# Illinois Science & Technology Coalition

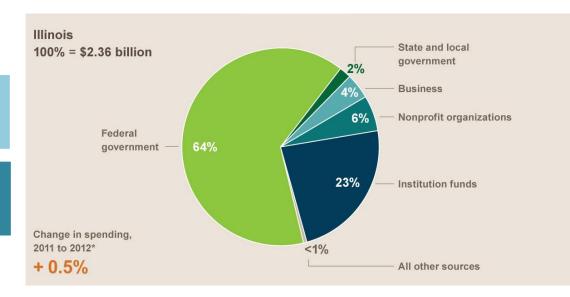
Chicago Booth Entrepreneurial Roundtable
October 20, 2014



# **Academic R&D**

\$2.36 Billion in R&D Expenditure by Illinois Universities

8<sup>th</sup> Highest State Academic R&D Expenditure in the Nation

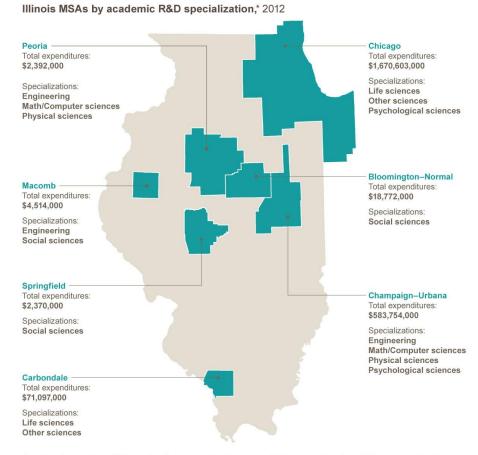




# **Academic R&D**

Champaign-Urbana's \$97.6
Million Investment in Math and
Computer Science R&D Ranked
7<sup>th</sup> Highest in the Nation

\$789 Million in NIH funding, 9<sup>th</sup> Highest in the Nation



Note: Location quotients (LQs) can identify local specialization across fields or industries. Here, LQs were calculated by comparing each metro's expenditures by research fields to the corresponding national distribution.

Source: National Science Foundation



<sup>\*</sup>Specializations on this map reflect LQs of 1.2 or higher.

# **Private Sector R&D**

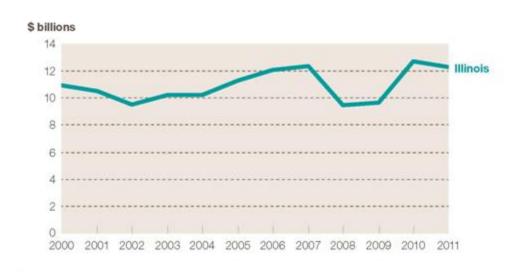
Over \$12.2 Billion in Private Sector R&D Spending

8<sup>th</sup> Highest Level of Private Sector R&D Spending

13% of Total National Private Sector R&D Spending

### Industry R&D, United States and Illinois,

FY2000-2011, \$ billions<sup>1</sup>



Inflation adjusted to 2012 dollars.

Source: National Science Foundation



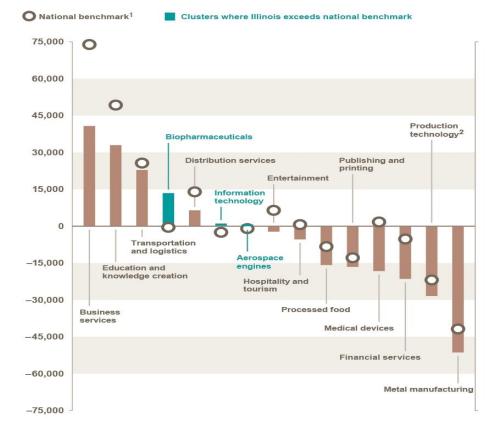
# **Industry Clusters**

Above national growth rate in Biopharma, IT and Aerospace employment

2012: Over 20,500 new business starts; Top 5 MSA

2012: Illinois 5<sup>th</sup> largest exporter; \$68 Billion in exports

Job creation by traded cluster in Illinois, net change in employment, 1998-2010



<sup>&</sup>lt;sup>1</sup> The national benchmark is a hypothetical projection based on each cluster's average national growth rate. Differences between the state and national trends illustrate cluster developments distinctive of the Illinois economy.

Source: U.S. Cluster Mapping Project

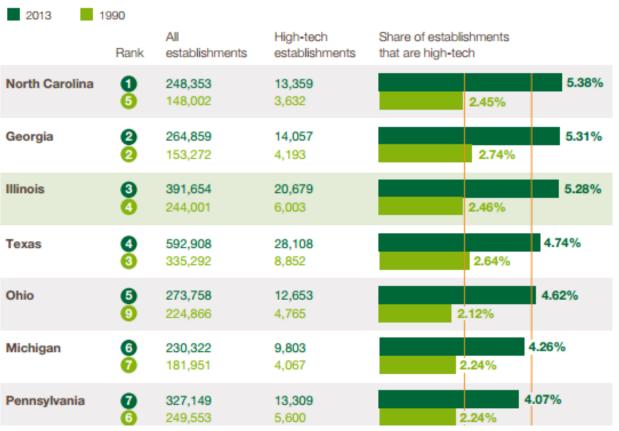


<sup>&</sup>lt;sup>2</sup>Technology applied to the manufacturing and fabrication process.

# **Business Climate**

# Illinois ranks third among most populous states by concentration of high-tech establishments

### Concentration of high-tech establishments, 10 most populous U.S. states, 2013 vs. 1990



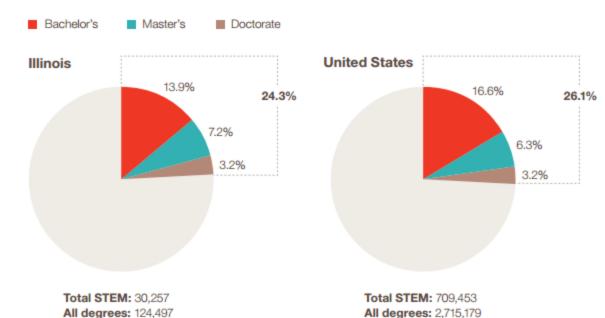


# **Talent**

STEM Degree Attainment on Rise – Exceed Nation in Advanced Degrees

Health Related Fields - Fastest Growing STEM Degrees

### STEM degrees as a percentage of all degrees, Illinois and the United States, 2012



Source: Integrated Postsecondary Education Data (IPEDS)/National Center for Education Statistics (NCES) Completions Survey, 2012



# **Dynamism**

# 47 percent increase patent volume over the past five years

Lag in disclosures and licensing

Over 70 percent biomedical or software innovation

# Growth in technology transfer in Illinois<sup>1</sup> and the United States, 2003–2007 vs. 2008–2012, percentage change



	2003-2007	2008-2012	Total, 2003-2012	Percentage change
Invention disclosures	57,596	69,007	126,603	19.8%
	2,775	3,212	5,987	15.7%
Patents issued	11,895	13,859	25,754	16.5%
	519	763	1,282	47.0%
Licenses	14,307	15,495	29,802	8.3%
	515	536	1,051	4.1%
	,	10,100		_

¹In this dataset, the University of Illinois, the University of Chicago, and Northwestern University account for almost all academic technology transfer output in the state.

Source: Association of University Technology Managers (AUTM), ISTC



<sup>&</sup>lt;sup>2</sup>Excluding Illinois.

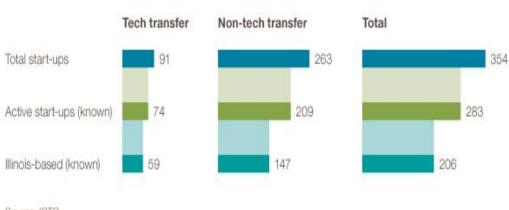
# **Dynamism**

+280 active university affiliated startups created since 2010

80 percent of active university startups remain in Illinois

23 percent growth year over year in startup creation since 2010

### Start-ups from Illinois universities, 2010-2013



Source: ISTC



# Research and Technology Parks

### Illinois Science + Technology Park (ISTP

 Tenant companies include multinationals Astellas Pharma, APP Pharmaceuticals, Vetter Pharma

### The Chicago Technology Park (CTP)

Embedded in the Illinois Medical District (IMD)

### **University Technology Park at IIT**

 Idea Shop, 13,000 square feet facility for studentindustry collaboration, 19 wet labs and 9 dry labs

### **Peoria Next Innovation Center**

 Location of Bradley University Technology Commercialization Center (BTCC)

### The Research Park at Univ. of Illinois

2011 Outstanding Research Park of the Year

### The Southern Illinois Research Park

 Saluki Innovation Lab, 15,000 square feet and Saluki Concept Fund

# The University Park at Southern Illinois University Edwardsville

Home of the Corn-to-Ethanol Research Center







# **Incubators and Co-Working Spaces**



# **EnterpriseWorks**

- Top 10 Incubators to Watch (Forbes)
- 30+ tenant companies, including Yahoo, Caterpillar and Abbott



