

LEVERAGING TECHNOLOGY TRANSFER

“The challenge is getting innovation out of the research center and through the drug or medical device approval process and out into the commercial market so it can actually benefit people.

At FEG, we try to play matchmaker where it makes sense, to help these research centers or hospital systems find the right venture partner so they can do that.”

— Nathan Werner
Senior Vice President, Director of Private Equity
Fund Evaluation Group, LLC



UNIVERSITIES AND HEALTHCARE SYSTEMS GAIN A COMPETITIVE ADVANTAGE

Simply put, technology transfer is the process of commercializing an idea, discovery, or research. It's about getting great ideas out of the laboratory and into the marketplace where they can benefit people. Tech transfer has the potential to drive significant benefits for several different parties. Yet, bringing those parties together in a consistent, ongoing manner can be a challenge.

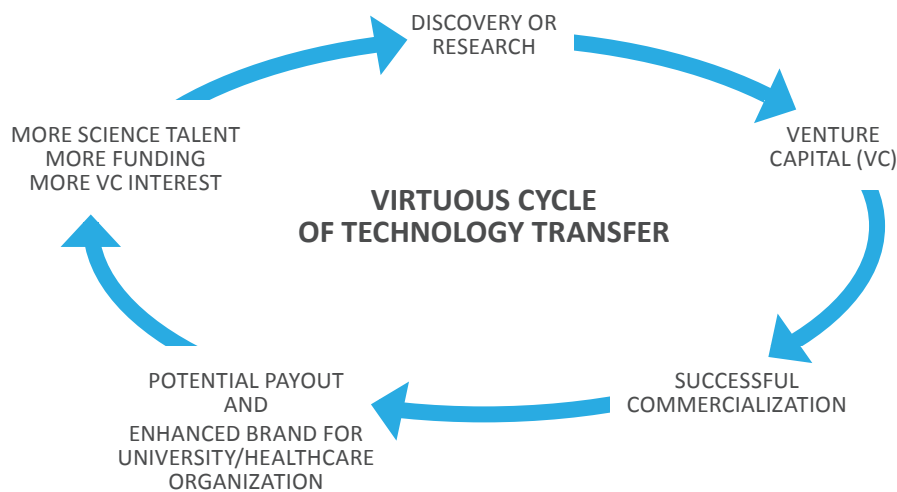


While our audience for this paper is universities or healthcare systems—organizations with whom we conduct a lot of business—this paper seeks to help the reader better understand technology transfer in the healthcare industry and multiple parties involved in the process.

In addition, we will illustrate how connecting these parties has the potential to create a virtuous cycle with potential benefits for all involved.

Finally, we will examine the role of the technology transfer agent, and how by shifting from a model of compliance to one of connector can help organizations increase their chances of success in this arena.

Let us begin with the end in mind.



Ideally executed, technology transfer can support a virtuous cycle or beneficial feedback loop.

A new discovery or seminal research can attract investment in the form of venture capital. Involvement with a great venture firm can aid in developing a successful business around an idea.

If the market responds appropriately, that can lead out to payouts and other benefits for multiple parties. That success, in turn, can attract more scientific talent, funding and venture capital interest, and on and on.

Technology transfer drives the need for interorganizational alignment

Books have been written about venture capital and commercialization, so we will forego an in-depth exploration of those topics in this paper. Suffice it to say that nurturing promising ideas into successful businesses requires an incredible amount of effort and alignment between many different parties. Let's look at three of those parties.

SPONSORED SCIENTISTS OR RESEARCHERS

These are the subject matter experts (SMEs), who conduct research or develop a new idea that can become profitable. They often receive federal funding through a university or healthcare organization to support that research, and that research can be spun off into a business with the sponsoring organization possessing rights to some portion of the income or equity generated.

PRIVATE OR VENTURE CAPITAL FIRMS

Today, there is a robust ecosystem of venture firms looking for early stage ideas to help. That help may be in the form of investment, but the great firms look to do more than just invest—they typically try to help develop a business infrastructure around great research or ideas and shepherd their new partners through the complex and sometimes arduous process of building a successful business.

