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OFFICE OF INTELLECTUAL PROPERTY  
& INDUSTRY RESEARCH ALLIANCES

# Entrepreneurs' Startup Guide

**Berkeley**  
UNIVERSITY OF CALIFORNIA

[www.ipira.berkeley.edu](http://www.ipira.berkeley.edu)

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# Introduction

Universities, with their significant investment in research, discovery, and problem solving, are a fertile ground for innovations that can potentially be used to create novel products and services that will benefit the public. A significant investment of both time and resources is required to translate an academic discovery into the marketplace as new technology and products and success is not guaranteed. To encourage development, university technology transfer offices secure intellectual property rights that can protect the investment required to bring a new technology to market. Successful technology transfer allows research programs at universities to achieve greater impact and concretely improve the lives of our citizens, while also generating revenue, which can support future research programs and provide a return or stakeholders such as inventors, research programs, and the taxpayers who initially supported the research.

This document is intended for university researchers, as well as students and others who might partner with the University to create start-up companies based on novel university technologies.

This guide is intended to help University researchers, including faculty and students, understand the process involved in starting a company around a university innovation. Many innovations made at research universities fail to achieve the full flower of their potential because they require resources that lie outside of the university in order to do so. Starting up a company is one way for innovations to “graduate” from the University and take on a life of their own - while creating benefits to everyone who helped make that happen along the way.

This guide will also identify resources available on your campus, in your local community and around the state of California that can help you develop a plan to go from where you are to where you want to be, and to address and understand topics like conflict of interest and how to manage it, utilization of university resources, external resources for startups; university intellectual property rights and policies, and more.



Ekso Bionics, a Berkeley Startup, helps survivors of lower extremity weakness to walk again.

# Licensing from the University

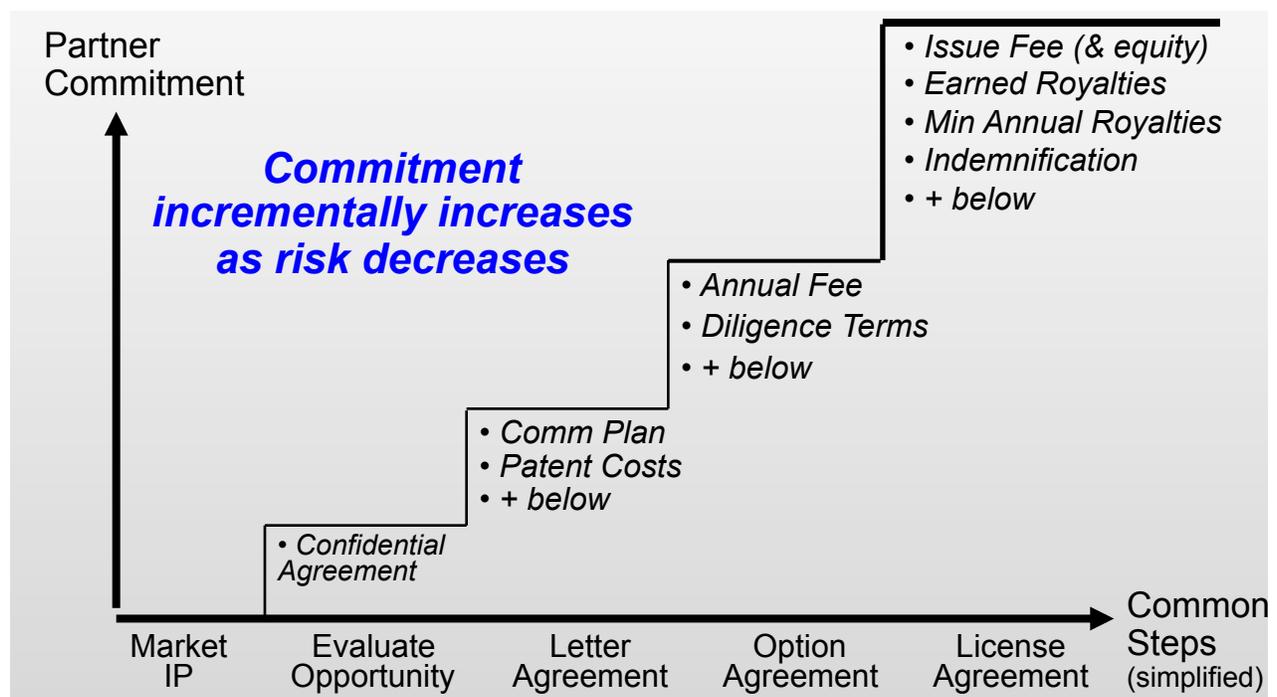
## The Mission of University Technology Transfer

One significant aspect of the UC's public service mission is to ensure that the results of its research are made available for public use and benefit. For over 45 years, UC has maintained an active and productive technology transfer program to encourage the development of commercial products and services based on UC's academic discoveries. A few examples of products that have been commercialized from UC research include drugs to treat cancer, malaria therapies, search engines, surgical devices, clean water treatments and energy-efficient light bulbs.

Given that University results are often basic research results from academic studies, they are far from being a commercial product. The road to commercialization is truly a long and winding one. Typically, a series of steps are required to bring a research discovery to the point of practical application and many players play a role in the process. This process is often referred to as one form of technology transfer from universities.

In this schematic, some of the categories of steps are shown. In a generalized depiction, basic research results are translated into applied research and development with the aim of creating commercial goods and services. The timeline to successfully develop a commercial product from an academic discovery can vary widely but is most often between 3-10 years. Importantly, in the case of drug development, the commercialization process can take well over 10 years and can cost several billion dollars.

UC is a nonprofit research university, not a company. The UC does not directly commercialize our own research discoveries (we don't manufacture products to a commercial standard and are nonprofit institutions). In order to assure our research is developed into beneficial products and service, the UC secures intellectual property rights, when appropriate, and then license those rights to companies in the private sector who develop the commercially available products and services.

