Issues to consider before licensing technology to a start-up

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Mitigating risk with early planning for the entire business cycle

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Abstract: If done correctly, licensing technology to a start-up company provides a great opportunity for a university to commercialize its technology and generate good will. If done incorrectly, however, the venture may jeopardize the technology's value and adversely affect the university's reputation within the business and academic communities. Before licensing technology to a start-up, a university is well-advised to consider the issues that are most critical to the company's success; that is, those issues that will directly affect the university's ability to benefit from commercialization of its technology. This article surveys the issues a university should evaluate before licensing technology to a start-up venture. While presuming that the university's technology transfer office has overcome, or at least is aware of, any university-imposed policies relative to taking an equity ownership in a start-up, this article presents a workable framework for identifying the key questions that need to be asked and answered: (1) Why participate in a start-up? (2) Who are the right people for the job? (3) What incentives will motivate the start-up company's employees to perform? (4) What assets will the start-up need to be successful? (5) How will the venture be managed? (6) What is the university's exit strategy?

Keywords: technology licensing; start-up; research commercialization; technology transfer; university strategy

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Why participate in a start-up?

A start-up can be an effective mechanism for a university to commercialize its technology. Licensing technology to a start-up may not only afford the opportunity for a financial return on a university’s technology, but may also provide the university with an opportunity to promote community re-investment, job creation and economic development through association with the establishment of a new business enterprise.
Licensing technology to a start-up

However, without proper planning and understanding of the venture, a university may find that it is involved with a start-up that is not appropriately positioned to commercialize the licensed technology, and this, in turn, may cause the university’s technology to lose value.

Start-up ventures require significant expenditures of time and money and involve substantial risk. Therefore, it is important for the university to define clearly why it wants to license technology to a start-up. A start-up is not the only or necessarily the best way to commercialize an invention. Sometimes a university’s goals are better accomplished simply by licensing the technology to an established company with proven capabilities to develop similar technology and bring a product to market in a profitable manner. Furthermore, licensing to an established company is likely to provide the university with an income stream including licence-signing fees, licence-maintenance fees, minimum annual royalty payments and running royalty payments. Start-ups, typically cash poor, often require the university licensor to forego signing and maintenance fees. Furthermore, a start-up is usually reluctant to agree to minimum annual royalty payments, especially early in its life, and typically seeks reduced running royalty rates. Start-ups often offer equity ownership in the venture in lieu of up-front payments and/or royalty payments. Such equity typically has little value early in the company’s life, and the equity interests often cannot be easily transferred.

Irrespective of the risks, universities are increasingly using start-up ventures as vehicles for technology commercialization. There are two main reasons for this. First, start-up companies that are successful tend to produce a larger economic return for universities than royalty revenue received through traditional licensing methods (Bray and Lee, 2000, p 385). Second, because start-up companies tend to be located close to their university licensors, licensing technology to a locally based start-up often provides the university with the added benefits associated with being the cause of tangible and visible economic development in the local community. Those benefits are attractive to today’s university technology managers, who are increasingly interested in forging ties with local communities, businesses and governments (Hamilton, 2003, p 414).

To reap the beneficial publicity and good will of being involved with a venture that creates local jobs and economic growth, it is important for a university intent on licensing technology to a start-up to perform appropriate due diligence on the company’s ability to commercialize the technology and, ultimately, be successful. Besides, performing that due diligence can be an important step in avoiding the adverse publicity that may arise if the university becomes involved with a start-up that goes bankrupt.

A failure to answer the basic question of why a university wants to be involved with a start-up venture can have significant adverse consequences. By failing to understand why it is licensing its technology to a start-up instead of an established company, the university is taking a significant risk that the start-up may not ultimately be successful, which may diminish the value of the licensed technology and lose an opportunity to generate good will with academic, business, government and community leaders through association with a successful start-up venture.

Who are the right people for the job?

The challenges encountered in leading a start-up venture to profitability are very different from those associated with an existing business. Managing a start-up demands a clear understanding of the applicable technology as well as the business environment in which it will be commercialized. Furthermore, the budgetary limitations typically placed on a start-up company, coupled with the lack of precedent for the company’s activities that is inherent in a new company developing a new product, can easily give rise to a stressful environment that requires management by committed and creative personnel with the skills necessary for the venture to succeed. Accordingly, the success of a start-up is likely to depend on the talents of the company’s management team (Ensley et al). Before licensing technology to a start-up, a university is wise to investigate the background of the management team members to understand whether or not they have the ability to commercialize the university’s technology and manage a start-up company profitably.

