Entrepreneurship at the University of Illinois at Urbana-Champaign

Resources and Examples of Entrepreneurs

entrepreneurship@ILLINOIS
Commercialization System

UI’s Seamless System of Resources
Research > Innovation > Commercialization

OSPRA/ORS*
Grants, contracts, and industry agreements

OTMs
Evaluation, protection, marketing, and licensing

Existing Companies

Start-ups
Illinois VENTURES
New company funding and services

Research Parks
Enterprise Works
New company incubation

Faculty Interactions

OSPRA: Office of Sponsored Programs and Research Administration (Urbana);
ORS: Office of Research Services (Chicago)

The Office of Technology Management
@ILinnovations
Innovation Matrix

- IP Management, Marketing, and Licensing (OTM)
- Start-Up Incubation and Mentorship (EnterpriseWorks and external resources)
- Early-Stage Funding (IllinoisVENTURES and external resources)

**FUNDING**
- Seed and Angel Funding
- SBIR Phases I and II
- Business Plan Competitions

**INTERNAL RESOURCES**
- POC Funding
- I-Start
- UI I-CORPS site
- Entrepreneurs-in-Residence

**EXTERNAL RESOURCES**
- I-CORPS
- Chicago Innovation Mentors

**MENTORSHIP**

**MARKET IMPACT/REVENUE**
Recent Impact

• Electroninks Kickstarter campaign raises $675,000
• MC10 launches the Checklight with Reebok; Andrew Luck joins their sports advisory board
• Glucosentient one of 21 inaugural projects selected for an NSF I-Corps award
Recent Impact

- Potential cancer therapeutic in Investigational New Drug Review
- DiagnosticPhotonics starts multi-site clinical trials
- MIDA Boronate technology now in use at 70 pharmaceutical companies
- Major acquisition of start-up Bytemobile by Citrix
Engage with UI Entrepreneurs

- Guest lecture in an entrepreneurship course or other seminar series
- Serve on scientific advisory panel
- Give a talk at EW’s Startup Café
- Recruit for your company/startup at events
- Invest in UI startups
- Support the Illinois Proof of Concept fund
- Mentor a startup
- Provide commercial or industry perspective on technologies
- Meet alumni entrepreneurs
- Judge competitions on campus
- Review UI startup business plans
- Attend the Share the Vision technology showcase
Illinois Proof-of-Concept Fund

- Bridging the gap between University innovations and the marketplace
- Contributions from colleges & institutes and the OVCR
- First round of funding Spring 2014

http://otm.illinois.edu/IPOC
Join us at our Tech Showcase

• 35 faculty presented breakthrough research
• Panel discussions with venture capitalists and corporate partners.
• Attendees from across the country: Chicago, St Louis, Indianapolis, San Francisco, Boston, Seattle, Minneapolis, Boston, Detroit, Milwaukee and more
• Tours of start-up companies in EnterpriseWorks

>200 attendees & participants
# ILLINOIS VENTURES, L.L.C

**Seed and early stage, research-based, investment**

<table>
<thead>
<tr>
<th>Illinois VENTURES</th>
<th>$13 million</th>
<th>$27 million</th>
<th>$25 million</th>
<th>$63 million</th>
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<tbody>
<tr>
<td><strong>IETF I Size</strong></td>
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<tr>
<td><strong>IETF II Size</strong></td>
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<tr>
<td><strong>Total Current Assets</strong></td>
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**Stage**
Seed & early-stage venture capital

**Focus**
Research-derived investment
- Start companies around licensed IP, technical founders
- Establish initial cap-structure, strategy, teams

**Industries**
- IT, physical and life sciences, clean tech
- Inter-domain “seams”

**Geography**
IL and the Midwest

**Portfolio Investment Parameters**
- <$1M initial investment, $2M-$4M total investment
- Over $45 million invested in 75 companies
- IV Portfolio has attracted over $600 million from other sources

Plus companies have attracted more than $600 million in outside capital = 13:1 leverage

**#1 regionally**
**#19 nationally**

The UI Board of Trustees created Illinois VENTURES in 2002 to catalyze the creation and development of research-derived companies.
Emerging Tech City

High-Tech Challengers to Silicon Valley
Richard Florida, Jul 02, 2013

Techie.com’s Most Promising Tech Hubs to Watch in 2014, January 06, 2014
Technology Entrepreneur Center

