Creating and Developing Spinouts: Experiences from Yale University and Beyond

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ABSTRACT

This chapter is about university spinouts: why they are created, who founds them, and how they are developed. It also considers many of the issues that a university and its faculty have to address to successfully launch and develop new for-profit ventures. Spinouts carry risks, but they may also be the best vehicle for developing early-stage university technologies and providing a host of other benefits. The chapter offers examples from the past five years at Yale University, as well as from the private sector, that suggest ways to minimize the risks and maximize benefits.

1. INTRODUCTION

In the course of fulfilling university research and educational missions, faculty often create intellectual assets that can benefit society. These assets may include patentable inventions, copyrightable works, and ideas that form the basis for new products and services. As they emerge from university laboratories, these inventions are not mature commercial products. To fully realize their potential requires significant resources, both human and financial. These resources are not generally found within the university environment.

Therefore, commercial development of the invention requires the participation of for-profit partners who possess the requisite resources. The most common means available to universities for attracting such partners are licenses. Patents, copyrights, and other instruments of intellectual property (IP) protection safeguard investments made by the university's corporate partners. In general, universities license technologies to three classes of private sector entities: established companies with more than 500 employees (large companies), established companies with less than 500 employees (small companies), and newly formed companies (spinouts). The term *university spinout* refers to those companies that are formed around one or more faculty inventions, with involvement of the faculty inventors and the cooperation of the university licensing office, in the licensing of university assets.

This chapter is about university spinouts: why they are created, who founds them, and how they are developed. The chapter also considers many of the issues that a university and its faculty has to address to successfully launch and develop new for-profit ventures. Many of the examples are drawn from the authors' experiences at Yale University over the past five years; other examples are culled from collective experience elsewhere in the private sector.

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2. WHY UNIVERSITY SPINOUTS?

University spinouts provide many benefits. Among them are:

- the public may have access to new products or services
- success is maximized
- enhancement of the university's and the faculty's image
- improved faculty retention
- local, regional or national economic development
- economic returns to the university and inventor(s)

2.1 *Public benefit*

The academic mission and goals of major universities include engaging in research that is useful to society. To translate this research into beneficial commercial products requires a significant investment of human and financial resources. Commercializing inventions is generally not a central focus of academic or non-profit institutions; such endeavors are more central to the missions of companies. However, in order for a company to justify making investments in the development of inventions from universities, the university typically must first protect its IP through patents, copyrights, or trade secrets.

During the course of managing, protecting, and commercializing university discoveries, the technology transfer manager has many choices, and often there is no apparent best option. A spinout company is rarely a university's first choice for a partner in the private sector. If an existing company has the interest, capability, capacity, and financial resources—and the intent to reach broad markets—a university might prefer to work with that company. Sometimes, however, the market dictates that a spinout should be formed around a collection of technologies. One of the fundamental principles of the Office of Cooperative Research (OCR) at Yale is to make decisions that increase the probability of technology's successful commercialization.

Spinouts carry a number of risks that may exceed those found in established companies. Managers are often less experienced, and personnel may be working together for the first time. Company financing depends on funds from venture investors, who frequently react to environmental changes in ways that are not always in the best interests of the company. For example, during periods of low economic growth, venture investors may elect to invest more in existing portfolio companies and in secondary and mezzanine financings of existing companies. During economic expansions, however, investors actively seek to invest in new companies—sometimes at premiums that hurt future financing.

With certain factors in place, however, a spinout can represent the best opportunity for developing early-stage university technologies. It is crucial to identify a management team for the spinout company, including at least a chief executive officer/chief operational officer and a chief technology officer. Adequate financing must also be obtained; ideally, the business team will have experience and can convince others to invest at a premium to the initial financing of the company. Finally, a spinout's business strategy must be solid and serve a broad customer base.

Spinouts formed around university technologies have a vested interest in the success of those technologies. Company management, consultants and science advisors, board members, and staff are recruited because they believe in, and are committed to, the success of university technologies. Initial investors are especially committed to the success of the initial technologies. In contrast, when technologies are licensed to existing companies, there is often strong initial support for a new licensed technology, although the commitment is rarely as strong and as lasting as it is with spinouts. Existing companies may not identify as strongly with the recently acquired technology, and support may wane in the face of obstacles that a spinout might be able to overcome. Given the larger number of product opportunities in development at bigger and more-established companies, business priorities and personnel can change rapidly, leaving the university's assets undeveloped.

2.2 *Economic development*

New ventures formed to undertake the commercialization of inventions can promote the development

of a local economy. This may not be compelling in the technology-rich environments of Boston, San Diego, and the San Francisco Bay area. However, the economy in New Haven, Connecticut, which declined significantly from 1970 through the early 1990s, clearly benefited from the development of technologies created at Yale. A regional economy can experience growth when spinout ventures decide to remain in the area. By 2007, more than 30 companies had been formed around Yale technologies, with more than half locating in New Haven. These ventures provided more than one thousand jobs for highly skilled workers in the year 2000 alone. The ventures generated many joint-research projects undertaken by these companies and the university. The companies have made New Haven both a bioscience center for the state and a magnet for the relocation of existing companies to the city and region.