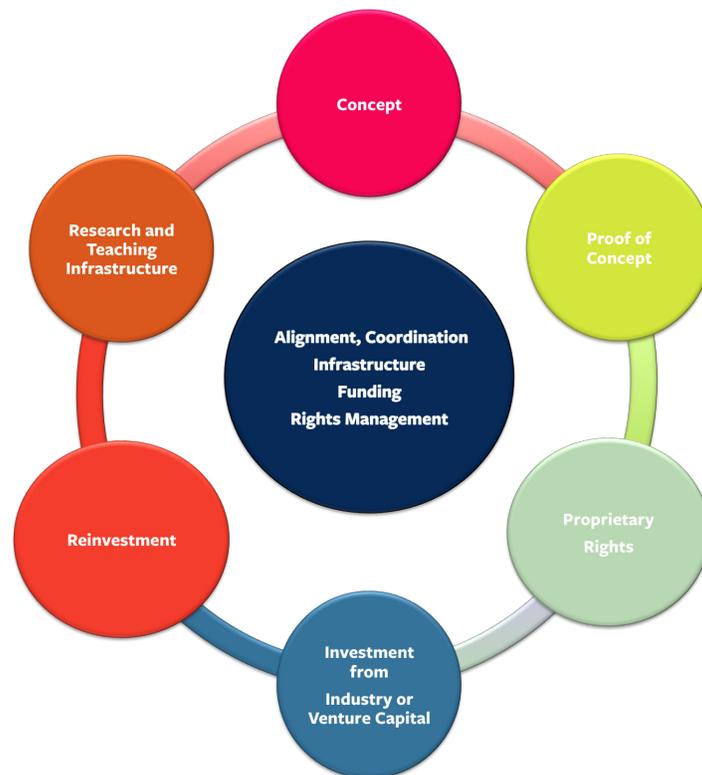


In this context, a license is a contract from UC that grants to an industry licensee (i.e., the start up company) the right to commercialize a patented invention or copyrighted work to make a product or offer a service. A patent is a form of intellectual property protection that grants to the owner (a licensee) the right to exclude others from making, using, selling and importing products based on a patented invention. The U.S. patent system provides a limited period of time, 20 years, to the patent owner to protect the invention. A copyright provides a similar ability to exclude, and is the primary form of intellectual property protection for computer software, educational curriculum, books, music and other art forms. The term of copyright is much longer—if owned by a corporation or university, 95 years from first publication or 120 years from creation, whichever expires first.

Companies with a license to university intellectual property (typically referred to as a “licensee”) invest enormous sums in risky R&D; manufacturing and regulatory approvals to bring early stage discoveries to the point of practical application. Without the protection afforded by the patent license industry would not risk funds & resources on lengthy R&D programs that are necessary to commercialize products and the benefits of university research risk remaining unused in the “ivory tower.”

If, at the end of a long and arduous R&D process a licensee AND its competitors could reap the benefits of the R&D investment, then no company would make the investment to begin with. The bottom line is that IP licensing gives industry an incentive to invest.

Inventors and entrepreneurs who wish to license IP rights from the University to form a new entity, a startup company, are often best suited to commercialize the IP rights—after all, entrepreneurs have the expertise, know-how and the passion, drive and singular focus that is necessary to commercialize the rights. The UC defines a startup company as a company that was founded to commercialize UC IP rights under license. In FY2013 UC formed approximately 71 startups from university research. In FY2013 U.S. universities produced a total of 818 startup companies from university research. Nearly all IP licenses to startup companies are exclusive to provide an incentive to invest in high-risk research and development and to reward entrepreneurs for their commitment to the commercialization process.



Innovation is a virtuous cycle of creation, translation, value creation, and reinvestment in research

## The Licensing Process

Because the University must locate research funding from a variety of diverse organizations, often, the university will owe obligations to the research funder that must be included in a license agreement. The most common source of research funding is the federal government. The U.S. Bayh-Dole Act, which grants universities title to the patentable inventions they create under a federal grant or contract, requires the university to manage federally funded intellectual property in accordance with certain rules. For example, Bayh-Dole requires universities to grant a non-exclusive license to the U.S. federal government for its own use, distribute a portion of net revenues to inventors and, when the university issues an exclusive license to a federally-funded invention, it is required to assure the license contains commercial diligence terms, “preference for US industry” conditions, and march-in rights of the U.S. government. If a licensing term is a condition of the funding used to create the intellectual property, the university is legally bound to include that term in its licenses.

There are several different forms of licensing arrangements that can be explored by a start-up company:

### Letter Agreement

A letter agreement is a simple, one to two page agreements, in a letter format with minimal “legalese,” where the university promises to negotiate the terms of a license for a short period of time (3-12 months, depending on campus practices). In exchange, the company typically reimburses the cost of certain patent cost incurred by the university for the licensed invention and will pay a one-time, relatively modest fee. A letter agreement can be an effective tool to secure access to a patent or copyright while the company is being formed, seeking initial funding and conducting a detailed analysis of the business opportunity.

### Option Agreement

An option agreement is a legal contract that allows the start up company to exercise a right to obtain a license at any time during a fixed time period. The term of an option is typically 1—3 years, depending on circumstances. The standard terms for an option agreement are an annual fee (with the first fee due upon signing the agreement) and reimbursement of certain patent costs incurred by the University for the Licensed Invention. An option agreement is a good mechanism to employ if the start-up company is ready to commit to development of the technology, but the precise business model, profit margins and other financial details are not yet predictable. It is also a good mechanism if the start up company does not know how the optioned technology will ultimately fit within its product line. Because the option agreement is an option to secure a license, but not itself a license, the optionee is not granted the right to sell products or services.

### License Agreement

A license agreement grants the start up company all of the rights necessary to sell commercial products. It typically lasts for the life of the patent (although it can be terminated by the company at any time, upon notice). The terms of a license agreement vary widely, as each agreement is customized to reflect the specifically anticipated products and market, the development stage of the company and the technology being licensed, and the role the licensed intellectual property. The UC follows industry norms when developing financial and business terms and has “comparables” from thousands of licenses within the UC system and across the U.S. and Canada. There are several standard terms for license agreements that are important to understand:

- **Earned Royalties.** Earned royalty rates are negotiated as part of the license agreement. Rates depend on a variety of factors such as the value of the invention, the cost of commercializing the invention, profit margins, and whether the license is exclusive or nonexclusive.