- Created in 2000: Located in College of Engineering
- Open to all of campus
- 3,500 students participate annually
- SocialFuse
- Cozad New Venture Competition: 13 years
- Patent Clinic (with Law School)
- Charm School
- Invention to Venture
- Entrepreneurship-related courses
Experiences

Silicon Valley Student Trips
- January trip, with 30 students
- Visit alumni tech companies in Silicon Valley

Chicago Workshops
- Visit Chicago companies, TechNexus, ITA, 1871
- Chicago After Hours

Innovation Living Learning Community (iLLC)
- Located in Illinois Street Residence Hall
- Partnership between TEC and Housing
Being Entrepreneurial in Subsistence Marketplaces

• Offerings reach 800 students a year at all levels at Illinois
• Web portal with educational materials used by educators around the world
• Yearlong interdisciplinary class with international field immersion since 2006
  – A bottom-up innovation platform
  – Rated One of the Top Entrepreneurship Courses by Inc. Magazine, 2011
  – 27 Completed Projects with a Variety of Enterprises
    • Prototypes and comprehensive business plans
NSF I-Corps

• NSF program to help commercialize NSF funded research
• Pre-SBIR
• Based on Lean Startup
• $50K award
• Nodes: Michigan, GA Tech, Stanford/Berkeley, NY, DC
• 2 Sites Added in 2013: University of Illinois is one of them

• Form a team
  – PI (Faculty)
  – Entrepreneur (grad student)
  – Mentor (local business person)
• Phone call with teaching team
• Short proposal
Lean Startup Process

1. Education from teaching team
2. Validate hypothesis with industry
3. Update business model
4. Stand in front of Class and describe Business Model
5. Receive critical feedback from teaching team and peers

Listen to Customers
During customer development, a start-up searches for a business model that works. If customer feedback reveals that its business hypotheses are wrong, it either revises them or “pivots” to new hypotheses. Once a model is proven, the start-up starts executing, building a formal organization. Each stage of customer development is iterative: A start-up will probably fail several times before finding the right approach.

Harvard Business Review
Why the Lean Start-Up Changes Everything
I-Corps at Illinois

- Illinois has an I-Corps site
- ~30 $3K grants to teams to commercialize
- Training program every 8 weeks with a cohort group of 6-7 teams
- Forces discipline in getting early customer validation
- Creates peer pressure to make progress
- Encourages grad student active role
The Research Park is an on-campus location for technology-based businesses
- 200 Acres adjacent to campus, developed with a private partner, 13 buildings
- $81 Million annual payroll, 1400 employees including 375 students at a time

The Research Park has 90 companies including a mix of large corporations and startups
- Large Corporations: Yahoo, Caterpillar, State Farm, Sony, Raytheon, Citrix, Abbott, Dow, Deere, ADM, Pearson, Littelfuse, Riverbed, AB InBev
EnterpriseWorks Incubator

• EnterpriseWorks (EW) is a 43,000 sq ft startup business incubator in the Research Park for early stage tech firms. It is owned and operated by the University of Illinois to help launch successful start-up companies.

• Named by Inc.com as a top 10 startup incubator to Watch and Forbes.com as a top 10 Incubator.

• 24 Labs, 29 office suites, conference rooms, shared co-working space, shared lab equipment, entrepreneur library.
Current Company Founders: 94% of EnterpriseWorks clients are founded by University of Illinois Entrepreneurs. The majority are started by faculty.

EnterpriseWorks clients have raised $576 Million in venture capital and angel funding.

College/Department Origin of University EnterpriseWorks Startups

*Other includes: consulting, materials, electronics
Entrepreneurs-in-Residence

EIRs are regional successful tech entrepreneurs hired by EnterpriseWorks to consult inventors and entrepreneurs

- The EIRs provide advice on business development, legal issues, attracting investment, revenue creation, and engagements with industrial clients.
- They also provide entrepreneur training on business topics monthly
- Helps fill early management guidance for startups

Chad Stiening
Mentor
Management & CEO
of Kypha medical diagnostics firm

Tim Hoerr
Serra Ventures &
Cbana, Immuven,
Gameday Sports,
CPA, Valuation expert

Dennis Beard
Serra Ventures & Open
Prairie Ventures,
UI Business Adj.
Faculty - Finance

Jed Taylor
TEC, JLT
Consulting and
Pattern Insight,
Siebel Scholar

Alan Singleton
Singleton Law Firm,
specializes in tech startups and IP

Lori Patterson
Pixo founder and CEO,
former Accenture consultant

Dave Kellner
Cogent consulting,
SBIR Technical Assistance
SBIR Grant Assistance

The Small Business Innovation Research (SBIR) and Small Business Technology Transfer (STTR) programs provide $2 billion in annual funding to small businesses with opportunities to meet federal needs.