2.3 *Faculty recruitment and retention*

Faculty that are being recruited by Yale increasingly inquire about opportunities to become involved with existing and spinout companies in the area. A recently recruited department chairman, with significant entrepreneurial experience at the medical school, cited the university's successful technology commercialization efforts and the robust bioscience industry as key in the decision to relocate. A vibrant local and regional technology economy can provide significant job opportunities for the spouses of new faculty hires. Regional technology-based spinouts often have state-of-the-art research tools and expert staff that can be valuable to academic researchers, and faculty members often view the opportunity to collaborate with these ventures as necessary to stay ahead of rapid developments in their fields. If spinouts remain in the region and faculty inventors remain active consultants and advisors to these companies, they can be a powerful force in keeping these inventors at the university.

2.4 *Financial incentives*

Equity, in the form of stock, options, or warrants, is frequently part of the consideration for IP licensed to spinouts; equity may also be granted as consideration for assisting in the formation of a new venture. At Yale and many other institutions, equity-only licenses are rarely used. License agreements with equity consideration usually include cash considerations as upfront license fees, minimum annual and/or milestone payments, royalties on sales, and a percentage of sublicense income. However, upfront fees are frequently reduced when equity consideration is part of the license package. Stock is viewed as a reasonable business solution to enhance the overall financial package—a solution acceptable to the company and its investors—while providing an opportunity for the university to increase its potential return.

Financial returns on equity are independent of the success of the licensed technologies; therefore, equity can be a way to capture value even if the initial licensed technology isn't successful or if the company chooses another market. A few universities view equity as a way to generate large amounts of revenue to benefit their program or the university. To date, this is not a proven strategy. Big winners in equity deals are perhaps even rarer than big winners in traditional licensing deals.

3. HOW TO CREATE A SPINOUT

3.1 *Investable CEO*

While a major part of determining whether or not a spinout represents the optimal commercial path has to do with technology and market assessments, an equally critical aspect is finding an experienced business manager to join the founding team. We often refer to this individual as an *investable CEO,* because he or she has a track record in the technology area that can create added value in the eyes of professional investors. Such an individual must be able not only to understand and communicate with the founding scientists and inventors but also be capable of strategic, tactical thinking and action. The investable CEO must have had operational, preferably profit-and-loss responsibility, in small high-growth technical companies and must be able to work successfully with university founders and scientists. Such individuals are difficult to find. At Yale we succeeded by using the knowledge of industry professionals

and senior managers of comparable companies to locate potential candidates. As existing bioscience companies mature in the New Haven area, these become an important source of next-generation CEOs. Fortunately, some of the best CEOs are serial entrepreneurs; once they have had a taste of success with a spinout, they are eager for another. Furthermore, some individuals would prefer not to work at large bureaucratic organizations.

A typical spinout CEO will:

- possess a successful venture-backed, spinout track record
- understand, accept, and manage risk
- comprehend science, discovery, and developmental processes
- be capable in academic and business environments
- have realistic expectations compatible with the university and the investors
- have an entrepreneurial attitude

3.2 *IP assessment*

There are two major questions that investors will almost certainly ask of the technology: (1) Are there technologies or products that can block the development and commercialization of your technology? And (2) can your technology dominate and prevent others from entering the marketplace? While the OCR rarely commissions formal due-diligence opinions, which we consider to be the responsibility of the licensee, we do conduct literature and patent searches to investigate the relative strength of the IP. Although these searches often are initiated prior to identifying a CEO candidate, once such an individual has been identified, the office enlists him or her to assist with the assessment.

3.3 *Market-opportunity analysis*

The key decision in determining the most appropriate path for commercializing any university-controlled IP is whether to license it to an established enterprise or to a new business venture. Regardless of the commercialization path, market and opportunity assessments are conducted on most technologies. Such an assessment looks to balance the perceived technical and market risks with potential return on the investment, for both the university and the potential licensee. Conducting such an analysis includes considering the following questions:

- What are the market applications of the technology?
- Who are the potential customers, and why would they want to buy the technology?
- How are the needs currently being served for each application?
- How does the invention compare to existing technology?
- What is the character of the competition in the market?
- What is the market structure of competing technologies?
- What are the major obstacles to adopting the technology?
- What would it take to make the technology attractive to industry?
- What additional features should be designed to make the invention more attractive?
- What price would the market be willing to pay for this technology?
- What rate of adoption could be expected for the technology?
- What would the competition be in particular markets after the technology has been introduced?
- What are the regulatory requirements and success rates for technologies of this nature and at this stage of development?

All of the above questions help define a product scenario for the technology. Managers and staff need to know enough about the final product to be able to develop preliminary revenue and expense projections over the life of the IP. Obviously, assumptions must be made, and, to the extent possible, these assumptions need to be based on comparable product sales, margins, and expenses. However, when dealing with medical needs or technologies there are frequently no comparables, and sometimes an educated guess is all that is possible.

3.4 *Financial projections*

For every spinout where Yale is the founder, the licensing office puts together a set of financials

that capture the basic elements of the business. Linked spreadsheets are an ideal tool for this purpose. Spreadsheets include numbers of customers, product scenarios, revenue, expenses (including personnel, administrative, equipment, and marketing), and cost of goods sold. We use a summary sheet to roll up all of the individual sheets. Identifying key variables (such as numbers of customers and pricing) and linking related elements of the plan (such as numbers of employees or the development status of a new product) can greatly facilitate scenario testing and useful projections. We have found that these projections are of great value in developing product scenarios and business and operational plans, but that they often contain more information than is required by prospective investors—at least for initial meetings.