SPONSOR ORGANIZATION

Typically with a university or healthcare organization, it is not uncommon for sponsors to regularly apply for, receive, and deploy private and federal funding to research issues related to the well-being of human populations. When commercialized, these discoveries can sometimes lead to large financial gains for the sponsor, which in turn can be used to support the continued missions of these organizations.

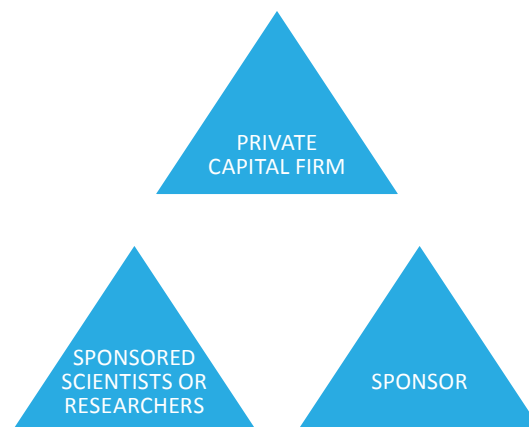
PARTY	POTENTIAL BENEFITS OF "COMMERCIALIZING" A DISCOVERY OR RESEARCH
SPONSORED SCIENTISTS OR RESEARCHERS	<ul style="list-style-type: none"> • Access to additional capital to fund further research • Opportunity to commercialize ideas or research (i.e., practical application of theoretical ideas) • Access to professionals experienced in helping transform ideas into successful business ventures • Opportunity for personal gain
PRIVATE OR VENTURE CAPITAL FIRMS	<ul style="list-style-type: none"> • Payoff in the form of cash fees, equity stake in a company and/or royalties on revenue from business they help build around university- or healthcare organization-licensed intellectual property (IP) • More potential risk for these firms; but also more potential for gains in later stages of a business's lifecycle • Competition for fresh ideas/research can be fierce; access to institutions committed to research can provide a competitive edge to these venture/private capital firms
SPONSOR ORGANIZATION	<ul style="list-style-type: none"> • Payoff in the form of cash fees, equity stake in a company and/or royalties on revenue from IP licensed to the university or healthcare organization • Affiliation with healthcare may provide sponsor access to private capital funds that are closed to other non-healthcare-related investors • Positive exposure for the university or healthcare organization's brand through affiliation with the investment community, successful business ventures, etc. This can help attract students, researchers, funding, etc. in the future

Each of these parties stands to gain from commercialization of a discovery or research, but making the connections inside and outside of the sponsoring organization to seize the opportunity still tends to be elusive.

Sponsored researchers are not going to do it; their time is consumed with creating value through their scientific endeavors.

Private or venture capital firms are actively engaged in this seeking out the next great idea, but as we will show, there is performance disparity among the players, and much of the capital is concentrated in two geographic areas. Leaving the task to private/venture capital firms may not be prudent.

The sponsor organizations have challenges as well. In our experience at FEG, administrators at the enterprise-level in universities and healthcare organizations can be disconnected from the research and development work being conducted in other parts of the organization. This is for good reason: involvement in and understanding of such research and development work is usually well outside the scope of their individual or departmental functions.



Enter the technology transfer office

Recognizing this challenge, many sponsors have created a technology transfer function or an office whose sole aim is to ensure that the organization is optimally pursuing the potential benefits of its funded research, as well as fulfilling its responsibilities incumbent under Bayh-Dole¹, such as timely reporting inventions to the funding institution(s) and sharing income from those inventions with the inventors.

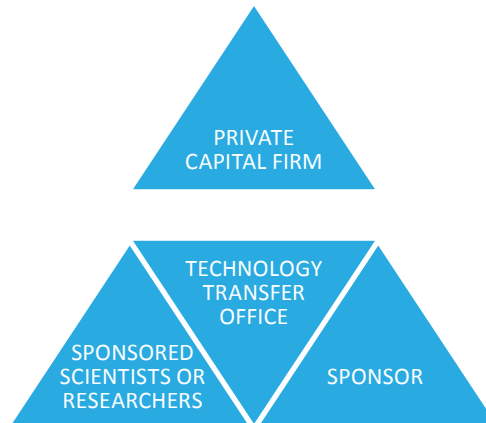
These offices have increased the level of tracking and alignment within the university and compliance with governmental regulations, but a gap can still exist between the technology transfer office and the private or venture capital firms.