- **Annual Maintenance Fees/Annual Minimum Royalties.** Once the licensee introduces commercial products, the annual fees become a minimum annual royalty and are creditable against earned royalties owed by the licensee to the UC. For example, if a licensee owes a minimum annual royalty of \$5,000, but sells products that generate \$10,000 in earned royalties to UC, it pays only \$10,000 to the UC, as the earned royalty exceeded the minimum annual royalty.
- **Patent Cost Reimbursement.** The licensee is required to reimburse the UC for the costs of securing the licensed patent rights.
- **Sublicensing Revenue.** If the licensee authorizes others to use the licensed patents, the UC requires that the sublicensee pay royalties at the same rate as the licensee on the products sold by the sublicensee and if the licensee receives any fees or other payments in exchange for the sublicense of UC's patents, the UC must receive a share of that revenue.
- **Due Diligence.** The UC licenses IP rights to commercial companies that can diligently develop products and services for the public benefit. To assure a start-up is actively developing products and services, key development milestones are placed in the license agreement with a deadline for meeting them.
- **Equity.** Startup companies face the combination of high developmental costs and risk, uncertainty as to the potential value of the technology and are “cash-poor but equity-rich”. Small and startup companies may find it particularly difficult to commit significant cash outlays for both R&D and licensing costs. Accordingly, the University may accept equity in a company as partial consideration for technology licensing-related transactions. The decision whether to offer equity is the company's to make—the UC does not require equity in exchange for a license. To learn more about UC's policy on equity, please see: <http://www.ucop.edu/ott/genresources/equi-pol.html>
- **Milestone Payments.** At times, when flexibility is needed, UC is able to agree that certain fixed fees will be paid upon the achievement of specific milestones, such as first commercial sale or initiation of the first Phase I clinical trial. These milestone payments, which occur later in time, can sometimes be used to reduce some of the licensee fees for the first years of the company's life.

## MANAGING CONFLICT OF INTEREST

IPIRA works with Berkeley inventors to facilitate technology transfer and to manage the licensing process. In the case of a Berkeley start-up, the process can raise Conflicts of Interest. A full explanation of Berkeley's policies and procedures regarding Conflict of Interest are available at <http://spo.berkeley.edu/policy.html#uc>. Because inventors may have the opportunity to influence University licensing decisions in ways that could lead to personal gain or give advantage to companies in which they have a financial interest, inventors must comply with the disqualification and disclosure requirements of the Act.

The disqualification requirements of the Act require an inventor who has a disqualifying personal financial interest in a University licensing decision to refrain from influencing the decision. However, if the Licensing Professional determines that the inventor's involvement is necessary, or if the inventor will negotiate “across the table” from the University on behalf of a company in which the inventor has a disqualifying personal financial interest, the inventor may participate so long as proposed University licensing decisions are reviewed by a Licensing Decision Review (LDR). (Note: Under the Act, University negotiations with an inventor who is also the sole proprietor or who solely, or jointly, with his or her spouse, exercises sole direction and control of a candidate licensee may not trigger LDR.)

The disclosure requirements of the Act require the inventor to specifically disclose any disqualifying personal financial interest in the licensing decision when he/she is involved in a proposed University licensing decision.



SkyDeck provides Berkeley startups access to resources to cultivate their vision and grow their business.

## Forming the Company

Launching a successful start-up company based on university technology requires commitment, hard work, good timing and, at times, luck. Every successful start-up has its own unique story, but some qualities are consistently seen in success stories: a compelling solution to a market need, a substantial market opportunity, sound competitive advantage(s), solid business and financial planning, and a strong management team.

There is no standard timeline for launching or growing a start-up. Launch and growth both depend on multiple factors, such as the maturity of the technology, the acquisition of funding and other necessary resources, the market, and business trends.

The company founders will spearhead company formation and will be the key champions for the start-up during its launch. In the beginning, the founders will need to complete several tasks in parallel: (a) license rights to the technology; (b) identify and research key commercial advantages; (c) develop a business plan; (d) pursue financing; and, (e) build the management team and advisors.

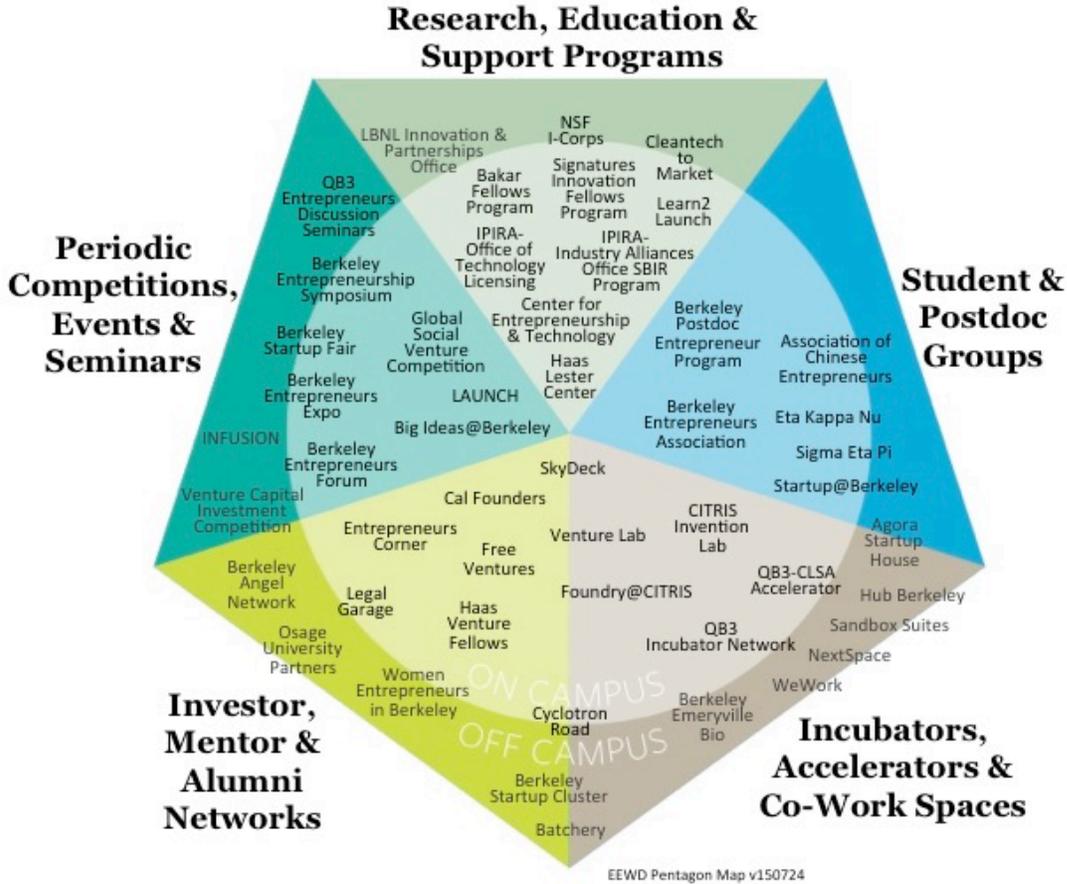
University researchers should carefully consider their potential role in the new start-up company. Direct involvement in the company can be rewarding and offers a front row seat to the commercialization of the technology that the research group worked so hard to create. However, launching and sustaining an early stage technology company takes considerable time and effort. Researchers who do not have the ability to commit significant time and effort or who want to focus on academic research may want to consider participating through advisory or consultant roles, with the company's core business team performing the heavy lifting.