3.5 *Business plans and investor presentations*

In our experience, business plans are most useful to the founders and company management, while investor presentations are directed to the potential funding audience. While investors will use business plans to challenge the thinking and assumptions made by the founding group, they will most generally use the investor presentation to make the initial decision on whether or not to pursue an opportunity. Accordingly, we use the business plan as a management tool to profile the business opportunity, and we use the investor presentation to raise capital. The investor presentation does, however, usually flow from the business plan, or, at least, makes use of the thinking and assumptions that went into the business plan.

We have found that the ideal investor presentation is 20 minutes long and contains no more than about a dozen overheads or computer-driven slides. The logic is that most investment groups allocate about an hour for the initial meeting, and about half of that time is usually taken up by questions. Assume another ten minutes for introductions and setup and only about 20 minutes are left for the actual presentation. Box 1 presents the elements of a successful presentation used by our group.

4. BUSINESS CREATION: TWO EXTREMES

4.1 *Hands-on approach*

For a number of important reasons, the preferred approach in recent years at Yale has been an intensive, hands-on approach to founding companies around university technologies. Yale's OCR has developed business plans for companies, secured the rights to other institutions' technologies (or parts thereof), recruited management, developed and made investor presentations, negotiated financing agreements, and even assumed the role of interim management for these companies. To be clear, two things we have not done are to invest university funds in spinouts, or to personally take equity or any other incentives from these spinout companies. To a large degree, the OCR has performed these functions because New Haven lacked a strong biomedical entrepreneurial and/or venture investment community. There was also the desire to both maximize the success of Yale technologies and to expand the economy of New Haven and the surrounding communities. Another very important lesson that we have learned from these activities is that when the office undertakes a leadership role in founding these companies—particularly when recruiting management—the companies should locate close to New Haven. This is especially important for the founding scientists and inventors who consult for the company, since it reduces travel and facilitates company–university interactions.

4.2 *Hands-off approach*

During the early years of establishing spinout companies at Yale, the hands-off approach produced variable results, and certainly few successes. There was a time when the university wouldn't even permit faculty members to hold meetings on university property to discuss the prospect of forming a company. Companies still surviving from these times are frequently considered to have persisted despite the activities of the licensing office, rather than as a result of them. By policy, many universities assume a much less proactive role in forming companies. In many cases, institutions market spinout activities (for example, license opportunities) by sending out mass mailings; in other

Box 1: Elements of a Successful Presentation

Problem/need
What is the unsolved problem or unmet need that the business/products will address? This is comparable to reverse engineering the technology—what market opportunities does the technology meet?

Technology/products
What is the technology, and how will it result in new products, or how will it be incorporated into new products? What products will result from the technology?

Long-term plans
Assuming a ten-year cycle, what will the business look like in the second half of the cycle?

Short-term plans
What will the business look like, in one-year intervals, during the initial funding period and for the remainder of the first half of the business cycle? Discuss initial product-development plans, partnering and hiring strategies, and market and revenue opportunities.

IP and market protection
What is the current status of the IP licensed or developed by the company, and how will the IP be protected in the future? Discuss freedom to operate versus the ability to exclude others from the marketplace. What are the plans for acquiring or developing proprietary IP in the future?

Competition
What is the current competition, and what will be the competition when the technology is commercialized? Distinguish the company from the competition.

Management/founders
Who are the scientific founders? Who is the management? Who are the anticipated scientific and business advisors?

Capital needs
What are the capital needs for the first two years or for the initial funding period? What are the expected funding needs after the first two years but prior to exit, initial public offering, or profitability?

Uses of funds
What are the specific accomplishments that will enhance valuation of the business during the first two years or the initial funding period?

cases, investors interact directly with university scientists to develop product scenarios and business strategies and recruit management.

5. EQUITY: FOUNDERS AND TECHNOLOGY CONSIDERATION

5.1 *Founders equity*

Our office has adopted a proactive approach with respect to spinouts. We take founders equity in the new company separate and distinct from consideration for technologies that are being licensed to the spinout. When we initiate the hands-on activities described above, we negotiate an agreement with the other founding members of the company that delineates the roles of the respective parties and the compensation (founders equity) that each party will receive. The value of the equity when the initial founders agreement is made, before the company has any IP assets or capital, is negligible. Therefore, it is best to deal in percentages of founders equity rather than absolute amounts. For example, if there is one university scientist who participates as a founder, one investable CEO, and the university, we would typically agree to split the founders equity equally and to assign a per-share value of US$0.01, par value. In our experience, not all university inventors are founders and not all founders are university inventors. This may seem inconsistent with standard licensing practices, where university inventors are generally treated equally under university patent policies. But not all inventors choose to be entrepreneurs, so our approach benefits both those who want to be founders and those who do not. Founders equity is generally issued as common stock, and although the various founders may have different vesting parameters, all have similar shareholder rights.

5.2 *Equity as technology consideration*

Our experience has been that founders equity is frequently confused with equity that may be granted as consideration for technology rights. At Yale, we have a policy against all-equity license deals, and typical terms for licenses to university spinouts are similar to those that would have been negotiated with existing companies. Therefore, our typical licenses to spinouts include license issue fees, milestone payments, royalties on revenue and sublicense fees, annual minimums, and diligence requirements. Once we have identified the investable CEO and negotiated a founders' agreement with the founders, we will begin the process of negotiating license terms with the investable CEO. Because most of the IP licensed to spinouts is early stage product leads and technologies, the upfront licensing fees are generally low—in the range of US$50,000 to US$250,000. In many cases, common stock may be substituted for the license issue fees. However, license consideration equity is often granted at a par value greater than founders' equity because the license transaction occurs sometime after the founders' agreement and company formation.