# **Tech Innovation Center**

Top 10 Incubators to Changing the World (Forbes)

Two Forbes
Distinguished Incubators



### The Incubator at IIT

 Designed with facilities for biotech and material science startups



### Matter

 Med tech hub for healthcare entrepreneurs and investors



### **TechNexus**

- Top 10 Incubator to Watch (Forbes)
- 160 companies launched



### 1871

50,000 sq. ft. co-working space, 200 tenants, including Excelerate Labs, Starter League and ISTC



# **Catapult**

Over 15 peer-selected startups



### **Industrious**

 17,000 sq. ft. space open loft space designed for startups with 10 or less employees



### **Panzanzee**

Dedicated exclusively to social innovation startups



# **Windy City Lab**

 Internet of Things (IoT) markerspace for prototyping



# **About the ISTC**

- Member driven, non-profit entity that harnesses the power of research and innovation to grow the state's economy
- Drives public-private partnerships between industry, research universities, federal labs and government to increase research and technology-based investment, talent, awareness and job growth in the state





# Accelerators

# **Digital Innovation**



# **TechStars**

 One of the nation's premier accelerators



# **Founder Institute**

 World's largest accelerator startup; one of 37 chapters world wide

# Health and Food Innovation



# **Health Box**

 Accelerator jump starting heath care startups



# **Insight Labs**

 Accelerator focused on medical device innovation



# Fresh Startups\*

 Unique hands-on program focused on companies in health, fitness, and food

# **Social Innovation**



# **Impact Engine**

 Accelerator program jump starting social innovation startups



# **Startup Collaboratives**













**builtin** chicago









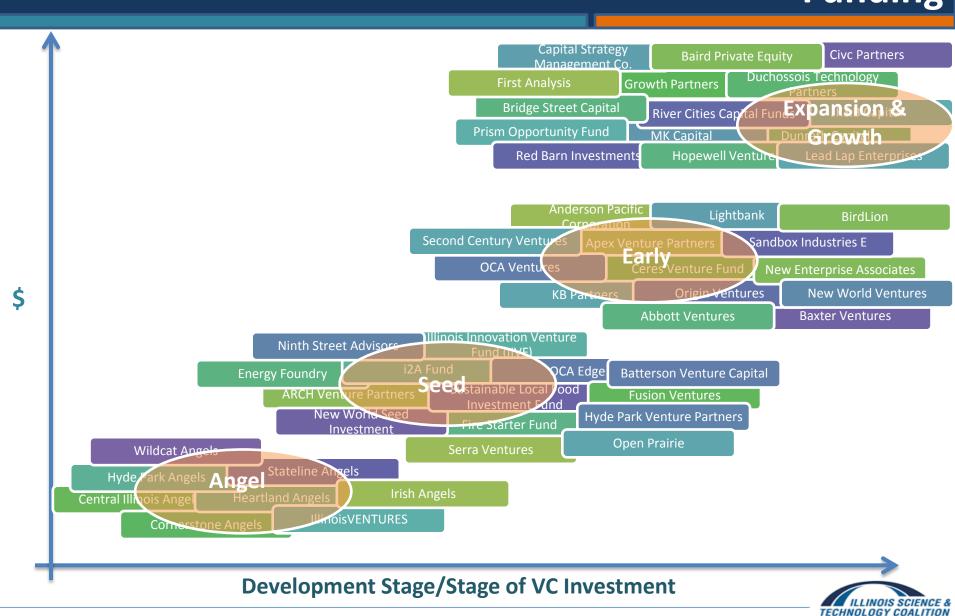








# Concentrated Seed, Early, and Later Stage Funding



# **Transportation Center Point**

America's Air and Rail Transportation Hub: 1.5 billion tons of freight



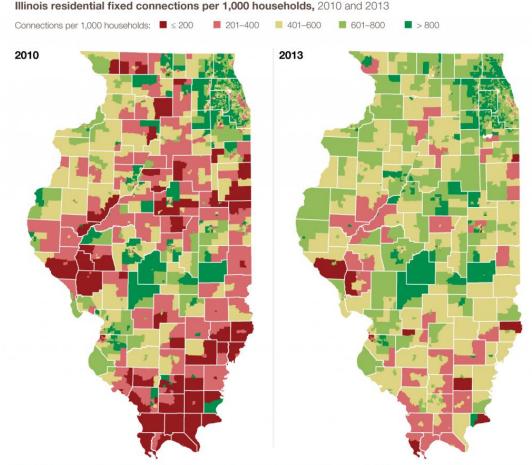
Center Point of Interstate
Transportation System





# **Industrial Strength Bandwidth**

70% Increase in Residential Broadband Connections from 2010 – 2013

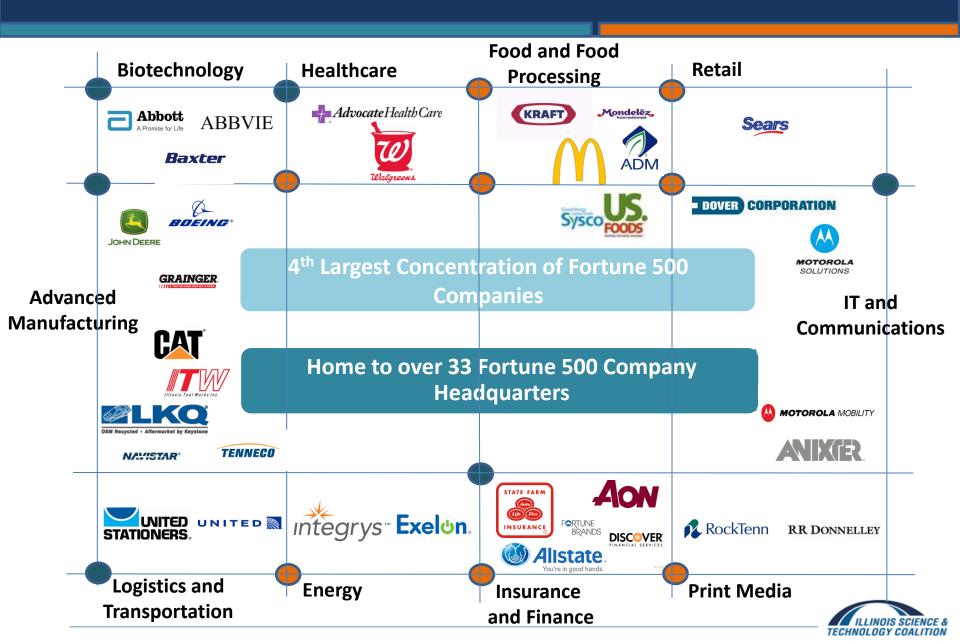


Note: This map shows the number of residential connections per 1,000 households by census tract. Connections have information transfer rates greater than 200 kbps in at least one direction and include all technologies except terrestrial mobile wireless.

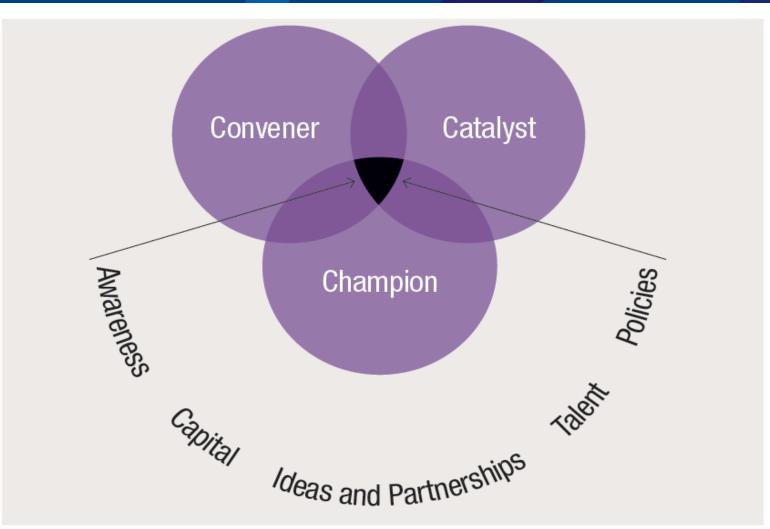
Source: Federal Communications Commission (Form 477, Part VI); household estimates by Geolytics