While every start-up is different, there are common steps to launching a start-up company:

Entrepreneurs should seek input and advice from as many experienced business people and potential customers as possible and listen carefully to the rationale behind conflicting viewpoints on similar issues. In an area as complex as launching a new technology company, no single advisor or mentor will have all the right answers or expertise. Further, as the company progresses, mentors and advisors often have valuable connections to funding and potential customers. Seek out networking events, trade conferences and personal recommendations to build a strong, diverse network of mentors and advisors.

# UC Berkeley's Entrepreneurship Ecosystem

**RESEARCH & EDUCATION**   **STUDENT GROUPS**   **COMPETITIONS & EVENTS**  
**INCUBATORS & ACCELERATORS**   **INVESTORS & ADVISORS**



Berkeley's entrepreneurial ecosystem provides a wealth of support for startups in diverse areas.

[Agora Startup House](#) is a residential incubator for Cal Students that offers access to a lineup of guest mentors.

[Association of Chinese Entrepreneurs](#) was founded in 2012, ACE promotes student interest in technology, innovation and entrepreneurship in China. ACE hosts events and learning opportunities, and collaborates with both US universities and Silicon Valley firms.

[Berkeley Entrepreneurs Association](#) helps equip members for business plans, elevator pitches, slide decks and Q&A. They are responsible for hosting Pitch Labs, and providing a number of additional resources.

[Berkeley Entrepreneurs Forum](#) brings together students and the Bay Area community to meet with and learn from seasoned entrepreneurs.

[Berkeley Innovation](#) brings together undergraduates who share a love of design, thinking and innovation

[Berkeley Postdoc Entrepreneurs Program](#) provides the postdoc and graduate community with tools, mentoring, and a platform for science/industry interaction to enable research innovations to move into the marketplace.

[Berkeley Startup Cluster](#) hosts events, facilitates networking, and brings together community resources for entrepreneurs and companies in the Berkeley area. The BSC is led by representatives of the City of Berkeley, the Downtown Berkeley Association, the Berkeley Chamber of Commerce, and UC Berkeley

[Center for STEM Innovation, Leadership, and Diversity](#) is a group of highly motivated and talented undergraduates, many first in their families to attend college, who engage in research, participate in professional development workshops, work collaboratively in academic study groups, and prepare for successful STEM careers.

[Free Ventures](#) is a student-run, not-for-profit incubator that provides students with startup resources, including project stipends, academic credit, workspace, and mentoring.

[Haas Venture Fellows](#) is focused on connecting MBA students to the venture capital community through hands-on projects, HVF also archives useful entrepreneurial articles and information, and is involved in several entrepreneurial activities and events on campus.

[LAUNCH](#) is the UC Berkeley Startup Competition is one of the foremost events for university-affiliated, early stage startups. It provides education, networking, team creation, mentorship, and new-venture financing.

[The Lester Center for Entrepreneurship](#) offers mentoring opportunities for experienced entrepreneurs, investors, and other members of the innovation ecosystem.

[QB3 Garage](#) is a part of the California Institute for Quantitative Biosciences, and connects entrepreneurs and researchers to a broader incubator and venture capital network.

[Startup@Berkeley](#) connects innovators to the broader campus ecosystem as well as to mentors, speakers, and entrepreneurial thought leaders in the East Bay, San Francisco and Silicon Valley.

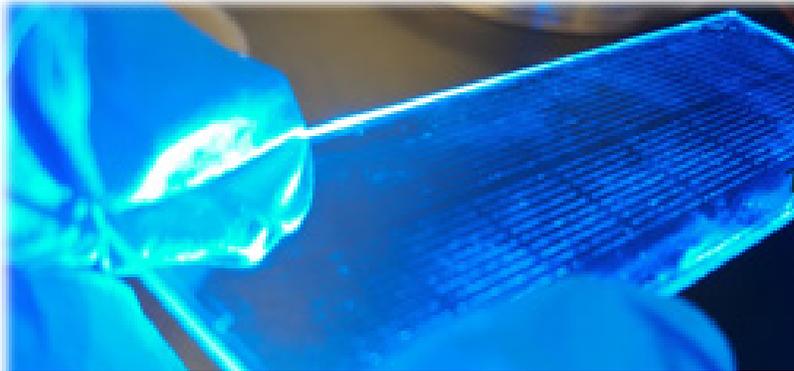
[Sutardja Center for Entrepreneurship & Technology](#) equips Berkeley's students to innovate, lead, and commercialize technology in a global economy.

[The Foundry @ CITRIS](#) is a 1 year program that offers space, mentorship, facilities, and small seed funding to startups at the intersection of hardware and software.

[Venture Advisors at SkyDeck](#) connects industry leaders, successful entrepreneurs, and UC Berkeley professors with our start up community.

[Venture Capital Investment Competition](#) gives students the opportunity to act as investors in early stage companies – evaluating business ideas, conducting due diligence, and negotiating investments – all with real entrepreneurs.

[Venture Lab @ CET](#) provides entrepreneurship education in action. Offers teams space, mentorship, prize money, entry into the network of Berkeley incubators and accelerators.



Zephyrus, a Berkeley Startup, provides research tools to enable single-cell protein analysis

## Analyze the Business Opportunity

It is important to carefully and thoroughly analyze the potential business opportunity that can be created by building a company around your technology at the outset. A clear understanding of the opportunities and risks is essential to attract funding and talent to the company, as well as to assure that it makes sense to invest in the time and effort to launch the contemplated start-up.