6. WHO ESTABLISHES UNIVERSITY SPINOUTS?

6.1 *University founders*

University founders represent the university in spinout activities. At Yale, the OCR performs this function. Many of the founding activities are routinely reviewed with representatives of the general counsel's office, the provost's office, and the dean of the appropriate school. The ultimate internal approval process varies from university to university. Equity received is held by the university and is liquidated according to the equity policy of the university. The following list includes activities that are routinely conducted by our office in launching university spinouts:

- provide IP development and patenting
- create product scenarios
- develop business models and strategy
- identify and develop preliminary relationships with potential development partners
- find and recruit key management
- establish a founding team
- develop revenue and expense projections
- write an executive summary
- prepare investor presentations
- initiate conflict-of-interest clearance

- manage relationships with outside counsel, IP, and/or transactional attorneys
- negotiate interinstitutional agreements and obtain technology rights from other universities
- structure and negotiate technology access term sheets and licenses
- structure and negotiate capital investment
- negotiate investment capital terms
- represent the university in technical and IP due diligence
- review and approve company documents, including shareholders agreements and stock purchase agreements
- hold board seats in spinout companies

6.2 *Inventors and faculty founders*

The structure and policies at Yale University permit faculty inventors to be founders of spinout companies. In our experience, it is rare for an inventor not to want to participate as a founder once the decision to form a spinout has been made. However, we believe our faculty members need to make that decision individually, especially in cases where there are multiple inventors, some of whom may be students, postdoctoral scientists, and untenured faculty who may not have time to participate as founders. It is also possible for faculty who are not inventors to participate as founders of a spinout. We have a number of cases where senior faculty members have expressed an interest early on in participating as heads of scientific advisory boards (SAB) and taking on many of the functions of a university founder. Participation in a spinout can be a particularly rewarding experience for faculty inventors and scientists, not only financially, but also because they can contribute more to their invention's eventual practical applications.

University faculty founders commonly:

- aggressively pursue research consistent with the university's responsibilities and mission
- participate in developing product scenarios and business strategy
- assist with identifying development partners and preliminary talks with them
- assist with the recruitment of key company management and scientific advisors
- assist with fundraising and presentations to investors
- participate in technical and IP due diligence
- participate on, or lead, a scientific advisory board

7. MANAGING THE SPINOUT COMPANY

In most cases, management decisions fall to the investable CEO. However, should the CEO have weaknesses or lack critical experience, the following capabilities/functions may be undertaken by a variety of individuals:

- develop product scenarios, business models, and strategy
- identify and develop preliminary relationships with potential development partners
- find and recruit key operations and technical team members
- help establish the founding team
- develop revenue and expense projections
- write an executive summary
- prepare investor presentations
- participate in developing an IP protection strategy
- negotiate licensing terms and agreements
- structure and negotiate capital investment
- negotiate investment terms
- represent the company in technical and IP due diligence
- review and approve company documents, including shareholders agreements and stock purchase agreements

8. SPINOUT INVESTORS

The sources of capital for university spinouts range from individual angel investors to large, multinational, professional venture funds. The practice at Yale has been to work almost exclusively with larger professional funds specializing in technology-based spinouts. These funds have the ability to lead both current and successive rounds of financing. In the last few years, we have seen initial investments in spinouts increasing in size from US$500,000 to US$5 million, with many recent spinouts raising in excess of US$10 million in the first round. This

may be because many of the larger venture capital funds have more money to invest.

Correspondingly, the pre-money value of many spinouts has also increased. We carefully choose the initial group of prospective investors based on prior investments, technical strength in the field of opportunity, and their ability to make follow-on investments. Typically, we target six investment funds and hope that we will be able to obtain a lead investor and one or two co-investment firms from this initial group.

9. DEAL STRUCTURE AND EXAMPLES

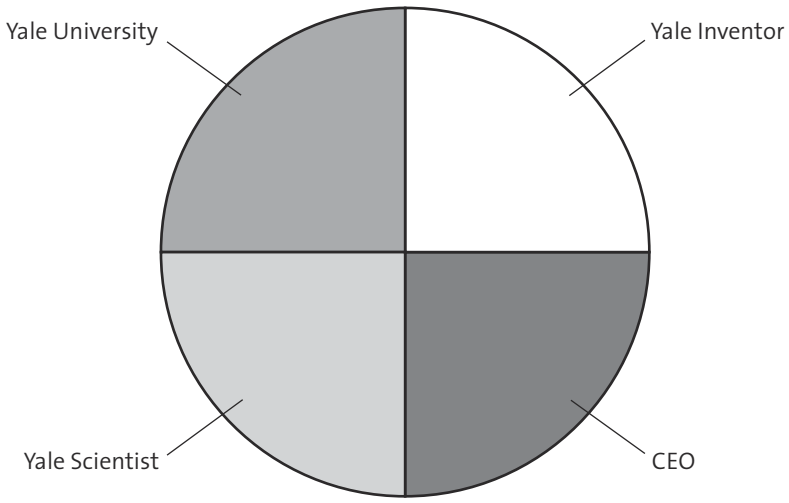
Figure 1 presents an overly simplified example of the structuring of a Yale university spinout representing the period of time between the initial founders' agreement and company formation and the point of an initial public offering.

