venture firms out there, and many firms specialize in a particular industry.

There are more VCs focused on high tech than life sciences, simply because an exit in a life science usually takes much longer.

VCs provide significant value that is much more than just money. Many VCs were former executives who launched and managed successful companies and they can provide valuable advice and guidance. In addition, when a VC invests, you are getting the advantage of his/her entire network of contacts.

In addition to a return on individual investments, VCs make money by charging a management fee on the funds raised from individual and institutional investors. A VC firm's reputation is based on its investment track record.   If managers have below average success rates; investors are likely to choose different money managers.

Equally important as selecting the right CEO, is the selection of the right investors.   Investors play a critical role in shaping the company, providing support, management, etc.  The quality of your seed investors will play a key role in attracting future investments.   Sometimes, the entrepreneur is in such desperate need for funding that he/she accepts investments from inexperienced investors. These investors often have unrealistic expectations, little industry-specific network and little credibility with follow-on investors.

## TIPS FOR NORTHWESTERN ENTREPRENEURS

An important step in starting a company is to clarify the role that the academic entrepreneur will be able to play and the steps to move the inventions to the company. These issues can vary widely depending on the nature of your startup and your own background, desires and interests.  However, there are a few things to keep in mind as you consider starting this new venture.

### Working with Northwestern and INVO

Unlike corporations where employees are unable to start a company with information gained while employed, 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, university employees are typically not required to leave their academic employment in order to start a company.

Northwestern, like all academic institutions, has a variety of rules that may be applicable to a researcher's plans to start a company, including policies on intellectual property, conflict of interest, conflict of commitment, sponsored research, and outside consulting. All Northwestern policies are listed at http://policies.northwestern.edu/. Gaining University approval to start a new company is based on the full disclosure of proposed activities as they may pertain to these policies. The Innovation and New Ventures Office (INVO) has a number of resources relevant in forming the company.

The encouragement and support of startup company formation by Northwestern does not change Northwestern's other policies which remain fundamental to the University and its governance, such as the policies on conflict of interest, consulting, and other policies contained in the faculty handbook and elsewhere.

Northwestern employees on full time appointment or on partial leave (including half-time leave) may not be operating officers of such a commercial licensee. The positions of an operating officer, particularly in a startup, are normally considered to be "all-consuming" and would therefore create a conflict of commitment with the university appointment. Such positions include, without limitation, those of president, vice president, chief executive officer (CEO), chief operating officer (COO), chief financial officer (CFO) and chief technical officer (CTO). "Allowed" positions include: part-time employment (other than operating officers' positions) in such a company which does not interfere with the Northwestern appointment; consulting within the provisions of Northwestern's consulting policy, membership or chairmanship of a technical advisory board; or membership or chairmanship on a company's board of directors.

Northwestern faculty who wish to see the creation of a startup company but remain primarily committed to his/her Northwestern appointment should arrange for the employment of a CEO to take on the task of organizing and managing the startup.

The first three steps for the academic employees contemplating the formation of a new company based on their research are to: (1) disclose the invention: (2) disclose for potential conflicts of interest/effort; and (3) familiarize themselves with Northwestern's licensing agreements.

**INVENTION DISCLOSURE.** If the basis for starting the company is a discovery made in the laboratory, an invention disclosure needs to be submitted to INVO. If this is your first interaction with INVO, it may be helpful to consult with an INVO invention manager who handles similar technologies in advance of submitting the disclosure. Please call our office so that an invention manager can be assigned. INVO will determine whether there is protectable intellectual property (IP) associated with the discovery. Invention disclosure forms can be downloaded at: http://www.invo.northwestern.edu/forms

Northwestern will decide whether to pursue intellectual property protection or not. If Northwestern decides not to pursue IP protection, the invention will be released to the inventor, and the inventor will be free to pursue it on his /her own. The inventor will also be responsible for the legal costs associated with the IP and startup. If Northwestern decides to protect the invention, it will file a patent application and cover the legal costs associated with the application. Once the patent is issued, a startup may license the technology from Northwestern to gain the rights to develop and commercialize it. This process is broadly described as "technology transfer."