# **Fortune 500 Community**



# **Strengthening 5 Pillars of Innovation**





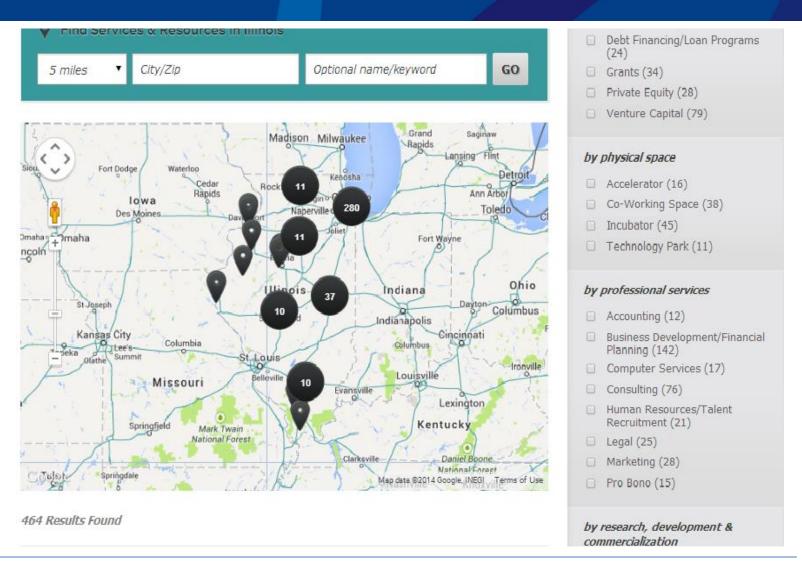
# **Awareness - Illinois Innovation Network**



Illinois Innovation Network website, <u>www.illinoisinnovation.com</u>, a central portal of 450+ resources and data, and platform to celebrate Illinois' legacy of innovation

TECHNOLOGY COALITION

# **Awareness - Innovation Network**





# **Awareness - Innovation Index**

The Illinois Innovation Index is a monthly publication distributed to 7,000+, showcasing metrics around capital, talent, business climate and dynamism









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- Nimble, project-based team of 10 **located in 1871** and supported by the Illinois Department of Commerce & Economic Opportunity (DCEO).





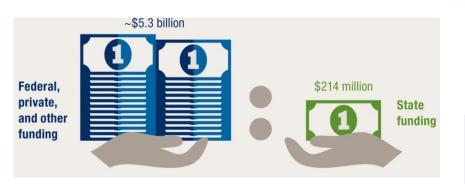


# **Capital & Infrastructure – Innovation Hubs**

# State funding

Over the last fifteen years the State of Illinois has invested **\$214 million** to support innovation hubs across the state and leveraged almost **\$5.3 billion** in additional support and investment, an almost **25:1** leverage of state dollars.

# **Companies supported**



At least **620** 

# companies

benefited from services, equipment, and infrastructure at innovation hubs throughout Illinois.

# Jobs created Innovation hubs have created or retained more than 5,600 direct jobs



# Top innovation hubs in Illinois

2 DeKalb

EIGERlab is a one-stop new and existing business incubator, accelerator and innovation center focused on assisting startups and existing privately held businesses to create wealth and jobs in our region. EIGERIab plays a critical role in the Rockford Area Aerosapoe Hetwork, which has created or retained over 3,300 jobs since launching in 2010. State support: \$1 million

Microelectronics

### Research and Development Laboratory (MRDL),

The MRDL provides a comprehensive facility for sensor prototyping and business incubation, offering the only semiconductor research and development facility in Northern Hinois outside of Chicago. The MRDL trains up to 60 undergraduates a year in high tech manufacturing

3 Batavia

### Illinois Accelerator Research Center (IARC). Fermilab

The mission of the Illinois Accelerator Research Center at Fermilab is to use technology developed in the pursuit of science to create the next generation of industrial accelerators and products. The IARC program will begin in 2016 and within 10 years industry growth of \$250 million is expected from IARC activity. State support: \$20 million



9 Evanston

### International Institute for Nanotechnology (IIIN), Northwestern University

The International Institute for Nanotechnology (IM) catalyzes and supports world-class interdisciplinary nanoscience research which is addressing the world's most pressing problems in medicine, environmental science, telecommunications, information technology, energy, homeland security, food and water safety, and transportation. To-date, researchers at the IIN have developed 1100 new products and services commercialized worldwide. Twenty companies have been launched based on technologies developed by

IIN researchers. State support: \$12 million

10 Skakie



12 Chicago

1971 is an entrepreneurial

vides Chicago startups with

investors and a community

of like-minded entrepreneurs

that help them on their path to

building successful businesses.

1971 companies have already

in venture capital funding.

State support: \$2.3 million

raised over \$69 million

hub for digital startups that pro-

programming, access to mentors,

educational resources, potential

# Illinois Science+

Technology Park (ISTP) The Illinois Science + Technology Park (ISTP), developed by Forest City, is a catalyst to transform Illinois into an economic engine for life science. bioscience, and nanoscience technologies. The ISTP ourrently serves as the Illinois HQ of four international bioscience companies.

State support: \$5 million

### 44 Lemont

### Joint Center for Energy Storage Research (JCESR), Argonne

JCESR is a major research partnership that integrates government, academic, and industrial researchers from many disciplines to overcome critical scientific and technical barriers and create new breakthrough energy storage technology. JCESR has been awarded \$120 million over five years by the DOE to develop the next generation of battery technology.

State support: \$30 million

Advanced Photon

The mission of the APS is

and technology by operat-

radiation research facility

of academic and industry

researchers conducting

Source (APS), Argonne

to deliver world-class science

ing an outstanding synchrotron

accessible to a broad spectrum

research in areas such as biology,

federal dollars and \$90 million

from non-federal sources.

State support: \$27.6 million

energy, and materials science.

The APS has leveraged a

total of over \$2 billion in



# Exchange, University of

at Chicago.

and products.

# Chicago The Chicago Innovation Exchange

is a new hub for multidisciplinary collaborations and support for business startup activities emerging from the University of Chicago, Argonne, Fermilab and Chicago's South Side. The new center will use a \$20 million Innovation Fund to help scholars and entrepreneurs translate their ideas and new technologies into startup businesses



# The Coalition

### Coalition provides coworking and private office space to entrepreneurs and innovators in the Chicagoland energy community. The Coalition houses the Energy Foundry, created by state legislation to support smart grid technology commercializa-

### Digital Manufacturing and Design Innovation Institute (DMDII). UI LABS

The DMDII will be the nation's flagship research institute in digital manufacturing and design innovation and a world-class, first-of-its-kind manufacturing hub with the capabilities, innovation. and collaboration necessary to transform American manufacturing. Public and private partners are contributing a total of \$320 million to create the DMDII.

University Technology

The University Technology Park

at IIT's mission is to provide

at virtually every stage of

a place for companies to grow

their development by creating

an entrepreneurial ecosystem

leveraging the resources of

private industry, investors

that helps companies thrive and

IIT, state and local governments,

and service providers to foster

UTP companies' success. The

UTP employs over 300 and

affiliated companies have

State support: \$14 million

capital

raised \$200 million in venture

Park (UTP), IIT

State support: \$16 million



### Health, Technology, MATTER Chicago MATTER is a hub for healthcare Innovation Center (HTI).

entrepreneurs supported with funding from the State of Hinois Convening at the intersection that will help jump-start and of Health, Technology and grow early-stage healthcare IT, Innovation, HTI is the first shared medical device, medical laboratory space aimed at diagnostics and biopharma supporting early-stage innovators companies. as they validate ideas, convert State support: \$4 million technology into products and accelerate to venture readiness. Founded in late 2013, HTI is already working on accelerating the commercialization of publicly funded research at

the University of Illinois State support: \$1.7 million

# Illinois Manufacturing Lab (IML), UI LABS

The IML deploys advanced manufacturing technologies to improve the productivity of product development systems and increase the profitability and revenue of small to medium size enterprises (SME), IML is a joint partnership between the State of Illinois and UI LABS.

State support: \$5 million

# **Quad City**

4 Rock Island

### Manufacturing Lab (QMCL), WIU

QCML is a public-private collaborative effort between industry, academia, and government to maintain the Quad Cities' innovative competiveness and ensure the rapid transfer of new developments in science and technology into manufacturing products and processes. OCML partners with the Rook Island Arsenal to improve weapons and equipment production for U.S. soldiers.

State support: \$0.6 million



University Park, SIU-E University Park's mission is

to mobilize the vast intellectual and applied research capabilities of SIU-E and facilitate interaction with leading-edge research and technology-based businesses and benefit the economic development of the region by attracting new business and investment dollars to the area. Fifteen companies call the University Park home and employ 33 SIU-E graduates.

State support: \$1.49 million

### **©** Peoria



PeoriaNEXT, Bradley University

PeoriaNEXT serves as a catalyst in the development of technology-based entrepreneurial businesses resulting in the diversification of our regional economy and the establishment of an epicenter for the entrepreneurial community. PeoriaNEXT facilitates hundreds of partnerships per year and supports over 90 jobs and 16 tenant companies.