The initial distribution of equity is equal among founders: the university, university inventor, university scientist, and founding CEO. This example assumes one inventor and one scientist/noninventor from the university.

When the company is formed, each founder is issued an equal number of founding common stock at a nominal US$0.001 per share. When the scientific advisory board (SAB) is initially formed, members are issued stock options from the company stock-option pool with a nominal value, or exercise price, of US$0.01 per share. When the technology is licensed to the company, shares are issued to the university, instead of license issue fees, at US$0.50 per share. The initial capital is invested at US$1 per share. Thus, there is an increase in pre-money value in the company, because of significant events, like retaining a world-class SAB, and not because SAB members, or the university, are issued stock at these set values (Figure 2).

Given an equal distribution of initial founders equity between the founding members of the company, the initial equity distribution upon company formation will be as follows (Table 1). *Founders' equity* is the designation given to the common stock issued to founders, and it will have the same value as common stock issued to employees and advisors. The cost of acquiring this equity for the founding members is nominal

Figure 1: Initial Founders' Agreement



(US$0.001 per share or US$100 for each member), which can be issued at this price because the company, at this point, has minimal value.

In the example above, the company recruits a number of leading international advisors (technical, clinical, and business experts) who will serve on the SAB and on the company's board of directors. These boards are formed after company formation but before the initial financing, thus building additional value in the company prior to financing. In this example, this equity is issued in the form of stock options, as opposed to common stock, because of the immediate value that the recruitment of these key individuals brings to the company. The company then negotiates licenses for three technologies on terms outlined in Table 2.

For technologies A and B, the university receives stock instead of the initiation fee, resulting in the stock division (Table 3). For technology C, the company elects to pay the license issue fee in cash.

After setting aside an option pool for management, SAB, the board of directors, and others (at the discretion of the board), the initial investments total US$15 million, and the stock distribution is as listed in Table 4 and Figure 3.

10. RISKS OF EQUITY PARTICIPATION

While a university's active participation in creating new business ventures can significantly enhance both financial and nonfinancial benefits to the university, such participation increases the

Figure 2: Initial Equity Cycle

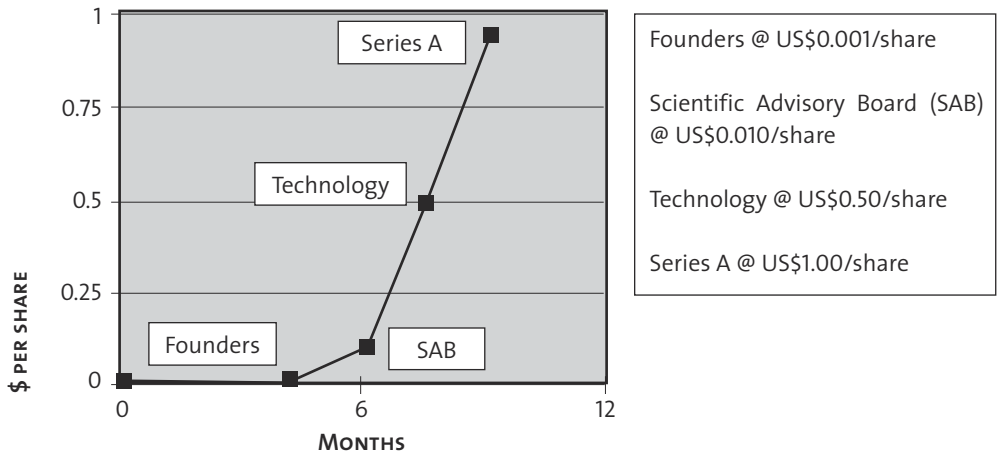


Table 1: Company Formation and Initial Capitalization

Shareholder	Founders' equity	% class	Total issued and outstanding	% total
University	100,000	25%	100,000	25.0%
Inventor	100,000	25%	100,000	25.0%
Scientist	100,000	25%	100,000	25.0%
CEO	100,000	25%	100,000	25.0%
Totals	400,000	100%	400,000	100%

university's exposure to various financial, legal, and ethical risks.[1] As universities become increasingly more engaged in venture formation, they must be cognizant of the risks and prepared to aggressively manage them. The risks include:

- impacts on tax-exempt status
- creation of taxable, unrelated business income
- exposure to liability
- creation of conflicts of interest and/or conflicts of commitment
- creation of conflicts with the mission of the university

10.1 ***Protecting tax-exempt status***

To protect its tax-exempt status under Section 501(c)(3) of the Internal Revenue Code, a university's activities must be charitable, educational, or scientific. The Internal Revenue Service has not defined a strict test to determine the quantity of unrelated activities that can be undertaken before jeopardizing exempt status. Loss of exemption, however, is not commonplace and considered unlikely if commercial business activities are insubstantial relative to exempt activities. Because intermediate sanctions have been developed to punish certain inappropriate activities

Table 2: License Arrangements

	Technology A	Technology B	Technology C
Initiation fee	US$100,000	US$50,000	US$10,000
Royalty	6%	3%	1.5%
Minimum royalty	US$100,000	US$50,000	None
Milestone payments			
- Investigational New Drug (IND) filing	US$250,000	US$50,000	US$50,000
- Phase 2 clinical trial	US$500,000	US$250,000	US$100,000
- Filing of New Drug Application (NDA)	US$2,000,000	US$1,000,000	US$500,000
- Drug registration/licensure	US$10,000,000	US$5,000,000	US$1,000,000