**CONFLICTS DISCLOSURE.** The second disclosure relates to the inventor's compliance with institutional conflict-of-interest and conflict-of-commitment policies. Such conflicts are a hot topic in the national media, professional organizations, and journals, as well as in hallway gossip. Being accused of having a conflict can severely damage one's reputation and future prospects. The federal agencies and academic entities have become quite attentive in enforcing their conflicts policies. Northwestern's policies in this area can be accessed at **www.invo.northwestern.edu/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.

A conflict-of-interest exists when an individual's personal interests (e.g., equity holdings in a startup company) are perceived to influence that person's judgment when exercising his or her academic employment duties. Institutions require that the individual disclose and manage such potential conflicts. Because conflict-of-interest management can be a complicated business, especially if a researcher contemplates a startup company while remaining an academic employee, it is essential that the constraints on permissible activities are well understood. 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.

Inventors should consult with their department chair and dean, as soon as they are ready to get serious about forming a new company, to lay out plans and receive feedback . *What is* *most important is that it is not about whether you think there is a conflict or not, but whether someone else might perceive one. When in doubt, disclose. It can save you a lot of heartache later on.*

## Disclosing information

Once you decide to start a business, it is important to be careful on how much information is being disclosed to the public. Public disclosures could limit your ability to obtain patent rights. In addition, it might create the risk that somebody will copy your ideas.

If you are in a startup but have not licensed the invention, please consult your invention manager at INVO before making any public disclosures. The invention manager will let you know if signing a Confidentiality Disclosure Agreement (CDA) is necessary. Samples of CDAs are found at: www.invo.northwestern.edu/forms/guidelines-confidentiality-agreements.

In general, it is wise not to provide too many details of the invention when communicating with an external party. Even when common interests are clear and further and more serious discussion is indicated, it is not necessary to provide all the details about the invention or the company. Most investors often do not want to learn confidential information until they have moved onto the stage of "due diligence" and are seriously contemplating an investment. At that point, if the startup has already optioned or licensed the technology, they should already have a template confidentiality (nondisclosure) agreement.

## Can I do research in my academic laboratory for my startup?

Once the company is incorporated, all research related to the startup needs to be conducted within the startup. There are strict regulations forbidding startup companies from conducting the company's work within the walls of the academic institution. Using the university's facilities can result in grave penalties for the institution and the researcher.

Sometimes, however, the academic lab pursues basic research that is complementary to the company's product development work. 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 the work. In these cases, the startup can enter a sponsored research agreement with the founder of the startup. Funding from startups to the founder's academic laboratory needs to be cleared by the Office of Sponsored Research and the School's conflict-of-interest administrator. Often the founder is not allowed to receive the funds if he or she has a significant financial interest (i.e., stock or other ownership interest).

Regardless, the faculty member will need to develop 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, and to corporate ties. Ultimately, a research contract will be negotiated between the company and Northwestern through which the company will gain prospective licensing rights to the results of the research and any associated intellectual property. Contract negotiation is handled by the Office for Sponsored Research (http://www.research.northwestern.edu/osr/).

## Do I need an option or license for the startup?

INVO encourages the founder to consider an option rather than a license. An option is fast and less expensive and, further, it gives the entrepreneur more time to raise funds. Legal fees for patent prosecution are typically deferred during the option period; however, the company agrees to reimburse INVO for such legal costs upon license execution. The company has an exclusive right to license the technology as long as the agreed upon conditions are met before the license option expires. *A term sheet, which sets forth all the business terms, is t*ypically attached to the option and can serve as a starting point for license negotiations.

Assuming there are not multiple potential licensees competing for a technology, INVO is generally willing to grant an exclusive option for 6 months at no charge to the licensee and term extensions are possible. The company has the right to exercise the option if agreed upon conditions are satisfied which might include raising a certain amount of capital, finding a CEO and completing a business plan.

## What to expect with the startup license

Input from the inventor is important in licensing decisions. However, because of the inventor's potential conflicts-of-interest, he needs to negotiate with Northwestern from an "arms-length" relationship. In general, Northwestern gives priority to startups founded by Northwestern researchers; however, agreements with faculty-initiated companies need to be reviewed carefully to ensure that Northwestern is justified in granting rights to the technology to the startup (as opposed to a larger company). For this reason, a startup must demonstrate that it is better positioned to commercialize the invention than another larger more established company.