Several key areas should be thoroughly researched and analyzed when building a business plan for a new start-up:

- **Market Validation.** Your discovery is scientifically interesting, but is there an actual market for your product? This is the most important question to answer—if you turn your technology into a product, will there be customers who will want to buy it? To answer this question, you must speak with as many potential customers as possible. Does your technology solve a problem they think they have? Is your value proposition strong enough that those customers will be willing to pay a sufficient amount for it? Have you identified the features and benefits that are most important to your potential customers? Once you have answered these questions to your satisfaction, you can turn to assessing the market size.
- **Market Size, Dynamics and Potential.** What is the market size? Is it growing, stable or shrinking? When analyzing the market size, it is important to focus on the addressable market that the product will specifically benefit. Do a few players control the market? If so, how will your company break in? Of the addressable market, what share can be obtained by your company?
- **Competition.** Now that you have identified/assessed the market size, the next step is to understand your competition in that market. Are there products already in the market that address the same general need? If so, how is your technology better? Are there other companies that are developing technology that would directly compete with yours? If so, what is the stage of development and how is your technology better?
- **Intellectual Property Protection.** Your intellectual property should give you a competitive advantage over your competitors or should create a barrier to entry by future competitors. Based on your understanding of the market and your competitors: What is the best form of intellectual property to protect the technology? Is broad protection possible to secure? Are any key intellectual property rights owned by someone else? If so, how will the start-up acquire the necessary rights or re-design the technology to assure “freedom to operate”? Can the company employ multiple forms of intellectual property rights, such as a combination of patents, trademarks, copyrights and, later in the company’s development, trade secrets, to strengthen and supplement protection of its products and services? Some form

of strong intellectual property rights is essential to prevent competitors from copying the start-up's products and services.

- **Development Needs/Risks.** What research and development will be needed to get the technology ready for commercial sales? Are any regulatory approvals required? If so, what is the history of similar products obtaining approval and what is the risk that the approvals will not be secured? What are the key development milestones? How long will it take to achieve these milestones and how much funding is needed to achieve them? What are the development risks, including full failure points, and how do you anticipate mitigating these risks?
- **Return on Investment.** Based on the amount of funding required to develop the technology for commercial sale, is it possible for investors to achieve their necessary rate of return? Please note that different funding sources have different needs when calculating their necessary return on investment. For example, the federal government would not expect any return on investment when awarding a grant. In contrast, venture capitalist firms each have a return they seek to achieve, which could be as high as 10x the invested funding. The required return on investment can vary, so it is important to research individual investors, when possible, in addition to market standards.

[AMPLab](#) works closely with leading technology companies and innovative startups with data management, cloud computing, statistical machine learning and other important topics in Big Data analytics.

[Berkeley Center for Green Chemistry](#) is advancing green chemistry through research, education and engagement

[Berkeley Engineering Corporate Relations](#) provides in-depth content and client services for partners of the college's seven engineering departments and research centers.

[The Berkeley Institute for Data Science](#) is an ambitious cross-sector partnership to enable the advancement of the state-of-the-art in data science. This major initiative focuses on several levers to enhance research, methodologies and education, and will support numerous faculty, post-docs, graduate students and community activities.

[Berkeley Law](#) is of interest to the Cal innovation community performs research at the Berkeley Center for Law & Technology and the Berkeley Law VC Research Network.

[Berkeley Office of Vice Chancellor for Research](#) offers news and info about major research initiatives, faculty experts, tech transfer, research centers, and opportunities for collaboration with Berkeley's vast research enterprise.

[Berkeley Office of IP & Industry Research Alliances - IPIRA](#) - IPIRA establishes multi-faceted and long-term relationships with industry through intellectual property protection, licensing and sponsored research. IPIRA's approach to licensing IP rights from Berkeley to startup companies is described in this brochure and success stories tell the story of Berkeley's impact on the innovation ecosystem.

[Berkeley School of Information](#) provides research and teaching in data science and information management extend into areas as diverse as computer science, law, policy, design, social sciences, and management.

[College of Chemistry Industry Relations](#) is an excellent resource for Information and personalized service for industry partners.

[Faculty Research at the Haas School of Business](#) is a gateway to interdisciplinary research and thought leadership from Haas faculty.

[Program for Innovation in Entrepreneurial & Social Finance \(Crowdfunding\)](#) is co-founded by Jason Best, who along with Sherwood Neiss, created the crowdfunding framework in the 2012 JOBS Act. Both are entrepreneurs-in-residence. PIESF is a place to keep up-to-date on studies changes in funding models for entrepreneur-led early stage companies.

## Develop Materials to “Pitch” Company

After the analysis of the business opportunity is complete, the start-up company will need to develop clear, concise materials that communicate the value of the company and the business opportunity. The presentation materials should be updated as conditions and strategies change, which will likely be often. These materials will be used in many ways: for negotiating a license with the university, raising funding, and attracting talent to the company. Investors will rarely hold advanced degrees related to the technology. Presentations should be understandable to the educated layperson and should not assume that the audience has any particular technical or scientific experience. The most important materials to develop are:

- **Elevator Pitch.** An “elevator pitch” is a concise, carefully planned, well-practiced and compelling description about the company that a non-technical layperson should be able to understand in the time it would take to ride up an elevator. An “elevator pitch” that is well-known by the founder(s) and management team is essential, as funding opportunities may arise in informal settings where it is essential to hook an inventor’s interest quickly, for later follow-up.
- **Executive Summary.** An executive summary is a 1-2 page (maximum!) Document that represents a summary of who your company is, what you are trying to accomplish, the basics of your value proposition, etc.—basically, a summary of everything you would find in a formal business plan. This document is often used as the first opportunity to grab a potential investor’s interest, so it should highlight the company’s strengths.
- **Slide Deck.** The slide deck should present the key, compelling points of the business plan, typically containing no more than 20 slides, plus backup slides, that can be presented in 20 minutes. Most investors will give you no more than 30 minutes for a first meeting, so you need to be able to grab their interest quickly and leave time for questions. The goal of the presentation is to generate enough interest to generate a follow-up meeting.
- **Formal Business Plan.** Some investors and university license programs will require the submission of a formal business plan. The formal business plan is a written document that more thoroughly presents a start-up company’s business opportunity analysis, demonstrating the start-up’s potential. The business plan should address what investors want to know most: why the technology is compelling, it’s competitive advantage, the market size/potential, sales strategy (pricing, product distribution, and marketing strategy), product development timelines/key milestones, risk factors and mitigation measures, intellectual property protection and landscape and an introduction to the management team and their experience/skill sets.



Stanley Hall--A strategic building for collaborative research on the Berkeley Campus.

## Pursue Investors/Funding

Commercializing technology can be a capital-intensive process. Entrepreneurs need to raise funds from investors and other sources to make it happen. Research each funding source carefully before pitching to them to confirm a match with your interests and needs and be sure to adjust your pitch to address each investor's interests. Investors and grant programs will typically focus on specific markets or will provide funding only at certain stages of the company's lifecycle. If your company does not match an investor or other funding source's interests, there is little chance of attracting an investment.