Table 3: Equity Division

Shareholder	Founders' equity	% class	Common stock	% class	Total issued and outstanding	% total
University	2,000,000	25%		0%	2,000,000	24.1%
Inventor	2,000,000	25%		0%	2,000,000	24.1%
Scientist	2,000,000	25%		0%	2,000,000	24.1%
CEO	2,000,000	25%		0%	2,000,000	24.1%
Technology A		0%	200,000	67%	200,000	2.4%
Technology B		0%	100,000	33%	100,000	1.2%
Totals	8,000,000	100%	300,000	100%	8,300,000	100%

Table 4: Stock Distribution

Shareholder	Founders equity	% class	Option pool	% class	Common stock	% class	Series A preferred	% class	Total issued and outstanding	% total
University	2,000,000	25%		0%	2,000,000	19%		0%	2,000,000	7.8%
Inventor	2,000,000	25%		0%	2,000,000	19%		0%	2,000,000	7.8%
Scientist	2,000,000	25%		0%	2,000,000	19%		0%	2,000,000	7.8%
CEO	2,000,000	25%		0%	2,000,000	19%		0%	2,000,000	7.8%
Option pool		0%	2,250,000	100%	2,250,000	21%		0%	2,250,000	8.8%
Technology A		0%		0%	200,000	2%		0%	200,000	0.8%
Technology B		0%		0%	100,000	1%		0%	100,000	0.4%
Lead investor		0%		0%	0	0%	7,000,000	47%	7,000,000	27.4%
Investor 2		0%		0%	0	0%	4,000,000	27%	4,000,000	15.7%
Investor 3		0%		0%	0	0%	4,000,000	27%	4,000,000	15.7%
Totals	8,000,000	100%	2,250,000	100%	10,550,000	100%	15,000,000	100%	25,550,000	100%

by nonprofit organizations, caution is advised when a university forms new business ventures. Technology transfer managers should carefully monitor the extent of the university's control over day-to-day activities of the for-profit entity to avoid a possible finding of private inurement or exposure to other liabilities.

10.2 *Accounting for income tax*

Income generated from business activities unrelated to an exempt organization's primary purpose, conducted regularly either directly or through other partnerships, may be subject to unrelated, business income tax (UBIT). There are important statutory exceptions from UBIT. Specifically, passive investment income is not generally taxed. Such income includes most of the major sources of financial remuneration universities would expect in their spinout activities, including:

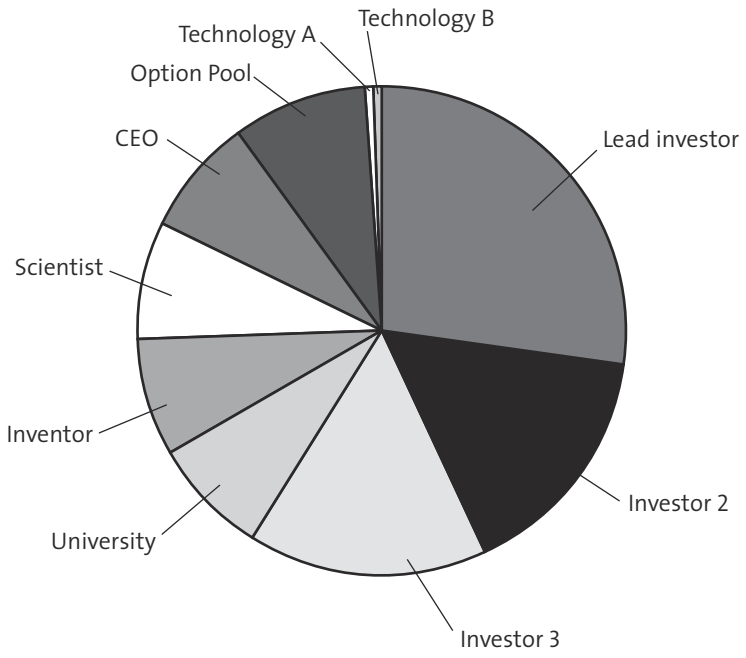
- royalties
- dividends
- interest
- receipt or sale of stock
- exercise of stock options

But even passive income, if derived from an entity that is more than 50% controlled by the tax-exempt entity, may be taxed if the controlled entity claims the payment as a deduction in computing its own taxes.

Exempt status is not at risk if unrelated activities are insubstantial in relation to the overall exempt activities. Careful records must be maintained, however, to permit the identification of taxable and exempt income, as well as related expenses. The university needs to evaluate whether a passive revenue stream that is typically exempt from UBIT, such as royalties, may be tainted by other aspects of an agreement between the university and the licensee—and thus subject to UBIT. This could be the case, for example, if services are provided by the university to the licensee.

The impact of any new venture activities on university facilities that were constructed using tax-exempt bonds should also be investigated, so that these activities do not jeopardize the bonds' exemption. Generally, no more than 5% of the proceeds of tax-exempt bonds may be used for

Figure 3: Stock Distribution During the First Round of Financing



an unrelated trade or business. This test applies to the use of bond-financed facilities as well, though special exceptions may apply to the use of university research facilities for corporate-sponsored research.