Free SBIR and STTR Grant Consulting

- Funded through EnterpriseWorks University Center
- Consulted 32 clients since August 2012 when starting the program
- Free SBIR workshops
- Help finding solicitations, writing grants, drafting budgets, completing contracts.
- Dave Kellner, Cogent Innovations

Research Park SBIR/STTR Awards 2001-2013

<table>
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<tr>
<th>Agency</th>
<th>No. of Awards</th>
<th>Total Amount</th>
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<tbody>
<tr>
<td>DHS</td>
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<td>$1,149,976</td>
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<tr>
<td>DOC</td>
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<tr>
<td>DOD</td>
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<tr>
<td>DOE</td>
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<tr>
<td>ED</td>
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<tr>
<td>EPA</td>
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<tr>
<td>HHS</td>
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<td>NASA</td>
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<td>NSF</td>
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<td>USDA</td>
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<td>$628,409</td>
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<tr>
<td>Total</td>
<td>193</td>
<td>$49,432,265</td>
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Dr. Deana McDonagh, Chair of the Industrial Design Program in the School of Art + Design as a Designer-in-Residence.

She assists University of Illinois inventors and entrepreneurs to incorporate product design in their technology development to help improve user experiences and performance of products to meet customer needs. Works with a team of students working with startups and a team of industrial design students to improve product design and user experience.
The Enterpriseworks I-Start program helps support and launch new companies from the University with professional services and assistance. I-Start competitively awards 50-90% of the cost of startup professional service costs in the first year of a business.

29 Clients in the Program since October 2011, raised $7 million in outside funding

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<table>
<thead>
<tr>
<th>Service Types</th>
<th>Legal Services</th>
<th>Business Planning</th>
<th>SBIR Assistance</th>
<th>Financial and Payroll Services</th>
</tr>
</thead>
</table>
| Scope of Services | • Initial Company Formation, bylaws, application for FEIN (filing fees paid by entrepreneur)  
• Stockholder agreements and certificates  
• Stock option plan  
• Employment Agreement  
• Non disclosure agreements | • Write Business Plan with inventor input  
• Market Research  
• Financial Projections  
• Recommendation on sources of capital  
• Assistance with hiring and incorporation decisions | • Finding solicitation and agency fit  
• SBIR process guidance  
• Draft budget  
• Writing assistance  
• Help with letters of support  
• Project Management  
• Registrations and Submission | • Payroll admin  
• Quarterly Financial Statements  
• Assistance with Quickbooks setup for the business |
EnterpriseWorks has a student shared services team to help entrepreneurs in the Research Park with project needs.

We hire a diverse team of student specialists to help work on projects for startups that are short term in length.

Projects examples include:
- Market research
- Presentation development
- Business plan assistance
- Logo development
- Infographics
- Website creation for new companies
- Public relations assistance
Events and Training

The Research Park hosts weekly events for the employees and firms in the community. Each year more than 100 events are offered for companies to attend, network, learn about business, and have fun.

• Software User Group Meetings
• Tech CEO Roundtables with speakers
• Startup Café with successful entrepreneurs
• Monthly entrepreneur educational seminars
• Monthly social events, sporting leagues
• Pitch presentation events
• Women in Technology Forum
• SBIR training
• Fire at Five happy hours
• Big Data Summit
• Mobile application development training
• Annual Career Fair, student awards
Big Data Summit

ABInBev
AbbVie
ADATAO, formerly VP of Engineering at Google
Akuna Capital
American Express
Caterpillar
COUNTRY Financial
Dow Chemical
FarmLogs
HDF Group
IBM
Infobright
Intelligent Medical Objects
John Deere

Neustar
R Systems
P&G
State Farm
Sears

Steelcase, Inc.
W.W. Grainger, Inc.
Wolfram
Yahoo
Facilities

All leases in EnterpriseWorks are administered through the University. One year in length, renewal is determined based on company progress and need for incubation services. Typical start-up length in incubation is three years.