Luckily, the state of California has a rich history of housing good sources of investment in early stage technology companies. Common sources of early stage funding for a start-up company include:

- **Friends and Family.** During the earliest stages of company formation, entrepreneurs often use their own funds, or funds provided by friends and family to get the company off the ground. A "friend and family" round can provide critical seed funding. However, take care to assure that what the company provides in exchange for the funding will not unduly interfere with future funding opportunities.
- **Angel Investing.** Angel investors are typically affluent individuals who have a personal interest in funding new companies. They are often willing to invest at earlier stages than venture capitalists, often with smaller amounts of funding in exchange for equity positions. The best angel investors for your company are ones with ties or direct experience in your market or industry, who can offer your start up more than just money. Some angels will form into groups to share research, vet opportunities and pool investments. These angel groups or networks allow your company to pitch many angels at the same time.
- **Venture Capital.** Typical venture capitalist firms (VCs) invest after the seed-funding round (i.e., during Series A, B or C) in exchange for an equity stake in the company. VCs raise substantial funds from other sources, such as institutional investors, and then invest the funds in high growth potential

companies. Venture capitalists are typically hands-on, interacting with the start-ups' management team and will often help locate and place senior management into the start-up. Venture capital also typically requires a relatively high-annualized return on the fund used to make investments.

- **Strategic Investors (also called Corporate Venture Funding):** Many large companies have venture arms that invest in startups. These can be a good source of funding because the corporations usually invest in companies who would make good business partners for them. For example, they might invest in a materials startup that could then supply them with better materials for their products. These investors are not always looking for a high return on their investment, but they are always seeking what would be in their best interests. Be wary of strategic investors whose interests may not be aligned with your company's.
- **Government/Nonprofit Grants.** In some markets, it is becoming increasingly common for start-up companies to secure government or nonprofit grants to help fund initial product development. The most common funding mechanisms are the federal government's SBIR and STTR grant programs, however, depending on the technology area, federal agencies will award grants through other general research and development grant programs. Many nonprofit foundations, particularly those focused on medical issues, also have emerging technology or start-up grant programs. Government and nonprofit funding can be attractive because it is "non-dilutive," meaning the company does not need to give any equity in exchange for the funding, but do often require a higher degree of administrative effort.
- **Organic Growth ("Bootstrapping").** If a start-up is in a position to release an initial product fairly quickly, it may be able to grow organically, based on sales or joint ventures with partners, without the need to raise any external funding. When bootstrapping is feasible, it can be attractive for founders since it is non-dilutive and founders usually retain more control over their company. However, a company is likely to grow more slowly and could have more resource constraints when a bootstrapping strategy is employed.

As a starting point, a partial list of private capital providers can be found on IPIRA's website at <http://ipira.berkeley.edu/partial-list-private-capital-providers>

A cautionary note: VC funding sometimes has a bad reputation among entrepreneurs, however, as with all areas of business, there are good partners and bad partners. Again, it is very important to research your potential investors before taking their money, no matter which category they fall in. Talk to other entrepreneurs who have worked with them and research their reputation on line.

Other events and organizations on campus to raise funds include:

[Berkeley Angel Network](#) which is an independent Angel network of alumni, faculty and former faculty of UC Berkeley. Applications for the Spring 2014 pitch session will be accepted in February. New investor inquiries are welcome.

[Big Ideas @ Berkeley](#) which is an annual innovation contest aimed at providing funding, support, and encouragement to interdisciplinary teams of students who have big idea for solving pressing problems

[The Global Social Venture Competition](#) catalyzes and promotes for-profit and not-for-profit ventures that create and measure both social and financial goals. Multiple involvement opportunities

**LAUNCH:** The UC Berkeley Startup Competition is one of the foremost events for university-affiliated, early stage startups, provides education, networking, team creation, mentorship, and new-venture financing.

[SkyDeck](#) hosts teams for three-month residencies in downtown Berkeley; teams have a product and are seeking launch/scale mentors.

The Foundry @ CITRIS is a one year program offers space, mentorship, facilities, and small seed funding to startups at the intersection of hardware and software.

Venture Capital Investment Competition allows Berkeley graduate students compete in teams of five. VCIC gives students the opportunity to act as investors in early stage companies – evaluating business ideas, conducting due diligence, and negotiating investments – all with real entrepreneurs.

Venture Lab @ CET offers teams space, mentorship, prize money, entry into the network of Berkeley incubators and accelerators.



CellScope, a UC Berkeley start-up is creating the world's first smartphone-enabled digital tool kit.

## Presenting to Investors

Investors listen to pitches constantly, and each investor will only invest in a very small percentage of the companies who pitch to them. When evaluating an opportunity to invest, the investors will first determine if the start-up meets their strategic and financial goals and if the company fits into their current portfolio of investments. Investors will often invest only in specific markets, or at specific stages of a company's lifecycle, so it is important to research an investor before approaching them for funding.

Investors invest to make profit. When evaluating a company, investors are not only evaluating the company's potential for success, but also how they can recoup their investment, with an appropriate return. Many investors, such as venture capitalists, need to recoup their investment within certain time frames that are relatively short (i.e., 5-7 years), either through an initial public offering ("IPO") or through a merger & acquisition ("M&A"). If so, the investor will also analyze whether an exit is possible during the ideal time frame. When preparing to present to these investors, it is helpful to think through reasonable exit strategies and how much additional funding will be needed to get to exit.

When scheduling a meeting with an investor, be clear about its purpose. If you wish to meet with an investor for informational or exploratory purposes, make sure the investor understands your intent. If you are meeting to request funding, make sure the presentation team is thoroughly prepared. If the team is not fully prepared or does not have a strong grasp of your start-up company's business analysis, subsequent meetings (and funding) are unlikely.

The presentation should be interesting, engaging and concise. The use of examples to help illustrate the business's potential can be highly effective, as are product prototypes. If potential customers or partners have provided feedback, include representative samples of that feedback. If investors ask a question, provide an accurate answer or promise to follow up soon.

Practice your presentation in front of more experienced entrepreneurs or mentors to obtain their feedback. The questions they raise are likely to be asked by the investors, as well.