10.3 *Exposure to liability*

Any time a person or organization participates in a commercial transaction with another party, the risk of injuring another party increases. The party injured by the tort may sue the wrongdoer for damages. Such injuries include nonperformance of provisions of a contract, or property damages or personal injuries caused by a faulty product. When individuals engage in business activities where they might be sued, they will most often form a corporation. Through the formation of a corporation, the shareholders are shielded by the corporate veil and granted limited liability, or insulation, from court-assessed damages that may result from the commission of a tort.

The use of the corporate form for new ventures probably maximizes the university's protection against such risks while it is actively engaged in commercialization efforts. As long as the university does not control the venture, either in terms of stock ownership or day-to-day management, the university will likely not be held liable for debt and liabilities incurred by the corporation in which it holds stock. Moreover, if it serves mainly as a passive investor, the university's tax status will not likely be jeopardized by the type or extent of business activities conducted by the corporation.

10.4 *Conflict of interest*

When a university interacts with external corporate ventures, the interests and commitments of the various parties involved—the university, individual faculty and staff, government, and industry—are complex and not necessarily aligned. These interests may conflict. A conflict of interest exists when an individual has sufficient external incentive and the opportunity to affect university activity.

Conflicts of interest may arise when an individual is involved in making a university's financial decisions regarding investments, loans, purchases or sales of goods or services, and accounting.

An individual's economic interest may be derived from:

- employment, independent contractor, or consulting relationships
- management positions, board memberships, and other fiduciary relationships with for-profit organizations
- ownership of stock or other securities and financial interests such as loans
- any other activity from which the individual receives or expects to receive remuneration

Such conflicts can arise naturally and do not necessarily imply wrongdoing on anyone's part. It is likely that the number of such conflicts will increase as universities expand their commercialization activities. When conflicts do arise, however, they must be recognized, disclosed, and either eliminated or properly managed.

10.5 *The university's public face*

Yale's Policy on Conflict of Interest and Conflict of Commitment states that Yale is committed to ensuring that its interactions with outside ventures are "*conducted properly and consistently with the principles of openness, trust, and free inquiry that are fundamental to the autonomy and well-being of a university and with the responsible management of the university's business.*"[2] Most universities have similar policies. As universities become more active in the commercial arena, occasions when the above policies might be violated will likely become more frequent.

A primary concern is that, whether violations be actual or perceived, the public could question the integrity of academic research and those conducting such research. For example, a faculty member might be involved in a new venture that brings to market a technology that is seriously flawed. Although the university may have done nothing improper in this case, it is visibly and inextricably linked to the inappropriate actions of others associated with it.

An additional conflict may arise between industry's desire to protect proprietary rights and the academic commitment to freedom of communication and publication of research results. Entwined with this issue are concerns about

protecting the rights and interests of postdoctoral research associates and graduate students who may be involved in industry-supported research and whose interests may not be consistent with those of the faculty.

When such conflicts arise, they have the real potential to compromise the atmosphere of free inquiry that is vital for universities. Such conflicts must be promptly and properly addressed. Left unchecked, they may seriously damage not only the credibility of the individuals involved, but the university as well.

10.6 *Minimizing risk*

Although risks may arise, the threat, by itself, should not preclude a university's participation in venture formation. However, a university should establish procedures to identify and aggressively manage perceived risks. An active risk-management approach for new ventures makes a number of reasonable and prudent actions standard practice. These include:

- **Protecting the university's nonprofit status and avoiding intermediate sanctions.** Although not strictly required by the tax laws, a university should protect its ability to demonstrate that an investment is not an active trade or business. This is best done by limiting the equity interest in new ventures to a minority position and prohibiting active day-to-day involvement of university personnel in the venture's business activities. The university should carefully scrutinize any arrangements where private inurement or benefit might be found.
- **Accounting for tax consequences.** The university should limit its exposure to unrelated business income tax by remaining a minority shareholder in business ventures and relying primarily on the income derived from the passive, tax-exempt sources cited earlier.
- **Minimizing exposure to liability.** When creating new business ventures, the university should use the corporate form to maximize protection against the risks of product, tort, or contract liabilities.
- **Guarding against conflicts of interest/commitment.** According to most university conflict-of-interest policies, faculty are required to report annually on investments in, positions held at, and advisory or consulting relationships with any company in which the university holds license-derived stock or has a contractual relationship. This information often must be disclosed in any publication of research involving the company. These types of policies should be well-publicized and rigorously implemented.

  To help protect the university from securities law and conflict-of-interest problems resulting from the appearance of insider trading, the university should consider holding stock only until the stock is publicly traded and any trading restrictions are lifted, or until the company is acquired by a third party. University representatives on the boards of directors of spinout ventures should be prohibited from holding personal equity of any size. This prohibition should continue until the company goes public.

  Business relationships with new ventures, such as licensing or sponsored-research agreements, should be handled at arm's length. These relationships also should be permitted only after a review by an appropriate body determines that there are no perceived or real conflicts of interest.
- **Enhancing university image.** Any decision to participate in the formation of a new venture should always consider its likely impact on the university's image. The question, How would this look on the front page of the *Wall Street Journal*? should be on the minds of those university decision makers.

11. MANAGING THE PROCESS

In addition to these guiding principles, universities need to establish a management process to guide their technology transfer office's (TTO's) evaluation and management of these risks and opportunities. This review process will serve as

a mechanism for dealing with issues surrounding the formation of new ventures and will help establish a formal mechanism for university officials to provide guidance on commercialization activities.

