Lab to Market: How to Transform Research Into Startups
Leveraging UC Berkeley’s Innovation & Entrepreneurship Ecosystem

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Goal: **Answer These Questions**

1. How do I spin-out a startup at UC Berkeley?
2. How do I leverage UC Berkeley’s vast resources for startups?
3. What’s the first thing that I should do to start a company?
   a. Technology (e.g. software, hardware, life science)?
   b. Market (e.g. healthcare, consumer electronics, entertainment)?
   c. Stage (e.g. idea, team, prototype, company, funding)?
   d. People (e.g. founders, CEO, professors, undergrad)?
Agenda: ~20 Minute Session

1. Goals

2. Overview of UC Berkeley’s Innovation & Entrepreneurship (I&E) Ecosystem

3. Ecosystem Tutorial (part 1 & 2 of 5):
   - New Technology / IP Support
   - New Product R&D Support
   - Product/Market Fit Programs
   - Startup Accelerators

4. Q & A (during & after presentation + panel discussion)
Dimensions of a Top University I&E Ecosystem

- New Technology / IP Support
- New Product R&D Support
- Product / Market Fit Support
- Startup Company Support
- Funding Support
- Legal Support
- Recruiting Support
- Entrepreneurship Support
- Academic Programs
Snapshot of UC Berkeley’s I&E Ecosystem (circa 2018)


New Product R&D Support: Bakar Fellows, Signature Fellows, Cyclotron Road, QB3 Garage@Berkeley, User Facilities: NanoLab, BNC & more, Jacobs Maker Space, Shared Special User Facilities for I & E (SSUFIE)

Product / Market Fit Support: I-Corps, Lean Transfer Course, Cleantech to Market Course, Big Ideas @ Berkeley


Legal Support: Startup @ Berkeley Law, QB3 Startup in a Box, Office of Intellectual Property & Industry Research Alliances (IPIRA)

Recruiting Support: Bear Founders.com, Berkeley Career Center Handshake


Academic Programs: Management, Entrepreneurship & Tech Program, Berkeley Hass Entrepreneurship Program, Sutardja Center for Entrepreneurship & Technology Program, Fung Institute for Engineering Leadership Program, Blum Center Social Innovator OnRamp Program
Snapshot of UC Berkeley’s I&E Ecosystem *(circa 2018)*

Why is UC Berkeley’s I&E ecosystem so diverse?
Why is UC Berkeley’s I&E Ecosystem So Diverse?

UC Berkeley’s I&E ecosystem supports a wide range of:
- Technologies
- Markets
- Stages
- People
- Resources
How do you begin to leverage UC Berkeley’s vast I&E ecosystem?
How Do You **Begin** to Use UCB’s I&E Ecosystem?

begin.berkeley.edu

begin.berkeley.edu/#concierge

(also check-out pitch.berkeley.edu)
Ways to Leverage Ecosystem: **Blast-out Example**

**New Technology / IP Support**
UC Berkeley Office of Technology Licensing (OTL)

**New Product R&D Support**
Bakar Fellows

**Product / Market Fit Support**
I-Corps, Lean Transfer Course, Cleantech to Market Course, Big Ideas @ Berkeley

**Startup Company Support**
SkyDeck, CITRIS Foundry, LAUNCH, The House Residency

**Funding Support**
US Gov SBIR / STTR Workshops, SkyDeck Fund, Blue Bear Ventures, Osage University Partners, The House Fund

**Legal Support**

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Ways to Leverage Ecosystem: Roll-out Example

New Technology / IP Support: UC Berkeley Office of Technology Licensing (OTL)


Product / Market Fit Support: Shared Special User Facilities for I & E (SSUFIE)