## Other resources for start-ups

- **Incubators/Accelerators/Hack-spaces.** Many regions of California have incubators; accelerators or hack-spaces to help technology companies get started. These facilities can shorten the time and lower the cost from innovation to company launch. Incubators and accelerators can also provide affordable workspace, referrals to service providers (attorneys, accountants, etc.) that understand how to work with start-ups and a gateway to the local entrepreneur community for building your network of mentors and advisors.

[Catalyst@Berkeley](#) is a new student-run health tech incubator helps teams of undergraduate students develop technical skills and navigate the design process to develop viable prototypes and business plans to bring them to market.

The [Lean LaunchPad \(NSF I-Corps\)](#) increases the impact of NSF-funded research through university partnerships to foster and apply innovation. Program resources are available to NSF principal investigators, their grad students, and startups.

[Venture Lab @ CET](#) offers teams space, mentorship, prize money, entry into the network of Berkeley incubators and accelerators.

- **Entrepreneur Events/Organizations.** Most regions of California also have entrepreneur organizations that host public events, such as lectures by successful entrepreneurs, business training and workshops, and other networking events. These events can provide a valuable way to connect to the local entrepreneurial ecosystem and some much-needed information.

Berkeley Entrepreneurship Week is held in late November, Berkeley Entrepreneurship Week brings together students, alumni and community members for a series of networking events, pitches, demos and discussions geared to equipping students with the resources and connections to jumpstart their startup careers.

[CSUA Weekly Hacks](#) are Sundays at 4pm in the Wozniak Lounge in Soda Hall. Snacks provided. Occasionally sponsored by startups and industry leaders.

[EECS calendar](#) is packed with events and resources for students, scholars, and alumni.

[The Entrepreneurial Best Practices Series](#) features practitioners from the UC Berkeley and Silicon Valley communities who come to Berkeley-Haas to speak about the practical aspects of entrepreneurial activity.

[TEDxBerkeley](#) provides inspirational presentations from world-leading thinkers, makers, and doers at Berkeley to “Rethink. Redefine. Recreate.”

## Pitfalls

Launching a new company is a high-risk endeavor. While many start-ups are successful, unfortunately, the failure rate can be high. Some common challenges that can cause early-stage start-ups to fail are:

- **Technology does not meet a compelling commercial need.** Sometimes, the science is brilliant, innovative and cutting-edge, but it does not address a critical commercial need. Other times, the existing solution in the marketplace may be “good enough,” despite its flaws, so the market is not driven to embrace further, unknown innovation.
- **Inexperienced Management.** Launching a start-up is difficult, requiring multiple skill sets. Decisions and deals made early in the company’s lifecycle can affect the company’s health and opportunities for a long time to come. A strong, experienced, cohesive team is necessary for a start-up company to succeed. It is important for an inexperienced founder to build a strong initial advisory board to help navigate the company through early complexities and be prepared to cede control to more experienced management as the company grows. Problems can also arise if the initial founders, new management and the investors do not share the same vision.
- **Lack of Funding.** A start-up needs sufficient capital to develop a robust commercial product, secure a strong intellectual property position and obtain any necessary regulatory approvals. To attract and acquire sufficient capital, the start-up company needs to have a solid business analysis that accurately forecasts the total funding needed to get the product to the marketplace.
- **Timing.** Even when a strong commercial need exists; a company can miss its “window of opportunity.” Sometimes, the market is not ready for the product (i.e., too early or too expensive). Sometimes, in the time it takes a start-up to bring a product to market, the need has already been filled by a different technology or by a competitor that leapfrogged over the start-up company’s technology with the next generation.
- **Niche product.** The initial market may look large and promising, but over time, the addressable market becomes much smaller and, as a result, the company cannot meet its financial targets.
- **Bad Luck.** Even the most successful and experienced entrepreneurs will sometimes fail due to events outside the control of the entrepreneur.

# Frequently Asked Questions

## How much does a license cost?

Valuing a license to a startup (as to an already existing company) depends on many factors, including, 1) the type of IP being licensed: patent rights, copyrights; 2) the scope of the rights being licensed: exclusive (typical for a startup), non-exclusive; 3) the territory: worldwide, US only; 4) the field of the license (all therapeutic and diagnostic areas, limited therapeutic areas); 5) the anticipated product and 6) market size. Additionally, the financial consideration is viewed as a whole. For example, a typical exclusive license will include an up-front fee/equity (see below), maintenance fees, milestone payments, an earned royalty on sales of products and reimbursement of patent costs. If earlier fees/milestone payments are higher, later fees/payments may be lower. UC's philosophy is to make the initial fees low enough that they don't provide a barrier to entry while they do demonstrate the commitment of the licensee to develop the IP into useful products.

## Do I have to give the UC equity?

**No.** Giving equity to UC in lieu of up-front cash payments is an option that many startups choose to make in order to conserve their cash for research activities and to allow broader patent coverage, which may be important for future investment opportunities. However, UC does not insist on owning equity in its startups and some companies prefer to pay up-front fees in cash. When the company and university agree on an equity component in the license, UC is restricted in the amount of equity it can hold: <http://policy.ucop.edu/doc/2500486/EquityLicensingTech>. UC also does not take a seat on the board so the startup can be assured that the university will not take an active role in managing the company.

## What if I'm not ready to enter into a full license?

A variety of agreements are available to serve the particular needs of the company at different stages of its growth. Initially a Letter of Intent may be sufficient. This type of short-term agreement provides for an exclusive negotiation period in exchange for limited financial consideration to the university. This allows the startup to do any necessary due diligence around the IP and business opportunity, to refine its commercialization plan and to negotiate the license without being concerned that another party will also be negotiating with the university. An evaluation license or option provides the company with the ability to conduct more in depth due diligence, including evaluating how the technology works in the company hands or performing proof of concept experiments to confirm the viability of the company's plans. A full license, with the scope of rights and financial consideration confirmed, is typically necessary once the licensee is seeking VC investment.

## Does the company need to be incorporated in order to obtain a license from UC?

**Yes.** However, it is not necessary for the company to be incorporated in order to enter into a letter of intent.

## How long does it take to negotiate a license?

The time to negotiate is very variable and can take from a few weeks to several months depending on the degree of license customization requested by the company. Typically, a term sheet focusing on the scope of the license and financial consideration is negotiated first. This is followed by negotiating the language in the license that governs the details supporting the term sheet and also such matters as patent prosecution and infringement, reports, use of names and warranties and indemnification. While UC is willing to work

extensively with a startup to understand its business plan and to craft an agreement that gives the company the best chance to succeed, there are certain provisions that, as a university, we have limited ability to negotiate. A startup can reduce the amount of time it takes to negotiate a license by discussing up-front with the licensing office those terms which there is little, if any, ability to modify. Negotiations are also facilitated when the company has a reasonably detailed commercialization plan soon after it first approaches the university and before full license negotiations begin.