State support: \$4.5 million

### 7 Carbondale



### Southern Illinois Research Park (SIRP), SIU-C

SIRP's central activity is enterprise development to locate and expand knowledge-based, technology, and researchoriented enterprises at the SIRP's site through recruitment and expert technical assistance to eligible existing and startup enterprises. SIRP has helped local businesses secure over \$6.5 million in funding and supports close to 400 jobs.

### ResearchPark, UIUC

8 Urbana-Champaign



Park's founding in 2001. State support: \$7.97 million

# **National Center for**

### Supercomputing Applications (NCSA),

The National Center for Supercomputing Applications provides powerful supercomputers and expert support that help scientists and engineers better understand and improve our world. NCSA is home of the Blue Waters supercomputer and collaborates extensively with industry, including one-third of the Fortune500, NCSA's computing power is a critical resource for local corporations such as John Deere and Caterpillar.

State support: \$60 million

tion and adoption.

### LEGITAVEUR L'OMETTION

# **Policies – Immigration Reform**

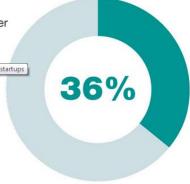
# Immigrant STEM\* advanced degree graduates, Masters and PhD, 2011-2012 Temporary residents Permanent residents/citizen 2012 2,828 3.597 2011 2,668 43% 3.595



Source: National Center of Education Statistics (NCES); ISTC analysis

### **Immigrant-founded startups**





<sup>\*</sup>Of 223 active companies created from universities in Illinois between 2010 and 2013 for which founder data was available.

\*\*In this case, immigrant refers to anyone foreign born, regardless of immigration status.



Source: ISTC University Entrepreneurship Survey, 2013

# **Policies - S&T Roadmap Technology Clusters**

	DCEO economic development plan industries						
Roadmap technology clusters	Advanced materials	Agribusiness, food processing, and technology	Biomedical/ biotechnical	Clean energy	IT and telecom- munications	Machinery and fabricated metal products mfg	Transportation and logistics
Advanced materials: Alloys							
Advanced materials: Polymers							
Batteries and energy storage							
Biofuels and biomass- derived products							
Medical biotechnology							
Nanotechnology							



# **Policy Focus Areas**

✓ Drive connectivity between academia and industry

Assist high-potential technologies and startups

Ensure resources for capital infrastructure needs



# **Talent - STEM Education**

• Illinois Pathways Initiative - \$10.3M publicprivate initiative to better prepare students for careers in STEM fields



The Illinois Science & Technology Institute (ISTI), runs the R&D Learning Exchange, a coalition of more than 50 cross-sector partners to support more authentic, inquiry-based learning experiences and spark student interest in R&D careers







High Schools	High Schools	Post-Secondary Education Institutions	Industry Partners	Nonprofits & Gov't Agencies
Chicago Vocational Career Academy	DePaul College Prep	Illinois Institute of Technology	АТ&Т	Argonne National Laboratory
Hinsdale Central High School	Glenbrook South High School	Illinois State University	Baxter	Brookfield Zoo
Illinois Math and Science Academy	Lake View High School	Loyola University Chicago	Comcast	Chicago Council on Science & Technology
Instituto Health Sciences Career Academy	Minooka Community High School	Northern Illinois University	ComEd	Fermi National Laboratory
Lane Tech College Prep	Naperville North High School	Northwestern University	Microsoft	iBIO Institute
Lindblom Math and Science Academy	North Chicago Community High School	Oakton Community College	Motorola Mobility	Illinois Business Roundtable
Muchin College Prep	Prairie Central High School	Southern Illinois University	Motorola Solutions	Illinois Junior Academy of Science
Niles North High School	Maine South High School	University of Chicago	Northrop Grumman	Illinois Science & Technology Coalition
Oak Park River Forest High	Maine West High School	University of Illinois Urbana- Champaign	Takeda Pharmaceuticals	Museum of Science & Industry
Palatine High School	Urbana High School		TGG Group	Network for Teaching Entrepreneurship
Waukegan High School	Von Steuben Metropolitan Science Center			NSERVE
Wheeling High School	Washington Community High School			Shedd Aquarium

# CORPORATE STARTUP CHALLENGE







"Smart corporations are aggressively looking to engage with startups through partnerships, investments, and acquisitions. But they need to do so in structured ways that allow them to manage the apparent chaos."

"...85 percent of corporate respondents said that collaboration with startups and entrepreneurs will drive success for their organization in the future."

- 2014 GE Global Innovation Barometer

# MISSION



The Illinois Corporate-Startup Challenge creates a bridge between the major corporations that serve as the backbone to Illinois' economy and the startup businesses that will power it through the 21st century. By better connecting the corporate world to the entrepreneurial community, the Corporate-Startup Challenge will not only foster more innovation but also advance a stronger Illinois economy. Every six months, we assemble a class of Fortune 1000 corporations and pair them with startup companies that address their innovation needs through a highly curated matchmaking process.

# **ISTC Members**

ISTC members are leaders in the Illinois innovation ecosystem who share a voice and develop partnerships through membership that drive Illinois' R&D pipeline

**Universities** 















**Federal Labs** 





**Corporations** 



















Wellspring









COMCAST



Non-Profit &

**Civic Groups** 















# PROGRAM LEADERSHIP





The Corporate-Startup Challenge is made possible because of the leadership of **Governor Pat Quinn** and the generous support of the Illinois Department of Commerce and Economic Opportunity



The **Illinois Innovation Council (IIC)** is a leadership group convened by governor Pat Quinn to identify and advance strategies that accelerate innovation, economic growth and job creation. The IIC created the Corporate-Startup Challenge to encourage all Illinois companies to support the growth of the state's emerging businesses.



The **Illinois Science & Technology Coalition (ISTC)** is a member-driven, non-profit entity that drives public-private partnerships between industry, research universities, federal labs and government. The ISTC administers and provides staff support for the Corporate-Startup Challenge on behalf of the Illinois Innovation Council.

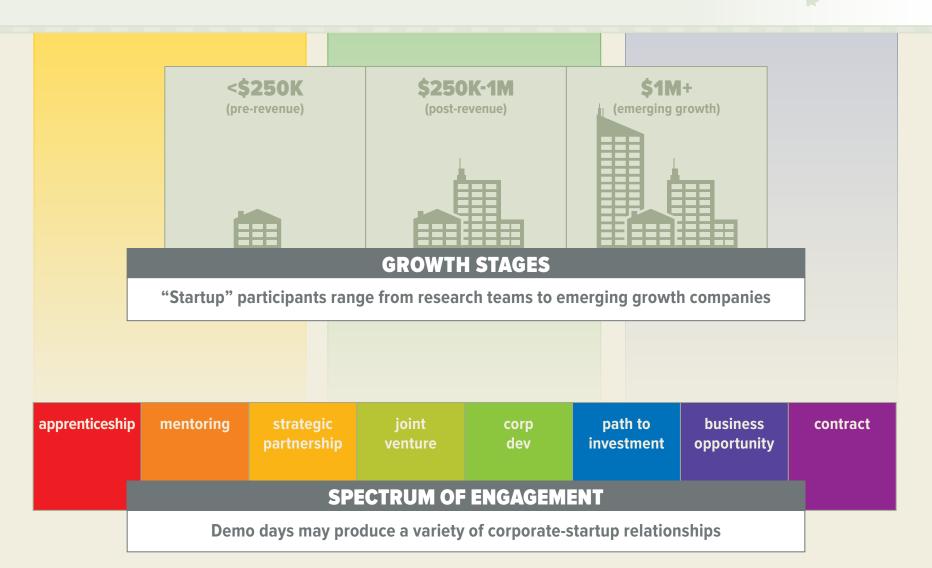


# Freshwater Advisors

**Freshwater Advisors** is a venture development firm that helps high-growth entrepreneurs and corporations with business development, market research, strategy execution, and fundraising advisory services. Freshwater provides consulting and project management support for the Corporate-Startup Challenge.