Critical components of the start-up company’s management team are its chief executive officer, chief financial officer and chief legal officer. The skill sets ordinarily possessed by people qualified for these positions should enable the start-up company to address the challenges it is likely to face, including the management of a new venture, understanding the technology and how it can be successfully commercialized, raising money in the capital markets and appreciating the myriad legal issues faced by a start-up, from contracts to labour law to securities law. The CEO’s principal function is to provide oversight and leadership for the start-up company. While the CEO does not need encyclopaedic knowledge of managing a start-up venture, he or she must be able to recognize issues and identify and implement solutions...
while staying within budget. Often the faculty inventor of the technology to be exploited by the start-up lacks that knowledge or experience. Although the technical expertise he or she possesses may be essential to the start-up company’s success, it is likely that the faculty inventor will not have an appropriate understanding of how to operate a business, raise capital, motivate employees and market and sell a product. Therefore, unless a faculty inventor has an appropriate business background, appointing him or her as the start-up company’s CEO is likely to have disastrous results.

The chief financial officer (CFO) and chief legal officer (CLO) will manage the start-up company’s finances and legal affairs. As the start-up company will require funding to succeed, the skills of the CFO and CLO will be of critical importance when dealing with financing sources, typically venture capital. Knowledge of the financial and legal issues involved in obtaining venture capital funding can provide the start-up company with a significant advantage. However, it is not unusual for the budgetary restrictions placed on a start-up to prevent it from retaining a CFO and CLO on staff. Given the importance of the start-up receiving appropriate financial and legal advice, a university licensor should ascertain whether or not management has the appropriate contacts, as well as allocated funds, to locate and engage outside lawyers and accountants with the expertise necessary to work with a technology start-up.

As the success or failure of a start-up will depend in large part on the venture’s management team, a university licensor is wise to inquire and understand the skills of those individuals. Management should have not only appropriate knowledge of the technology to be commercialized, but also experience of working in start-up ventures and raising capital. Without that knowledge and experience, the start-up will be significantly disadvantaged and the likelihood that the university’s technology will be commercialized will be in jeopardy.

What incentives will motivate the start-up’s employees to perform?

Operating a start-up is difficult. The ability to motivate employees to work hard and stay committed to the venture is a crucial factor in determining its success (Preston, 2003, p 17). Accordingly, a university should ascertain whether the start-up has an appropriate incentive compensation package to attract, motivate and retain employees. Such incentives are typically provided in the form of restricted stock, stock options or cash bonus payments. These incentives vest over time or when certain significant events in the commercialization of the technology have been achieved, thus creating an alignment of the employee’s interest in obtaining full value from the incentive with the start-up company’s success.

Restricted stock is a form of equity ownership typically subject to vesting over time, often three and five years from the date rights are granted. If a US start-up issues restricted stock, it is important that it complies with applicable federal and state securities laws.

Stock options are the right to purchase a certain amount of stock sometime in the future at a predetermined price. There are two types: incentive stock options and non-qualified stock options. The former are tax-advantaged as no tax is due until the employee sells the stock acquired upon exercise of the option. The tax law requires that incentive stock options meet certain criteria to receive that tax-deferred status, including the requirement that they be granted only to employees and that the exercise price must be at least equal to the fair market value at the time the option is granted. In contrast, non-qualified stock options (NQOs) do not have to satisfy any defined criteria, which is why they are commonly granted to non-employees and owners of the start-up who are typically not eligible to receive incentive stock options. NQOs are not tax-advantaged and a holder of them must pay tax on the amount by which the value of the stock exceeds the option price on the date the option is exercised (not sold).

Cash bonuses are often difficult for start-up companies to grant because they typically have limited cash reserves. Besides, it is dangerous to promise cash payments without appropriate cash reserves or otherwise requiring that payment be met at the discretion of the employer, as failing to make payments when vested and due will cause employee dissatisfaction and legal liability. Should the start-up choose to grant cash bonus incentives, payment of a promised bonus should be tied to actual receipt of money by the company or otherwise give the company some discretion as to payment. For example, a bonus payment should be made to an employee only after payment has been received from a customer and any refund period has elapsed – not on receipt of an order from the customer.

A university licensor will want to know that the start-up company’s employees are motivated to perform and committed to the venture’s success. Positive encouragement, such as financial rewards, is a proven mechanism to elicit greater effort and commitment from employees (Eriksen, 2002, p 287). Therefore, to increase the likelihood that the start-up company will successfully commercialize its technology, a university
is well-advised to understand how the company’s incentive compensation system, or lack thereof, might affect the probability of success.