When the TTO is responsible for forming new ventures (for example, creating business concepts, recruiting management teams, and raising venture capital) the responsibility for *approvin*g formation and *reviewing* the status of new ventures should reside in another part of the university, such as the office of the provost. The oversight office would be best advised by a committee, which could include:

- university officers, such as vice presidents of finance and administration, and general counsel
- deputy provosts representing the major physical- and life-science research areas
- senior administrators from the relevant schools within the university

12. EQUITY MANAGEMENT

A university may receive equity in one of three ways: (1) in lieu of cash for a license to a technology, (2) for its activities in helping to found a new venture, and (3) in the case of some universities, for direct purchase of stock as a financial investor in a venture. Once a decision has been made to accept stock from a company, the university should have in place a set of policies and procedures for the management and disposition of the stock, particularly after it acquires value in public markets. Eventually, the university will want to sell some or all of its shares to generate cash, and the university should establish and publicly announce a policy for when and how it will accomplish this. Such a pronouncement avoids the potentially damaging impact on a newly publicly traded venture that may occur when the university begins to divest itself of its equity position (suggested guidelines and policies are provided in Boxes 2 and 3 at the end of this chapter).

13. CONCLUSIONS

Many technology licensing offices have begun taking a more strategic approach to commercializing IP assets. The approach has led some to focus more attention on the spinout of new ventures. Spinouts provide opportunities to receive royalty income and capital appreciation of a university's equity stake, and a university's involvement can be instrumental in deciding to locate facilities near the university. Such involvement in venture formation may, however, increase exposure to new and different risks. This should not preclude the university's participation, but the university should establish mechanisms devoted to identifying and aggressively managing them. ■

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1 This section is intended to be a brief overview of the types of risks to consider. Much of this material is adapted from an unpublished monograph titled *Trading Technology for Equity: A Guide to Participating in Spinout Companies, Joint Ventures, and Affiliates* by RM Goodman and LA Arnsbarger, attorneys with Morrison and Foerster LLP in Washington, D.C.

2 Yale University. 1995. Policy on Conflict of Interest and Conflict of Commitment. Memorandum from Provost Alison Richard to all faculty and principal investigators, August 1995.

Box 2: Suggested Guidelines for Acquiring Equity Holdings in New Ventures

1.1 If the university does decide to make cash investments in a spinout venture (outside of any venture capital funds in which the university investments office may have holdings), it is recommended that such direct financial-investment decisions be made at arm's length to avoid any perceived or real conflict of interest or commitment. Such investment decisions should be undertaken only as part of the investment office's normal investment activities, or as part of other special university initiatives. Decisions to invest in later rounds, however, should be made by personnel insulated from the management of the license-derived stock.

1.2 The equity position of the university should be a minority one, and subject to the same dilution as other shareholders, as the company raises additional capital.

1.3 Many universities, as an institution, retain the right to designate a representative, either as an observer or as a full voting member, to the board of directors of new ventures in which it holds equity.

1.3.1 If the university designates a board member, it is recommended that the representative resign from the board prior to the company's registration with the Securities and Exchange Commission for an initial public offering.

1.3.2 During the term of board participation, any fees or other forms of compensation accruing to the board member should be the property of the university and credited to the appropriate account.

1.3.3 If an individual is designated to serve on the board as a full voting member, he or she will require indemnification through the university or the venture's insurance policy to the extent permitted under state law.

1.4 Faculty and staff participation in new venture activity (whether by stock ownership, board membership, consulting agreement, or otherwise) should be governed by the university's policy on conflicts of interest and conflicts of commitment and must comply with that policy in all respects.

Box 3: Suggested General Policies for the Management of Equity in New Ventures

1.1 Stock acquired through the activities of the technology licensing office should be subject to the same policies and procedures as govern other equity holdings of the university.

1.2 If the stock is received in lieu of cash in consideration for a license, the stock will be treated as royalty income and distributed to inventors in a timely manner in accordance with the university's royalty-sharing policies. For the purposes of this distribution, the stock should be valued at the per-share value that it held when originally issued to the university. Following issuance of the stock to the inventors, it is then the sole responsibility of the inventors to manage their shares and to comply with any tax, legal, or contractual obligations associated with the distribution, ownership, or disposition of those shares.

1.3 Universities tend to follow one of two options in managing and disposing of stock held for the benefit of the university.

1.3.1 One option is to immediately transfer the shares to the university investment office to be managed in the same manner as other equity holdings in the endowment portfolio. Of course, all restrictions, such as any lock-up period where shares cannot be traded after an initial public offering, must still be observed. Because most universities maintain a legal wall between the investment office and the rest of the university, such a practice may help mitigate any perceived or real conflicts of interest. There are some potential difficulties with this approach, including the investment office's lack of knowledge and/or expertise in managing individual shares in private ventures, establishing a value for the shares at the time of transfer, and accounting for the value if the shares are not immediately liquidated.

1.3.2 An alternative approach is for the technology licensing office to hold and manage the shares until a public market exists for the shares (for example, after any restrictions on the sale of the shares has expired). When a public market exists, the shares could be transferred to the investments office in return for a transfer of funds to the appropriate income accounts equal to the value of the stock at the close of trading on the day of transfer. The investment office is then free to manage the orderly liquidation of the stock much as it would any other gift of stock to the university.