# PROGRAM MODEL DNA





## PROGRAM PROCESS







**PILOT CLASS** 

**SPRING 2014** 

**WINTER 2015** 



**MOTOROLA** MOBILITY



**StateFarm** 



























# PILOT CLASS - CORPORATE INNOVATION OPPORTUNITY AREAS

**Battery/Power Management** 

**App Development** 

**3D Printing/Rapid Prototyping** 

**Consumer-Machine Communications** 

**Cyber Security** 

**Hardware/Devices** 

**Health + Wellness** 

**Materials and Material Science** 

UX/UI

**Sensors** 

**Data Analytics** 

**Digital Imaging** 

**E-Commerce** 

**Machine-Machine Communications** 















### **PROGRAM TRANSPARENCY:**

## **COMMUNITY PARTNERS**

### **Civic & Non-Profit Groups**



### **Incubators and Accelerators**



### **Venture Capital**



### **Universities/Labs**

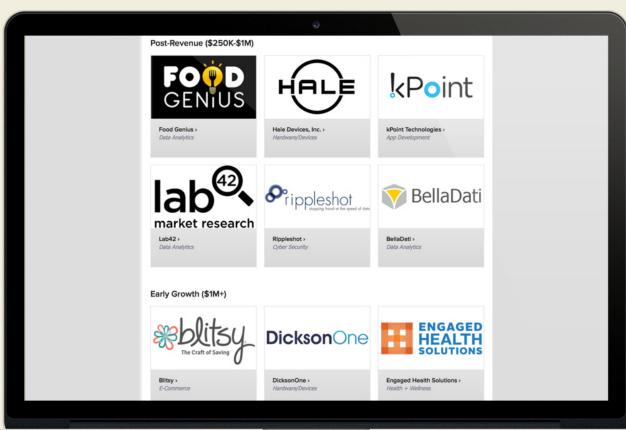








## **DIGITAL PORTFOLIO**







### TRACKING ENGAGEMENT:

## **INNOVATION FACILITATION**

### **Value**

for Corporations <> Startups

### **Tracking & reporting**

module in custom-built platform

### "Scorecard"

for corporate tracking of engagements

### **Streamlined processes**

to facilitate engagement (e.g. develop boilerplate language for pilot/prototype agreements)

CORECARD	
INNOVATION SCORECARD	21
Meetings	3
Advisors Placed	2
IDAs	1
Partnerships Secured	1
Investment Commitments	\$750,000
Investment Dollars	

### **ILLINOIS** CORPORATE-STARTUP CHALLENGE



### AGGREGATE PROGRAM METRICS

startups + emerging technology companies referred by 30+ community partners

companies interviewed

companies referred to portfolios (21-34 startups per corporate portfolio)

selected to present at private demo days to date (31 from university partners)

companies have received ongoing engagement through mentorship, contract, or investment opportunities

















### **ISTC Partners**

As a collaborative entity, the ISTC partners with key complementary organizations on specific projects to advance awareness, advocacy and economic growth





















































### **ILLINOIS** CORPORATE-STARTUP CHALLENGE



### **PROGRAM OUTCOMES**

### Startup matchmaking effort shows early wins, expands



















## **AWARENESS**





Illinois Science and Technology Coalition honored by national group

Originals

This article is related to: Business, J.B. Pritzki



MUCH QUICKER."

based company founded by Northwestern University students that developed antenna

See STARTUPS on Page 8



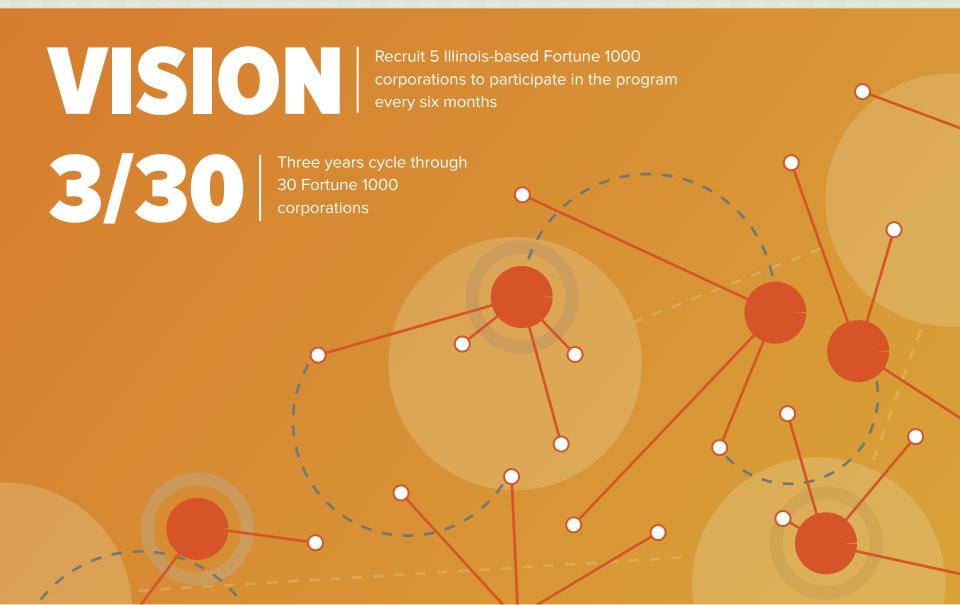
**EVENTS** 

BLUE SKY ORIGINALS

Big-company innovation

## LOOKING FORWARD





### **Contact Us**

### **Mark Harris**

President & CEO mharris@ISTCoalition.org

312.239.0350

www.ISTCoalition.org

www.illinoisinnovation.com





### **ISTC Board of Directors**

### **Douglas Baker, Chair**

President, Northern Illinois University

### **Linda Darragh**

Executive Director, Levy Institute for Entrepreneurial Practice, Kellogg School of Management

#### John Flavin

Managing Director, Flavin Ventures LLC; Executive Director, U of C Chicago Innovation Exchange

#### **Robert Fleming**

Director, Strategic Planning; Land & Self Protection Systems Division, Northrop Grumman Corporation

#### **Laura Frerichs**

Director, University of Illinois Research Park

#### **Chris Gladwin**

Founder and CEO of Cleversafe

#### John Larson

General Manager, Alliance Management, AbbVie













: Cleversafe













CEO of Wellspring Worldwide

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Vice President of Government and Regulatory Affairs, Comcast



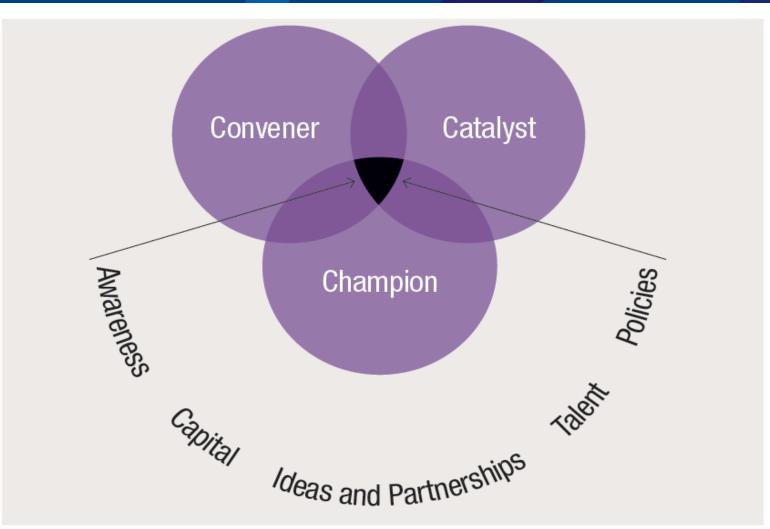




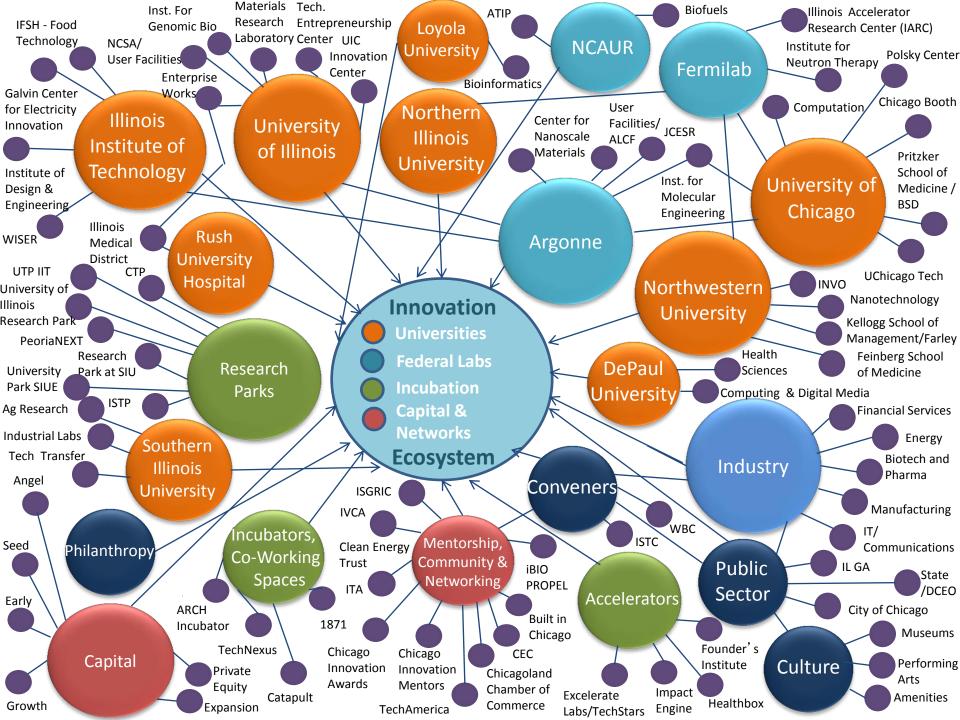




## **Strengthening 5 Pillars of Innovation**









Innovation

By the

Numbers



## Illinois Science & Technology Coalition

Chicago Booth Entrepreneurial Roundtable
October 20, 2014



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Wellspring









COMCAST



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**Civic Groups** 















### **ISTC Partners**

As a **collaborative entity**, the ISTC partners with key complementary organizations on specific projects to advance awareness, advocacy and economic growth



















