**What assets will the start-up need to be successful?**

A university should determine whether or not the start-up has the assets it will need to be successful. The most obvious of these are money, office space, R&D facilities and equipment, raw materials, production and distribution facilities and a sales force.

It is important to understand the company’s needs over the entire lifecycle of the business and how they will be satisfied. The most immediate needs for a start-up are typically the facilities and funds to support R&D and, therefore, emphasis is often placed initially on obtaining assets for that purpose. However, to be successful a start-up company must plan realistically for the entire lifecycle of the venture. In other words, it must plan not only for R&D, but also for the production, distribution and sale of products. In the long term, product sales will generate not only a source of operating revenue but also income for investors.

Funding sources typically include venture capitalists, banks, government agencies and private investors. It is important for a university licensor to understand a start-up company’s plans for obtaining funding to determine whether or not the start-up is organized in a manner attractive to that type of investor or funding source. For example, venture-capital investors will expect contractual arrangements with key personnel committing them to the venture and properly and fairly motivating them to produce. In addition, it is typical for venture-capital investors to request that they are issued preferred stock of the start-up. A start-up that intends to raise capital through venture-capital investment should make sure that its key employees have entered into employment agreements and that its organizing documents expressly authorize the issuance of an appropriate number of preferred shares. If bank loans will be used, the start-up will probably need guarantees of the debt. Therefore, the start-up company’s founders should be willing to provide guarantees and have appropriate credit histories to justify the bank’s lending decision. Finally, if grants will be a source of funding, a university licensor will be wise to determine whether and/or how the start-up will qualify to receive those grants.

Space should be identified for offices and R&D. The start-up may find suitable facilities one of the high-tech incubators located around universities to support new companies. Many of these incubators provide not only competitively priced space but also additional value-added services such as business-development consulting, video-conferencing facilities and meeting space.

To commercialize the university’s technology, a start-up may need rights or access to use other resources, such as third-party-owned patent rights, know-how and computer software. These items should be identified and it should be confirmed that the start-up has access through an appropriate licence, assignment or other binding contract. A university licensor should also require that any intellectual property developed by the start-up company’s employees and contractors is owned by the company. The start-up must have all employees and contractors sign written contracts addressing assignment of intellectual property rights to it, or the venture may find that it has to pay employees or contractors to obtain such rights or that an employee or contractor has transferred them to a competitor.

Identifying how the start-up will obtain needed assets is an important step in ensuring the success of the venture. Before agreeing to license technology to a start-up, a university should understand what assets the company will need and how they will be obtained. This is not micromanaging; it is using good business sense to make sure that the start-up has the best chance to commercialize the university’s technology and, ultimately, to become profitable.

**How will the venture be managed?**

When a university licenses technology to a start-up company and takes an equity interest in lieu of cash payments and/or running royalty payments, it will naturally want to able to exert some level of influence or control over the management of the company’s activities. It will want to be assured that the commercialization of the technology is proceeding on schedule and that the company remains financially solvent. However, a university licensor should avoid managing the start-up company’s operations or being exposed to fiduciary obligations through its participation in the company’s affairs. A university is wise to avoid exposing itself, or anyone it might appoint to the company’s board, to legal or professional liability based on an actual or perceived conflict of interest – and most universities have strict policies in place to avoid such entanglements.

There are ways to manage the conflict between avoiding the potential liability that may arise if the university becomes too involved in the start-up company’s operations and the university’s interest in overseeing the company’s activities. These include: (a) requiring the achievement of development milestones.
and reporting requirements as a condition for the licensee to maintain its rights under the licence agreement,\(^22\) and (b) inquiring as to the qualifications of the start-up company’s board of directors and whether or not the board of directors has access to an independent advisory board\(^23\) that has appropriate knowledge of the technology and the business environment in which it will be commercialized.

By including objective performance criteria and information reporting as a condition to the start-up company maintaining its rights under the licence, the university will be able to monitor closely the company’s activities and receive advance notice of issues that might cause the venture to fail if not corrected. In addition, inquiry into the abilities and experience of the start-up company’s board of directors, and whether or not it has access to a qualified and knowledgeable independent advisory committee, can provide insight for a university licensor as to whether or not the start-up will be managed in a way that is likely to lead to success.

**What is the university’s exit strategy?**

While the availability of any particular exit strategy can never be certain, a university licensor should plan how it will exit from the start-up. The most typical strategy\(^24\) is a sale of ownership interest to the start-up company’s employees, an existing investor or another business. Acquisition of the start-up by another company can also provide the university with an attractive exit strategy. Failure of the start-up company sometimes creates a de facto exit strategy for the university if the start-up company seeks relief through bankruptcy.