Startup Company Support: I-Corps

Funding Support: CITRIS Foundry

Legal Support: LAUNCH

Recruiting Support: QB3

Entrepreneurship Support: The House Residency

Academic Programs: SkyDeck

Entrepreneurship Support: I-Corps

Management, Entrepreneurship & Tech Program

Berkeley Hass Entrepreneurship Program

Sutardja Center for Entrepreneurship & Technology Program

Fung Institute for Engineering Leadership Program

Blum Center Social Innovator OnRamp Program
## 5 Common Patterns of Commercializing Univ Tech

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<th><strong>Morphed</strong> gradually out of research by research team member(s)</th>
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<td>New Product R&amp;D Support</td>
<td><strong>Mined</strong> resourcefully by entrepreneurs on campus (e.g. MBA students) who scour campus for technology</td>
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<td><strong>Milked</strong> methodically out of research by corporate collaborators</td>
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<td>Startup Company Support</td>
<td><strong>Marketed</strong> periodically to companies, entrepreneurs, &amp; investors by entities on campus (e.g. OTL, faculty)</td>
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<td><strong>Migrated</strong> fortuitously with students &amp; faculty who come to the campus</td>
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UC Berkeley I&E Ecosystem Tutorial: Part 1 & 2 of 5

New Technology / IP Support
- UC Berkeley Office of Technology Licensing (OTL)
- Lawrence Berkeley National Lab Intellectual Property Office (IPO)
- New Product R&D Support
- Bakar Fellows
- Signature Fellows
- Cyclotron Road
- QB3 Garage@Berkeley
- User Facilities: NanoLab, BNC & more
- Jacobs Maker Space
- Shared Special User Facilities for I & E (SSUFIE)

Product / Market Fit Support
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Academic Programs
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New Tech / IP Support: IPIRA Core Functions

Advising on IP: Patentable Inventions, Copyrightable Software, Know-how, Trademarks, Trade Secrets

Disclosing Invention & Software

Patenting Inventions

Marketing & Licensing IP rights

Negotiating Corporate Research Agreements (including SBIRS & Consortiums)

Establishing Material Transfer Agreements

Conducting SBIR Grant Workshops

Spearheading Innovation Agreements (e.g. SSUFIE)
New Tech / IP Support:  *IPIRA Additional Support*

**Advising on:**
Consulting Agreements, Confidentiality & Conflicts of Interests

- Advising on IP: Patentable Inventions, Copyrightable Software, Know-how, Trademarks, Trade Secrets
- Disclosing Invention & Software
- Patenting Inventions
- Marketing & Licensing IP rights
- Negotiating Corporate Research Agreements (including SBIRS & Consortiums)
- Establishing Material Transfer Agreements
- Conducting SBIR Grant Workshops
- Spearheading Innovation Agreements (e.g. SSUFIE)

**Office of Intellectual Property & Industry Research Alliances (IPIRA)**

**Office of Technology Licensing (OTL)**

**Industry Alliances Office (IAO)**

**Supporting & Developing:**
Entrepreneurship, Startups & UCB’s I&E Ecosystem
New Tech / IP Support: Disclosing, Patenting, Licensing

Advising on:
Consulting Agreements, Confidentiality & Conflicts of Interests

Advising on IP:
Patentable Inventions, Copyrightable Software, Know-how, Trademarks, Trade Secrets

Disclosing Invention & Software
Patenting Inventions
Marketing & Licensing IP rights

Negotiating Corporate Research Agreements (including SBIRS & Consortiums)
Establishing Material Transfer Agreements
Conducting SBIR Grant Workshops
Spearheading Innovation Agreements (e.g. SSUFIE)

Supporting & Developing:
Entrepreneurship, Startups & UCB’s I&E Ecosystem
New Tech / IP Support:  *Types of IP*

- Patentable Inventions
- Copyrightable Software
- Know-How
- Trademarks
- Trade Secrets
New Tech / IP Support: **IP Rights at UC Berkeley**

### Patentable Inventions
- Invention Disclosure to OTL
- OTL: Inventorship, Ownership, Sponsorship, Obligations, Deadlines, Potential, Marketing, Patenting, Licensing