## **Can the University give favorable terms to an inventor's start up?**

No. While the University acknowledges that an inventor start-up company can bring unique benefits to the process of commercializing early stage academic technologies, as a public, state university, it is not able to provide preferential treatment to specific companies. When an inventor negotiates a license agreement with the University, he or she is negotiating as a company representative and the licensing terms must be made through arm's length discussions. Many UC campuses have established mechanisms to provide all start-up companies with some flexibility during formation.

## **What happens if my company develops IP?**

It is anticipated that, during its research and development activities, a company will develop new IP that is distinct from the in-licensed UC IP. If the new IP is generated independently by the company without university or university employee involvement, the company will usually own the IP. If university funds, facilities or employees were involved in generating the IP the university is likely to have an ownership position in the IP. This ownership may be shared with the company should company employees who have not used university resources be co-inventors or co-authors. As a company matures, it is likely to have a blend of UC-owned, company owned and jointly owned IP in its portfolio.

## **Do I need to have the faculty member involved in the company?**

It is not a requirement that a faculty inventor/author be involved in a startup founded on their technology. This is a matter between the company founders and the faculty member. Some faculty members prefer to be intimately involved as co-founders, while others prefer to be more loosely involved as consultants and a few choose to allow the company to move forward without providing significant input.

## **What are the rules governing faculty member involvement in a startup founded on his/her technology?**

Faculty members are encouraged to be involved in startup companies as long as such activities do not conflict with his/her obligations to the university. Because inventors may have the opportunity to influence University licensing decisions in ways that could lead to personal gain or give advantage to companies in which they have a financial interest, inventors must comply with the disqualification and disclosure requirements of the Political Reform Act. To learn more and to discuss best practices, please contact a licensing officer at the Office of Technology Licensing, [IPIRA.berkeley.edu](http://IPIRA.berkeley.edu) or review the University of California's Guidelines on Faculty Consulting and Intellectual Property, of copy of which is available here : <http://www.ucop.edu/ott/documents/consult.pdf> or visit the Berkeley Conflict of Interest page here <http://researchcoi.berkeley.edu/index.html>

## **How does an inventor disqualify him or herself?**

If an inventor has a disqualifying personal financial interest in a University licensing decision, as early as at the time of invention disclosure--the inventor may disqualify him or herself by formally asserting in writing on Form TT-100 (Please see Below) that he or she has not and will not in the future make, participate in making, or attempt to influence a University licensing decision concerning the invention, including the selection of a licensee(s), and other decisions made in the course of licensing the invention. Alternatively, simple (and absolute) non-participation in all licensing decisions, even without formal written self-disqualification, would constitute an acceptable disqualification under the Act. Inventors who do not wish to be involved in the licensing decision-making process in any way do not have to complete any form, as long as they make their wishes clear to the Licensing Professional.

## **How does an inventor become involved?**

When an inventor is invited to be involved in a University licensing decision by the Licensing Professional, or intends to negotiate “across the table” from the University, inventor disclosure of any disqualifying personal financial interest must be made on Form TT-100, promptly upon request by the Licensing Professional. In most cases, this would be upon identification by the Licensing Professional of a candidate licensee(s) and prior to the commencement of University negotiations with the company. If Form TT-100 indicates that an inventor has a disqualifying personal financial interest, and if the inventor has been or will be involved in the Licensing Professional’s licensing decisions, the Licensing Professional must initiate a Licensing Decision Review. If no Form TT-100 is completed by the inventor (and thus there is no definitive assertion, positive or negative, of the inventor’s personal financial interest), and if the inventor has been or will be involved in the Licensing Professional’s licensing decisions, the Licensing Professional, in his or her judgment, may determine that a Licensing Decision Review is appropriate. If inventors have any questions about how the disqualification/disclosure process should be carried out, the Licensing Professional can provide assistance.

## **How does the licensing decision undergo review?**

Licensing Decision Review means there is a review by a non-interested person or persons before the proposed licensing decision goes to the final decision-maker for approval. The review must be based on an independent review and assessment of the facts of the case and must be conducted by qualified staff with appropriate expertise, knowledge and professional judgment, who must independently check the Licensing Professional’s original data, analysis, proposed selection of licensees, and other licensing decisions. This is necessary under the California Political Reform Act since the Licensing Professional may have been influenced by the inventor with the disqualifying personal financial interest.

## **Who conducts the Licensing Decision Review?**

At Berkeley’s Office of Technology Licensing (OTL), the nature of the licensing review will depend on the level of the inventor’s’ personal financial interest in the potential licensee. Most Licensing Decision Reviews will be conducted by a licensing professional within OTL who has not been influenced by the inventor(s) with the disqualifying financial interest. More complex cases involving more significant inventor personal financial interests will be reviewed by the OTL Director, or in cases where the OTL Director has been influenced, the Vice Chancellor for Research will request the system-wide Office of Technology Transfer to conduct the review.

# About IPIRA

UC Berkeley's Office of Intellectual Property & Industry Research Alliances (IPIRA) was created in 2004 and consists of two peer divisions: the Office of Technology Licensing (OTL), and the Industry Alliances Office (IAO).

IPIRA staff experts help researchers and companies navigate federal and state laws and policies regarding research, conflict of interest, intellectual property, contracts, and employment in a University research environment. IPIRA staff can support companies who wish to sponsor research, join industry affiliate programs, enter into an SBIR or STTR agreement, or license technologies from UC Berkeley.

IPIRA has supported over 170 startup companies commercialize IP rights under license from U.C. Berkeley. Since 2005, UC Berkeley startup companies have attracted over \$1.6 billion dollars in venture funding and well over \$51 million dollars in SBIR/STTR grants.

UC Berkeley employees, students and technology have engendered many new products, jobs and companies, all of which are critical economic drivers for the Bay Area and the State of California. Through IPIRA, the University is enhancing its key role in the ongoing cycles of technology innovation, commercial development, and reinvestment in the research enterprise.

For more information, please visit us at [ipira.berkeley.edu](http://ipira.berkeley.edu)

For a list of success stories and companies visit [ipira.berkeley.edu/success-stories](http://ipira.berkeley.edu/success-stories)