- Furnished offices for full time employees and interns. Range of office sizes from 130-600 SF. Monthly lease rate = $200-$850

- Labs available with casework, fume hood, plumbing, gas, shelving. Basic lab available and full fit out labs. Monthly lease rate = $800-$1,800
Facilities

Co-Working and Affiliate Agreements

Server Co-Location Data Center Space

- Co-location data center with redundant power from building generator, cooling infrastructure, and security system. UI Internet.
Other Resources

**Colocation Server Space**

**Shared Lab Equipment**

**Pro Bono Legal Help**

**Lab Supply Discounts**

**Facility Use Assistance**

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Entrepreneur Listserv
Research Park Mobile App
Startup Company Examples
Personify is based on technology from the University, which was developed by Electrical and Computer Engineering faculty Sanjay Patel and Minh Do.

Personify is revolutionizing the way people communicate with video for:

- on-line meetings
- video calling
- desktop telepresence

Radically improving video experience through an immersive, compelling, and intuitive video technology.

Personify makes use of new sensor technologies (such as the Microsoft Kinect), to create new video experiences.

$7 Million in funding.
Phi Optics offers an affordable light microscopy device with label-free, non-invasive, quantitative, nanoscale, 3D tomographic and real-time information capabilities all rolled into one, at a much lower cost than confocal microscopy.

- Its initial product offering will be a combination hardware-software platform that is a turn-key, add-on component to in-field microscopes
- NSF I-Corps, NSF SBIR, venture funded, customers
• Provide heterogeneous multicore (h-multicore solutions) for high performance computing applications using multicore and many core processors.

• Multicore computing offers performance-hungry application domains the potential of tremendous speedups by taking advantage of parallelism.
  – Using multi-core architectures from Intel and AMD, their clients have scaled their single-threaded applications to running on hundreds of multi-core nodes in a data center.
  – Using advanced GPU architectures from Nvidia, their clients have observed speedups of over 100x even when running on a single node.

• UI Professor Wen-mei Hwu, is CTO
• 225 employees in 2 years, no VC funding
INPRENTUS

- Founded by Professor Peter Abbamonte, Department of Physics, University of Illinois
- Inprentus is making mechanical fabrication of ultrahigh precision diffraction gratings, which are optical elements used for spectral analysis of ultraviolet and x-ray radiation.
- Needed in physics labs around the world and no longer in production by Zeiss or Hitachi, NSF was seeking an alternate provider
- NSF SBIR funded and pre-orders from labs
DIOXIDE MATERIALS

- Conversion of CO2 into fuels and chemicals via artificial photosynthesis
- Also low cost sensors to reduce energy use in building HVAC systems by more effectively analyzing ventilation needs
- Agreements with major customers, including 3M, for further development
- Secured multiple SBIR funding to further develop the technology
- In 2012, awarded $4.7 million U.S. Department of Energy’s Advanced Research Project – Energy (ARPA-E) award
- Featured in Science Magazine in 2011
SERIONIX

- Founded by UI graduate students Jim Langer and Weihua Zheng from Materials Science
- Winner of the 2012 UI Cozad New Venture Competition
- Developing a filter material that can remove perchlorate (a component in rocket-fuel) from water, regulated by the EPA starting in 2014
- Air Purification from hazardous materials, protecting facilities from chemical warfare
- Filters are made possible by composite materials known as "ion-exchange fiber composites"
- SBIR grants from NSF and DOD, seed venture capital funding, commercial contracts with industry partners
ELECTRONINKS

• Circuit Scribe, a ballpoint pen with quick-drying ink that can draw circuits on paper
• Materials Science research from the University of Illinois, Jennifer Lewis
• Kickstarter campaign:
  – 12,277 backers
  – $674K committed, goal was $85K
• Press in TechCrunch, FastCompany, C|NET
• Industry customers also
OSO Technologies

• Oso Technologies was founded by five engineering graduate students
• Plant Link is a moisture monitoring and control system for plants, home gardens and lawns.
  – Alerts owners when their plants need watering via text message, e-mail, or social media updates. Optional equipment allows automated watering of exterior plants
• Oso Technologies raised funding through a Kickstarter campaign and received hundreds of backers within 24 hours.
XERION ADVANCED BATTERY

- Advanced battery cells that reduces the time necessary to charge and discharge batteries and increases the power density of the battery
  "New technology has potential to charge electric car batteries in minutes, cell phone batteries in seconds"
- Developed by Prof. Paul Braun in the UI Materials Science department, which is a new architecture for battery electrodes, enabling extremely rapid charge and discharge of batteries.
  - Team from Air Force nanotechnology research lab and from Prof. Braun’s lab
- Market segments: Power storage / distribution, Power tools, Consumer electronics, Military, Aerospace, Automotive, Medical