A university should consider how to structure its contractual relationship with the company in a manner conducive to achieving a certain exit strategy or at least protecting itself should bankruptcy occur. For example, consideration should be given to the right to force the start-up to redeem the university’s securities if certain conditions are met, such as a level of profitability or sales (Knox Bell, 2003, p 9). Once the conditions for redemption have been met, the university could have the option to retain the equity, in the hope that it would appreciate in value, or sell its equity interest back to the start-up for cash, while possibly receiving royalties on the licensed technology similar to what it would have received if it had licensed to an established entity.

Another strategy is to receive debt securities, preferred stock and/or warrants in addition to, or in lieu of, common stock. Debt securities provide the advantage of recouping investment through guaranteed payments of principal and interest, which generally have priority in payment to all other security holders. Preferred stock typically grants dividend and/or liquidation preferences that allow recoupment of investment before other common stockholders have been paid. Warrants provide the right to acquire stock in the future at a predetermined price, and therefore mitigate risk by not requiring payment for stock until the start-up has proven to be economically viable.

A university licensor may also have an interest in obtaining intellectual property rights to improvements in the technology that it contributed or in new technology invented by the start-up. If obtaining such rights is a goal, it should be set out in a written contract. To ensure the ultimate receipt of that technology, a university should require that it is deposited with a third-party escrow agent\(^25\) and should perfect a security interest in the technology to establish its rights over other creditors of the start-up.\(^26\)

Formulating an exit strategy up-front is often overlooked by participants in a start-up venture, who tend to focus instead on growing the business. However, a university licensor whose bargaining leverage is likely to be greatest when the venture is initially formed has an opportunity to plan its exit strategy and obtain the necessary rights while protecting its interests should a bankruptcy occur.

**Conclusion**

A university that is considering licensing its technology to a start-up cannot overestimate the importance of thinking through the basic business and legal issues required for the company to be successful. These issues are often overlooked, start-up ventures are doomed to failure before they have even started, and investment and opportunity are lost.

Before licensing technology to a start-up company, a university should be able to answer the following questions:

- **Why use a start-up to commercialize the technology instead of an established business?**
- **Does the start-up have a management team with appropriate talents and experience for the venture to be successful?**
- **Will the start-up appropriately motivate its employees so that they will be committed to the success of the venture?**
- **Does the start-up have the assets it will need to be successful?**
- **Does the board of directors have the requisite experience and access to knowledgeable advisers to
oversee management and ensure that it is leading the company to success?

- How will the university liquidate its equity and receive an appropriate return on the licence?

If the university and the start-up company have not discussed these points, there is a good chance that the start-up will not be successful and the potential for the university’s technology to be commercialized may be in jeopardy. If there is doubt on any of these matters, before a university commits to licensing its technology it should force the start-up company to address the issues adequately, offering assistance and (if necessary) guidance. Once the start-up company is able to provide satisfactory answers to the above questions, the probability that the university will receive the anticipated returns on licensing its technology to the start-up company will be significantly increased.

Notes

1. Although the terms of the licence should require that the technology will revert back to the university on failure of the start-up, the value of the technology will probably be diminished as (1) subsequent licensees may view the start-up’s failure as indicative that it is difficult to commercialize or (2) the delay in commercialization caused by the start-up’s failure may permit a competing product to be brought to market.

2. Of the 4,320 start-up companies formed with university participation in the USA since 1980, only 2,741 remained operational at the end of FY 2002 – that is, there was a 37% failure rate (AUTM, 2003).

3. According to the AUTM Licensing Survey, 83.1% of start-up companies are located in the same state as their university investors (AUTM, 2003).

4. The bad press a university may face when an investment goes wrong was evident in the reporting of Boston University’s loss of millions in its investment in Seragen Inc. Although this was not a start-up investment, it ultimately also led to a well-publicized lawsuit against Boston University for abuse of its controlling equity position in the company. (Barboza, 1998.)

5. Preston (2003) explains that start-up companies tend to be more successful when they are managed by teams of people with complementary skills, rather than a solitary manager trying to do everything on his or her own.

6. It has been argued that the ability of a start-up company’s management team to employ resources optimally over time may be the venture’s most important asset and source for competitive advantage. Therefore, key indicators of the start-up company’s ability to commercialize the technology successfully and sustain profitability are whether or not management has been successful in past start-up ventures and has the skills necessary to address the challenges faced by start-up companies. (Erikson, 2002.)

7. After interviewing 23 venture capitalists, headhunters and investment bankers, Klimek and Sheehan (1996) determined that successful technology start-up companies tend to have a CEO who (a) has a clear vision of where the company is headed, (b) is adaptable enough to be able to deal with unexpected events, (c) has the ability to identify needs in the market and use company resources to fill those needs and (d) has experience and connections in the company’s industry.