### **ISTC Board of Directors**

**Douglas Baker, Chair** 

President, Northern Illinois University

**Linda Darragh** 

Executive Director, Levy Institute for Entrepreneurial Practice, Kellogg School of Management

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Managing Director, Flavin Ventures LLC; Executive Director, U of C Chicago Innovation Exchange

**Robert Fleming** 

Director, Strategic Planning; Land & Self Protection Systems Division, Northrop Grumman Corporation

**Laura Frerichs** 

Director, University of Illinois Research Park

**Chris Gladwin** 

Founder and CEO of Cleversafe

John Larson

General Manager, Alliance Management, AbbVie





























CEO of Wellspring Worldwide

**Jeffrey Mays** 

President of Illinois Business Roundtable

**Azmi Nabulsi** 

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Director for the Illinois Department of Commerce and **Economic Opportunity** 

**Warren Ribley** 

Executive Director, Illinois Medical District

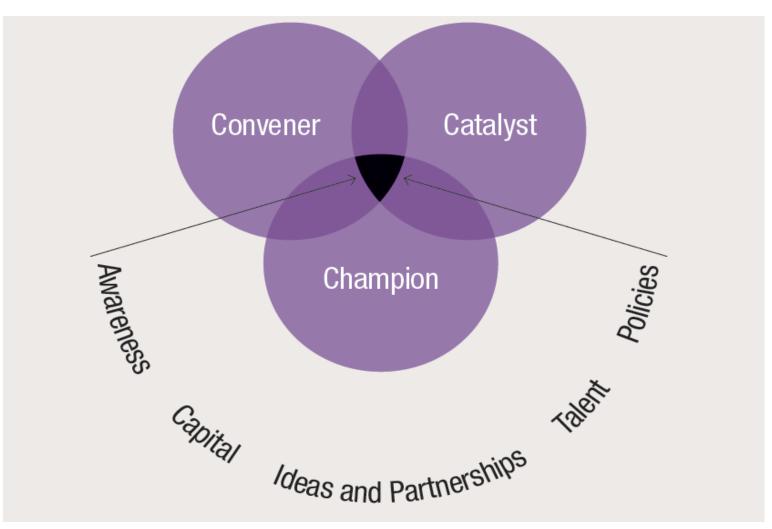
**Gerald Roper** 

President, Chicagoland Chamber of Commerce Foundation

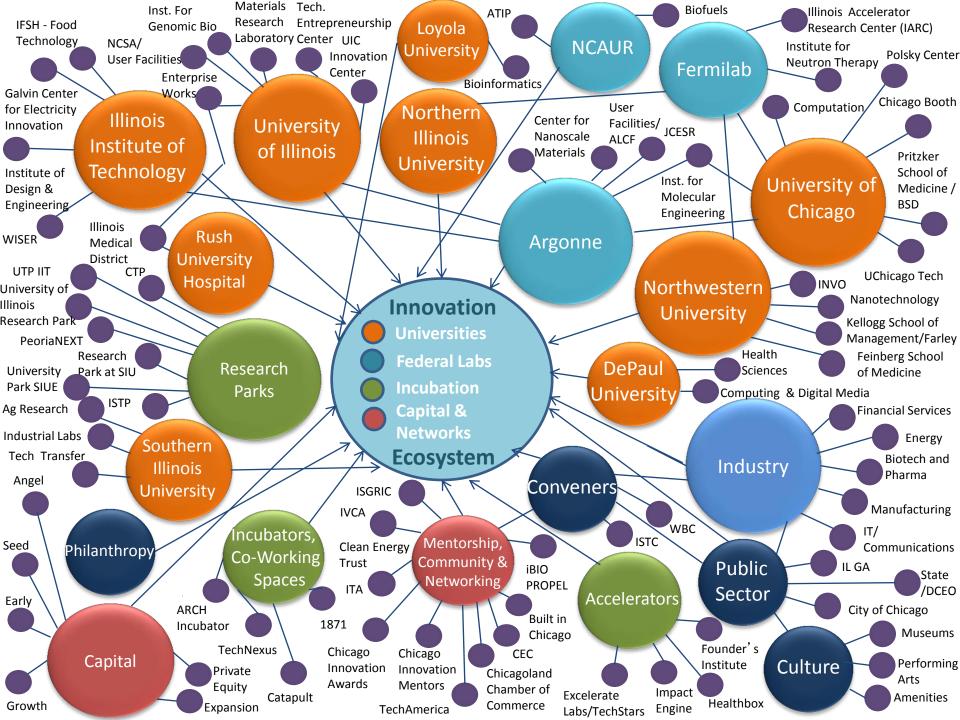
**Matthew Summy** 

Vice President of Government and Regulatory Affairs, Comcast

## **Strengthening 5 Pillars of Innovation**









Innovation

By the

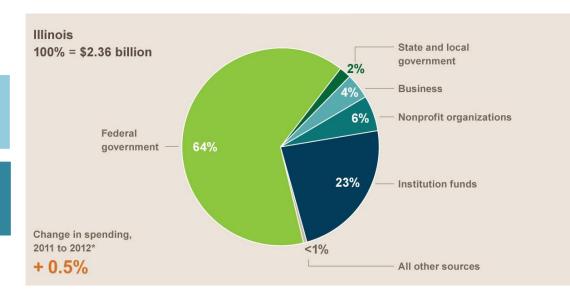
Numbers



### **Academic R&D**

\$2.36 Billion in R&D Expenditure by Illinois Universities

8<sup>th</sup> Highest State Academic R&D Expenditure in the Nation

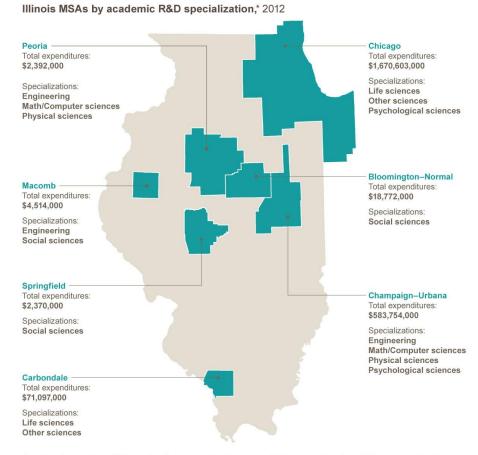




### **Academic R&D**

Champaign-Urbana's \$97.6
Million Investment in Math and
Computer Science R&D Ranked
7<sup>th</sup> Highest in the Nation

\$789 Million in NIH funding, 9<sup>th</sup> Highest in the Nation



Note: Location quotients (LQs) can identify local specialization across fields or industries. Here, LQs were calculated by comparing each metro's expenditures by research fields to the corresponding national distribution.

Source: National Science Foundation



<sup>\*</sup>Specializations on this map reflect LQs of 1.2 or higher.

### **Private Sector R&D**

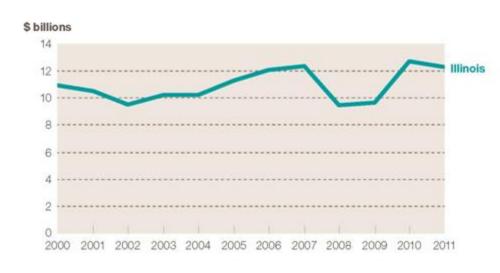
Over \$12.2 Billion in Private Sector R&D Spending

8<sup>th</sup> Highest Level of Private Sector R&D Spending

13% of Total National Private Sector R&D Spending

#### Industry R&D, United States and Illinois,

FY2000-2011, \$ billions<sup>1</sup>



Inflation adjusted to 2012 dollars.

Source: National Science Foundation



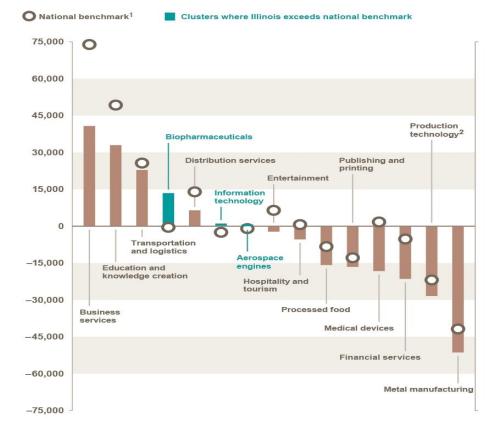
## **Industry Clusters**

Above national growth rate in Biopharma, IT and Aerospace employment

2012: Over 20,500 new business starts; Top 5 MSA

2012: Illinois 5<sup>th</sup> largest exporter; \$68 Billion in exports

Job creation by traded cluster in Illinois, net change in employment, 1998-2010



<sup>&</sup>lt;sup>1</sup> The national benchmark is a hypothetical projection based on each cluster's average national growth rate. Differences between the state and national trends illustrate cluster developments distinctive of the Illinois economy.