It is important for the founder and the businessperson from the startup to be familiarized with the general license template and financial terms for startups at Northwestern. Please contact your invention manager for a template.   License negotiations can be very fast or take several months. In general, the length of the negotiation depends on the experience of the management team in transferring technology out of the university environment into a startup.

Universities are required by the Bayh-Dole Act to include diligence terms to ensure that significant progress is being made towards commercialization of the invention.  Business and development plans are required.  These plans need to include basic information such as: the company's purpose, a description of the technology, a market analysis, opportunity, stages for development, timelines, milestones, and a financing plan.  The business plan is not a procedural manual but more of a high-level view of the startup's intended structure and function. Because business plans are subject to frequent revision as directions change, they are a snapshot of the company at a particular point in 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. Invention managers at INVO can provide a general template of a business plan.

Once the license is executed, the licensee will reimburse Northwestern for the legal costs associated with the prosecution of the IP. If, for some reason, extraordinary legal expenses have been accrued during the prosecution of the intellectual property, a reimbursement payment plan will be established to help the startup spread out costs over time in the short term.

Some general terms to expect in the license:

- Field of use restrictions, since a startup company often cannot develop all the applications of an invention.
- Performance milestones expected by the company which may include completion of an acceptable business plan; putting the initial management team in place; product development stages; clinical and/or market testing; initial rounds for financing; commercial product introduction ("first commercial sales");  and/or minimum revenue targets during the first five years.
- Equity, milestone payments and royalties to the university because Northwestern invested resources, salaries, and space in the creation of the IP

- Maintenance fees to ensure that the company is serious about developing the invention. In order to help the startup, the maintenance fees may be delayed/waived the first year.

- Requirement of sufficient insurance as specified by Northwestern University.

## Leading sources of frustration for the academic entrepreneur

A startup moves at varying speeds, alternating between dizzyingly fast periods at high energy to other periods when the process seems stalled. These latter periods are the ones that the entrepreneur seems to find the most frustrating. Much of the frustration is based upon a mismatch of expectations. We list some of the leading sources of frustration among academic entrepreneurs below.

1. **Raising 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 the University - IP assignment:** You thought that you owned the IP on which your company is to be based. Unless your research findings are already in the public domain, inventions that are created at Northwestern belong to the University under the provisions of the Patent and Invention Policy. This means the startup is required to negotiate an IP license with Northwestern to have rights to use IP the startup needs to build its business. It is important to make full disclosures 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 the University - COI:** Conflicts-of-interest review and approval entail more than checking a few boxes on a form. Full disclosure, often in face-to-face meetings, is necessary.

4. **Relationships with business partners dissolve.** 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 wish you had never seen. A frayed personal relationship can be one of the most difficult things to endure in a

startup, 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 co-founders, both on the science and the business sides, before you enter into partnership with them.

5. **You have to replace the CEO ---again and again.** Do not 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 startup in the company's particular industry. Replacing the CEO not only takes a great deal of time, but also may dissipate any momentum the company has built as well as depress staff morale.

6. **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.

7. **Relationships with investors sour.** Sometimes investors, think that academic discoveries are much closer to the market than they actually are. They may not have the patience 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.

8. **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. A year or two later, those who made them either claim they do not 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.

9. **Starting and growing the company are consuming too much time.** Do not underestimate how much time it will take to form a new company. With the initial vision for the company, the founder will be called on to impart that vision to CEO candidates, potential investors, and numerous other people during networking activities. Because of the host of

responsibilities that founders have, it would be wise to talk with founders of other companies regarding the amount of time needed to devote to the enterprise.

10. **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. How important is the investment capital? Is it worth the investors' input and possible control of the venture?

## NORTHWESTERN ENTREPRENEURIAL RESOURCES

Northwestern is growing a vibrant community of faculty, students and alumni entrepreneurs. For an up to date list of available commercialization resources, please refer to http://www.invo.northwestern.edu

**About the Innovation and New Ventures Office**

Founded in 2010, The Innovation and New Ventures Office inspires and nurtures a culture of innovation, bridging Northwestern research with its practical use for public benefit.

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