It is not atypical for technology transfer duties to be handled by personnel with other primary responsibilities, and even when the organization has committed resources to such an office, best case scenario, that means one or two full-time equivalents (FTEs) to manage the workload.

¹ Bayh-Dole refers to the Bayh-Dole Act of 1980. Prior to this law, any invention or discovery created through the expenditure of even one dollar of federal funding was considered to be the property of the U.S. government. This act gave non-profit institutions and small businesses the right to elect title—basically, ownership rights—to inventions that had been sponsored by federal funds, as long as the institutions agreed to pursue development of the technology.

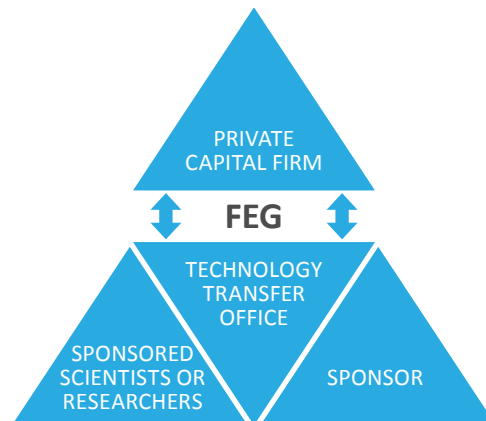
Doing the research to uncover great private equity managers with a track record of building businesses rather than just making investments takes time: as does establishing and maintaining relationships with these firms.

Additionally, these firms have specializations. Even in healthcare, a particular investment firm may specialize in life sciences instead of, say, technology solutions for Revenue Cycle Management (RCM).



One of the ways that we have sought to add value in our relationships with our university and healthcare clients is to be able to make such connections between these parties.

Over time, we have developed a very strong team of research analysts who continually analyze private capital managers, understand what these firms consider to be their sweet spots, and the kinds of opportunities that individual managers are seeking.



At FEG, we have been able to help universities and healthcare organizations seeking the potential benefits of working with the right private capital manager. We also have connected managers, seeking high-quality sponsors to fill their pipelines with early stage investment opportunities.

Other potential benefits and considerations for sponsoring organizations

In addition to some of the benefits commercialization of an idea or technology can bring to a healthcare organization or university, we also have witnessed these sponsoring organizations benefit from their relationships with venture capitalists.

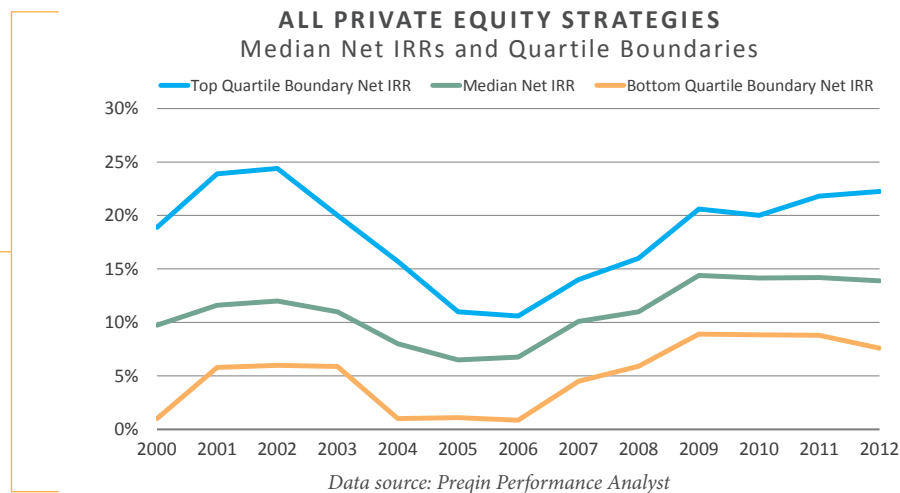
ACCESS TO PLACEMENTS

Most often, we have seen this take the form of the sponsoring organization's investment being given preference in closed or over-subscribed private capital offerings.