Source: U.S. Cluster Mapping Project



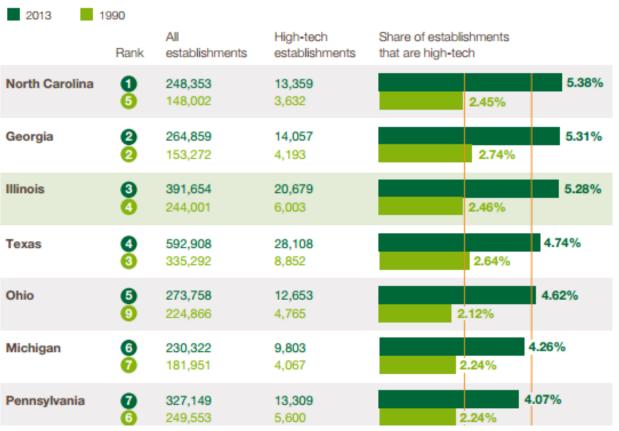
Source: Cluster Project; Dun & Bradstreet; Built in Chicago

<sup>&</sup>lt;sup>2</sup>Technology applied to the manufacturing and fabrication process.

### **Business Climate**

## Illinois ranks third among most populous states by concentration of high-tech establishments

#### Concentration of high-tech establishments, 10 most populous U.S. states, 2013 vs. 1990



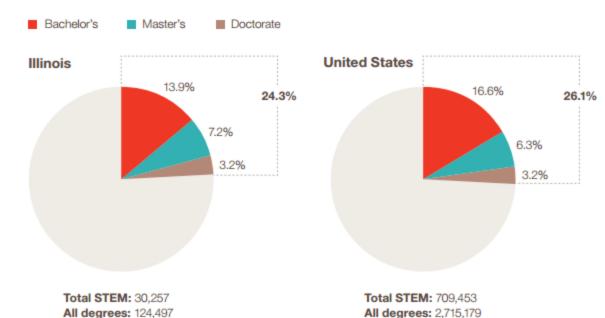


### **Talent**

STEM Degree Attainment on Rise – Exceed Nation in Advanced Degrees

**Health Related Fields - Fastest Growing STEM Degrees** 

#### STEM degrees as a percentage of all degrees, Illinois and the United States, 2012



Source: Integrated Postsecondary Education Data (IPEDS)/National Center for Education Statistics (NCES) Completions Survey, 2012



### **Dynamism**

## 47 percent increase patent volume over the past five years

Lag in disclosures and licensing

Over 70 percent biomedical or software innovation

### Growth in technology transfer in Illinois<sup>1</sup> and the United States, 2003–2007 vs. 2008–2012, percentage change



	2003-2007	2008-2012	Total, 2003-2012	Percentage change
Invention disclosures	57,596	69,007	126,603	19.8%
	2,775	3,212	5,987	15.7%
Patents issued	11,895	13,859	25,754	16.5%
	519	763	1,282	47.0%
Licenses	14,307	15,495	29,802	8.3%
	515	536	1,051	4.1%
	,	10,100		_

¹In this dataset, the University of Illinois, the University of Chicago, and Northwestern University account for almost all academic technology transfer output in the state.

Source: Association of University Technology Managers (AUTM), ISTC



<sup>&</sup>lt;sup>2</sup>Excluding Illinois.

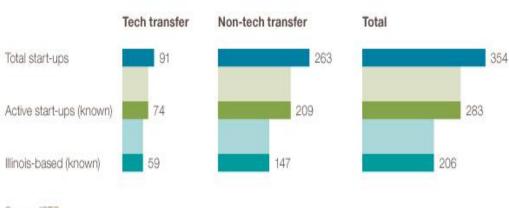
### **Dynamism**

+280 active university affiliated startups created since 2010

80 percent of active university startups remain in Illinois

23 percent growth year over year in startup creation since 2010

### Start-ups from Illinois universities, 2010-2013



Source: ISTC



### Research and Technology Parks

#### Illinois Science + Technology Park (ISTP

 Tenant companies include multinationals Astellas Pharma, APP Pharmaceuticals, Vetter Pharma

### The Chicago Technology Park (CTP)

Embedded in the Illinois Medical District (IMD)

#### **University Technology Park at IIT**

 Idea Shop, 13,000 square feet facility for studentindustry collaboration, 19 wet labs and 9 dry labs

#### **Peoria Next Innovation Center**

 Location of Bradley University Technology Commercialization Center (BTCC)

#### The Research Park at Univ. of Illinois

2011 Outstanding Research Park of the Year

#### The Southern Illinois Research Park

 Saluki Innovation Lab, 15,000 square feet and Saluki Concept Fund

## The University Park at Southern Illinois University Edwardsville

Home of the Corn-to-Ethanol Research Center







### **Incubators and Co-Working Spaces**



### **EnterpriseWorks**

- Top 10 Incubators to Watch (Forbes)
- 30+ tenant companies, including Yahoo, Caterpillar and Abbott



### **Tech Innovation Center**

Top 10 Incubators to Changing the World (Forbes)

Two
Forbes
Distinguished
Incubators



### The Incubator at IIT

 Designed with facilities for biotech and material science startups



#### Matter

 Med tech hub for healthcare entrepreneurs and investors



#### **TechNexus**

- Top 10 Incubator to Watch (Forbes)
- 160 companies launched



#### 1871

50,000 sq. ft. co-working space, 200 tenants, including Excelerate Labs, Starter League and ISTC



### **Catapult**

Over 15 peer-selected startups



#### **Industrious**

 17,000 sq. ft. space open loft space designed for startups with 10 or less employees



#### **Panzanzee**

 Dedicated exclusively to social innovation startups



### **Windy City Lab**

 Internet of Things (IoT) markerspace for prototyping



# Accelerators

## **Digital Innovation**



### **TechStars**

 One of the nation's premier accelerators



### **Founder Institute**

 World's largest accelerator startup; one of 37 chapters world wide

# Health and Food Innovation



### **Health Box**

 Accelerator jump starting heath care startups



### **Insight Labs**

 Accelerator focused on medical device innovation



### Fresh Startups\*

 Unique hands-on program focused on companies in health, fitness, and food

### **Social Innovation**



### **Impact Engine**

 Accelerator program jump starting social innovation startups



# **Startup Collaboratives**













**builtin** chicago









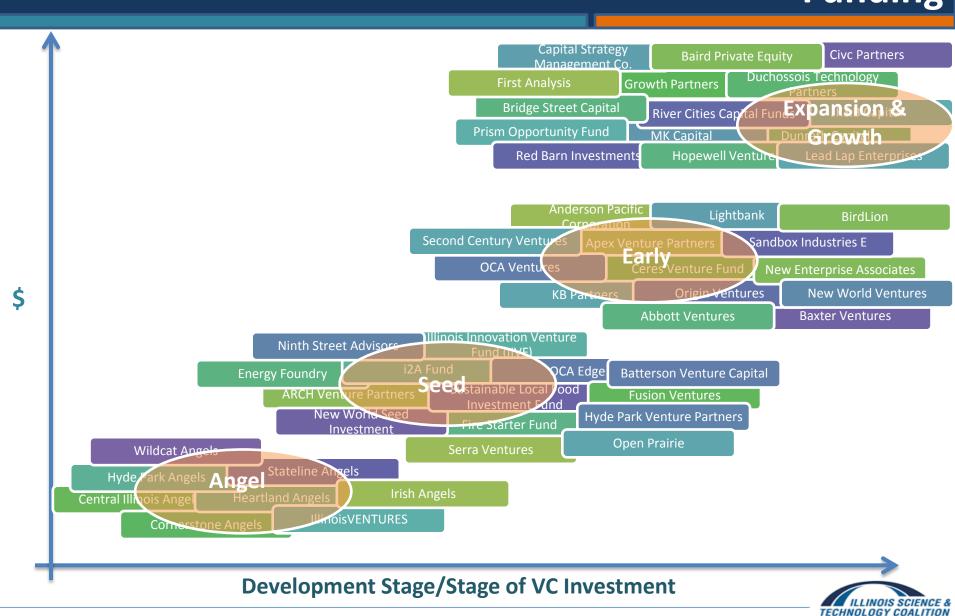








# Concentrated Seed, Early, and Later Stage Funding



# **Transportation Center Point**

America's Air and Rail Transportation Hub: 1.5 billion tons of freight



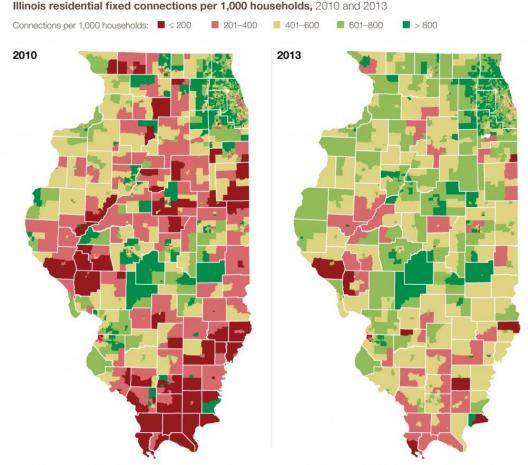
Center Point of Interstate
Transportation System