### Copyrightable Software
- Software Disclosure to OTL
- OTL: Authorship, Ownership, Sponsorship, Obligations, Potential, Marketing, Licensing

### Know-How
- Owned by individuals (not UC)
- IPIRA advice: Consulting, Conflicts, Confidentiality

### Trademarks
- Not IPIRA
- Examples: Cal logo, UC Berkeley Branding

### Trade Secrets
- None: Publish, Collaborate
IP Patenting: *Timelines & Costs*

![Diagram showing the timeline and costs for IP patenting](Image)

- **Decision Made to File**
  - File PROVISIONAL Patent Application
  - 12 months
  - 18 mo. from priority date: Publication

- **Provisional Filing**
  - 30 months
  - 30 mo. from earliest priority: PCT appl. enters National/Regional phase

- **PCT Filing**
  - 2-5+ years

- **U.S. Filing**
  - Patent Prosecution (examination): 2-5+ years
  - Finally Rejected or Patent Issues

- **By country (e.g., Japan, China, Canada, Europe etc.)**

- **Maintenance**
  - Maintenance Fees: 3.5, 7.5, 11.5 yr

**Estimated Patent Costs**
- US: $5-10,000
- Europe: $15-20,000
- Japan: $20-25,000
- Totals:
  - US: $30-50,000
  - Europe: $45-50,000
  - Japan: $50,000
  - Others: $25-30,000
Leverage the University’s IP rights to **Catalyze** (not just facilitate or “transfer technology”):

1) The commercializing of UC Berkeley innovations – quickly & broadly to:
   - Benefit the regional economy & society at large
   - Fund research & education on campus
   - Reward researchers for their ingenuity*

1) The funding of UC Berkeley research by –
   Reconciling the IP needs of sponsors with the IP policies of the University

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* Depending on the circumstances, inventor rewards can vary and for example range from licensing income (typically 35%), to attribution and recognition, to the personal satisfaction of developing technology that has been successfully commercialized.
IP Licensing: *Company Objectives*

**Exclusive License**

1. Used as *competitive barrier* & thereby *improves return on (risky) investment*
2. Used to *impress investors* & thereby *improve funding, acquisitions, valuation*
3. Used (with know-how, etc) to implement sublicense *solution* (fab-less IC corp)
4. Used (with other IP) to *cross-license* with competitors & gain freedom-to-operate
5. Used to *discourage infringement claims* & thereby lower company’s legal costs
6. Used (with other IP) to *promote industry standard*
7. Used to prevent companies from *nefariously controlling technology’s market*

**Non-Exclusive License**
IP Licensing: *Manage Company Risks*

As risks decrease, then commitments increase.
IP Licensing: Range of Agreements

Company Contractual Commitments to University

- Letter Agreement
  - Commercialization Plan
  - Patent Costs Reimbursing
  - + below
  - ~2 pages
  - ~3-12 months

- Option Agreement
  - Annual Fee
  - Diligence Terms
  - + below
  - ~10 pages
  - ~1-3 years

- License Agreement
  - Issue Fees (& equity)
  - Earned Royalties
  - Min Annual Royalties
  - Indemnification, etc
  - + below
  - ~30 pages
  - Life of patent or copyright

IP Rights Agreements (simplified)
# UCB I&E Tutorial: Part 2 of 5

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UCB I&E Ecosystem: Tech Stage vs Biz Stage

Stage of Business

Startup Company

Product / Market Fit Discovery

Stage of Technology

No Tech R or D

Scholarly Research

Translational Research

New Product R & D

Commercial Product (1.0)
**UCB I&E Ecosystem: Tech Stage vs Biz Stage**

* In addition to differing by stage of business & technology, I&E programs often differ by technologies, markets & participants (e.g. faculty, students, founders, etc)
In addition to differing by stage of business & technology, I&E programs often differ by technologies, markets & participants (e.g. faculty, students, founders, etc).

* SkyDeck has a Hot Desk program for early stage startups.
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