Why does this matter?

It matters because there can be a significant difference in the performance of private capital investments. As one professional told us "There are a limited number of great managers and everybody knows who they are." The chart shows the net internal rates of return for top- and bottom-quartile private equity strategies over the past several years.

It follows that the competition to be able to invest with those managers is greater than with those at the bottom. All things being equal, having expertise in, say, life sciences and a relationship with a top manager can equate to the ability to gain access to in these sought-after limited partnerships.



EARLY ACCESS TO INFORMATION OR TECHNOLOGY

Sponsoring organizations or sponsored scientists and researchers also can benefit from early access to data and technology.

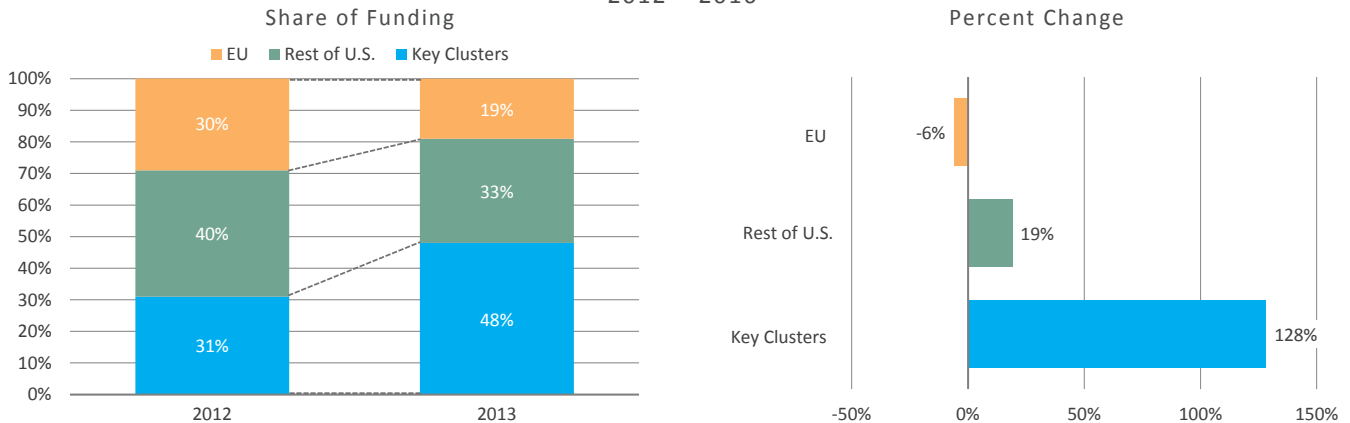
In some placements, investors have been able to participate in the sharing of research, studies, or trial data, giving them a potential leg up on the general public and other competitors in a certain arena.

Some investors also have participated in beta tests. For example, there are many ventures focused on technologies to improve efficiency—such as Revenue Cycle Management—which can bring operational and financial benefits to an organization.

OVERCOME THE CHALLENGES ASSOCIATED WITH CONCENTRATION OF CAPITAL AND RESOURCES

In venture capital, as mentioned earlier, not all regions and cities are created equal. In fact, two metropolitan areas far outdistance themselves from the rest of the country in the concentration of biotech research, investment, and expertise. The charts below show capital flows into Boston and San Francisco versus the rest of the U.S. and European Union from 2012 – 2016.²