8. The cause of a start-up’s failure is more often due to mismanagement or lack of funds than to anything else (Preston, 2003, p 17).

9. The federal securities laws most likely to be applicable to the start-up are the Securities Act of 1933, 15 U.S.C. 77a (Securities Act) and the Securities Exchange Act of 1934, 15 U.S.C. 78a (Exchange Act). Generally, the Securities Act regulates the process for offering securities for sale to the public, while the Exchange Act regulates information that a company must make publicly available if its stock is publicly traded.

10. Each state has its own laws regulating sales of securities to people within its borders. These are commonly called ‘blue sky’ laws (Long, 2002).

11. There are a number of exemptions that can be used by start-up companies to avoid the costs and burdens of complying with the registration of securities under federal and state securities laws (Hicks, 2002).

12. 26 U.S.C. § 422 (2004). (The reader should be aware that the tax law imposes additional requirements on incentive stock options which are beyond the scope of this article.)

13. Under New York law, cash bonus payments are treated as wages once the employee has met the requirements of earning payment. Also, if a lawsuit is successfully brought against an employer for failure to pay wages, the court may award, in addition to the amount of unpaid wages, reasonable attorney’s fees and, if the failure to pay the wage was wilful, an additional amount of 25% of the total amount of wages due. (NY Labor Law § 190.)

14. Organizational documents such as the certificate of incorporation and bylaws, etc. are often not thoroughly reviewed as they tend to be considered ‘standard’ or ‘boilerplate’. That can be a costly assumption, as these documents typically set forth important details concerning how the entity will operate.

15. It is estimated that 87% of start-ups cultivated in a business incubator setting continue to operate after five years (Hamilton, p 413).

16. Absent a written assignment, patent rights belong to the employee, not the company. Beech Aircraft Corp. v. EDO Corp., 990 F.2d 1237 (Fed. Cir. 1993). Furthermore, copyright will not belong to the start-up unless the employee prepares a copyrightable work within the scope of his or her employment duties or provides a written assignment to the start-up. (17 U.S.C. § 201.)

17. The author is aware of a situation in which employees and contractors were not required to execute a written assignment of rights to intellectual property and, after leaving the company, an inventor of patented technology assigned his rights to the competitor, thus enabling the competitor to sell the patented technology without having to pay a royalty to the company.

18. For a good overview of the risks associated with a university becoming too involved with a start-up company’s business, see Brown and Soderstrom, 2002.

19. A controlling shareholder has a fiduciary obligation to the minority shareholders (Ward et al, 2001).

20. Not only does a director owe duties of care and loyalty to the start-up to act with undivided loyalty and in good faith to make a reasonable and informed decision based on adequate information, but directors may also be liable should the start-up violate applicable securities, employee benefits and environmental laws (Brodsky and Adamski, 2003).

21. See Tretheway and Bremer (2002). In addition to seeking information regarding commercialization of the technology, a university licensor is wise to require information on events that typically indicate the viability of the start-up company’s business, including (a) adopting or amending an annual budget; (b) appointing or removing the company’s independent certified public accountants; (c) appointing or removing the company’s executive management;
(d) amending or repealing the company’s organizational documents; (e) changing the number of members of the board of directors; (f) entering into any merger, acquisition or divestiture involving the company’s securities or assets; (g) incurring or assuming any indebtedness over a certain amount; (h) issuing or purchasing any debt or equity securities; (i) paying any dividends; (j) making capital expenditures or entering into contractual commitments over certain amounts; and (k) registering or granting the right to register the company’s securities for public sale.

An independent advisory board (IAB) is composed of individuals with requisite knowledge and experience about operating a start-up company and commercialization of the technology being licensed by the university. The IAB does not vote on start-up business, but simply keeps abreast of the company’s activities and advises its board. Accordingly, members of the IAB do not have fiduciary duties to the company as directors, but are in a position to advise and influence the board. Further, members of the IAB do not have a direct interest in the start-up and so are in a position to provide objective advice. For a good overview of the benefits of an IAB, see Masters, 2004.

Fewer than one business in one-thousand ever goes public, and therefore many investors in start-ups do so with the express goal of being bought out (Economist, 1999).

Virtually anything from computer code, to design schemata, to documentation containing know-how can be placed with a third-party escrow agent and released to the university on the occurrence of an event such as bankruptcy.

Security instruments in the USA should be filed under the laws of the state in which the start-up is located and with the United States Copyright Office or United States Patent and Trademark office as applicable (Ruff, 2003).

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