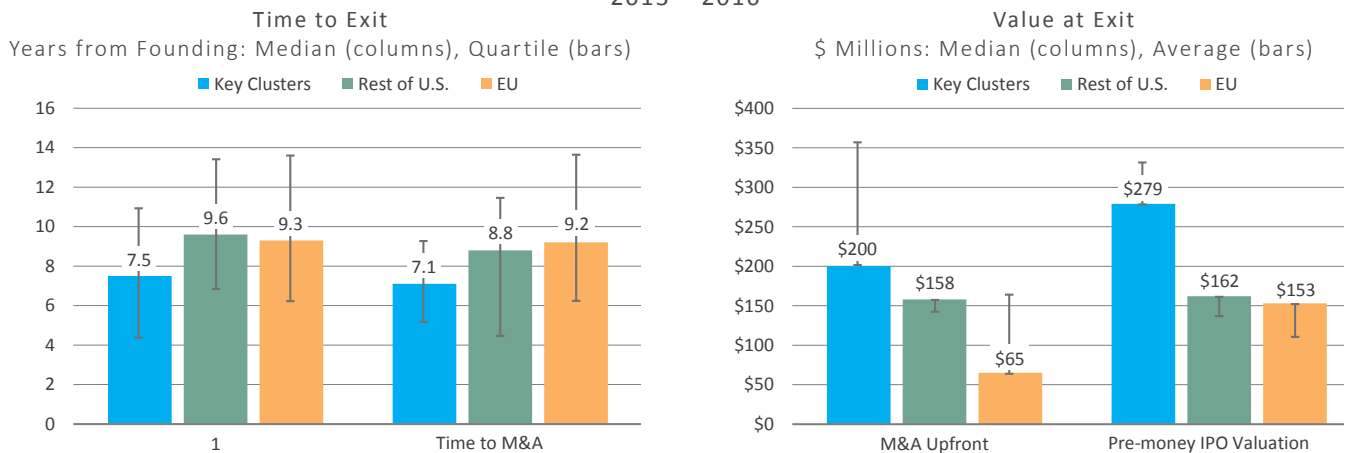
FUNDING: VENTURE CAPITAL FLOWS INTO BIO PHARMA 2012 – 2016



Data source: Atlas Venture, Life Sci VC blog: <https://lifescivc.com/2017/03/inescapable-gravity-biotechs-key-clusters-great-consolidation-talent-capital-returns/>

They also show how biotech companies formed in Boston/San Fran have fared; in general it takes founders less time to “cash out” through initial public offering (IPO) or mergers & acquisitions (M&A) activity in these two cities, and when they do, the valuations of their companies are typically higher than companies started in other regions. Rather than viewing this as a reason to exclude researchers/organizations outside of Boston/San Francisco, think of it as an opportunity.

EXITS: TIME AND VALUATION BY REGION 2013 – 2016



Data source: Atlas Venture, Life Sci VC blog: <https://lifescivc.com/2017/03/inescapable-gravity-biotechs-key-clusters-great-consolidation-talent-capital-returns/>

We have been able to make connections between healthcare clients and venture capitalists in these areas, and connectivity with venture capitalists in these “key clusters” can go a long way. However, as one venture leader we work with indicated, while almost all of his firm’s startups are located/formed in Cambridge, MA, about one-third of the founding science comes from Boston, another third from the U.S. at large, and the final third from around the world. “It’s increasingly clear to us that science competes on a global stage and we need to access the best substrate, wherever it may be. We seek to put the startup where it can take full advantage of the benefits of a key biotech cluster.”

Key takeaways

- Technology transfer or the process of commercializing a new discovery or breakthrough can be beneficial to a number of parties not least of which sponsoring organizations such as universities or healthcare organizations.
- Understanding the parties involved can help readers understand the potential benefits for each and how they or their organization might fit into the process.
- A technology transfer office or agent can help connect the different parties, but in FEG's experience, this can present unique challenges to the organization.
- FEG has helped its clients overcome these challenges in the past.
- Technology transfer offices or agents may benefit from shifting from a model of compliance to one of connector.
- Technology transfer can lend other benefits to parties such as access to closed or over-subscribed private capital offerings, access to research or data before competitors or the general public, and connection with venture firms in "key clusters."

Further insights into investing for universities and healthcare organizations is available at www.feg.com

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² Pensions & Investments; 2016

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