# **Industrial Strength Bandwidth**

70% Increase in Residential Broadband Connections from 2010 – 2013

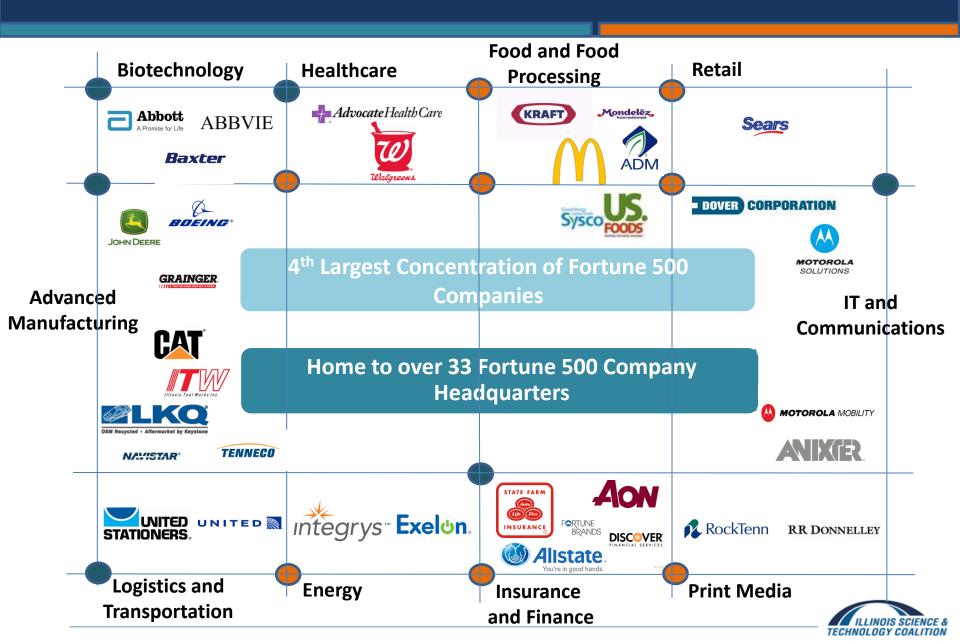


**Note:** This map shows the number of residential connections per 1,000 households by census tract. Connections have information transfer rates greater than 200 kbps in at least one direction and include all technologies except terrestrial mobile wireless.

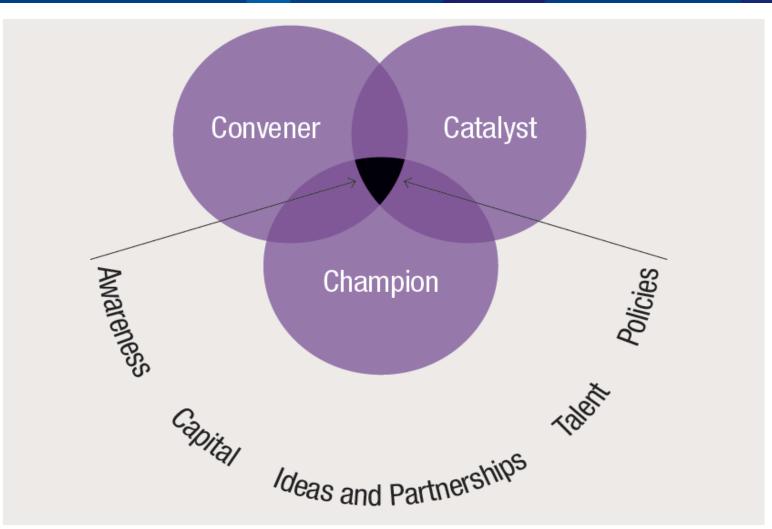
Source: Federal Communications Commission (Form 477, Part VI); household estimates by Geolytics



# **Fortune 500 Community**



# **Strengthening 5 Pillars of Innovation**





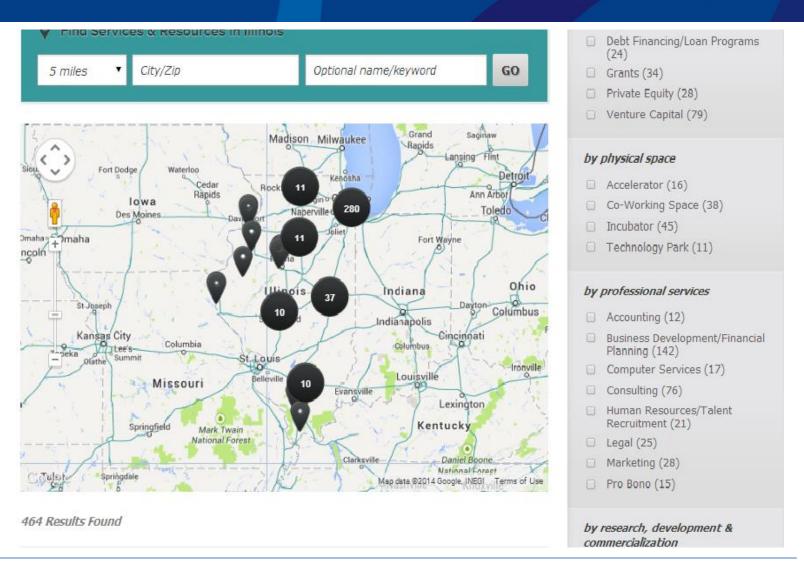
# **Awareness - Illinois Innovation Network**



Illinois Innovation Network website, <u>www.illinoisinnovation.com</u>, a central portal of 450+ resources and data, and platform to celebrate Illinois' legacy of innovation

TECHNOLOGY COALITION

# **Awareness - Innovation Network**





# **Awareness - Innovation Index**

The Illinois Innovation Index is a monthly publication distributed to 7,000+, showcasing metrics around capital, talent, business climate and dynamism









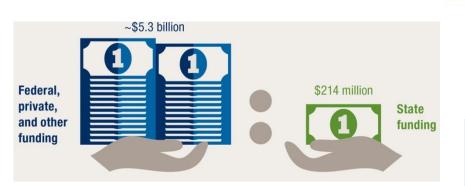
# **Capital & Infrastructure – Innovation Hubs**

# State funding

Over the last fifteen years the State of Illinois has invested **\$214 million** to support innovation hubs across the state and leveraged almost **\$5.3 billion** in additional support and investment, an almost **25:1** leverage of state dollars.

### **Companies supported**

At least



620

### companies

benefited from services, equipment, and infrastructure at innovation hubs throughout Illinois.

# Jobs created Innovation hubs have created or retained more than 5,600 direct jobs



### Top innovation hubs in Illinois

2 DeKalb

EIGERlab is a one-stop new and existing business incubator, accelerator and innovation center focused on assisting startups and existing privately held businesses to create wealth and jobs in our region. EIGERIab plays a critical role in the Rockford Area Aerosapoe Hetwork, which has created or retained over 3,300 jobs since launching in 2010. State support: \$1 million

Microelectronics Research and Development Laboratory (MRDL),

The MRDL provides a comprehensive facility for sensor prototyping and business incubation, offering the only semiconductor research and development facility in Northern Hinois outside of Chicago. The MRDL trains up to 60 undergraduates a year in high tech manufacturing

3 Batavia

#### Illinois Accelerator Research Center (IARC). Fermilab

The mission of the Illinois Accelerator Research Center at Fermilab is to use technology developed in the pursuit of science to create the next generation of industrial accelerators and products. The IARC program will begin in 2016 and within 10 years industry growth of \$250 million is expected from IARC activity. State support: \$20 million

9 Evanston



#### International Institute for Nanotechnology (IIIN), Northwestern University

The International Institute for Nanotechnology (IM) catalyzes and supports world-class interdisciplinary nanoscience research which is addressing the world's most pressing problems in medicine, environmental science, telecommunications, information technology, energy, homeland security, food and water safety, and transportation. To-date, researchers at the IIN have developed 1100 new products and services commercialized worldwide. Twenty companies have been launched based on technologies developed by IIN researchers.

State support: \$12 million

10 Skakie



#### Illinois Science+ Technology Park (ISTP)

The Illinois Science + Technology Park (ISTP), developed by Forest City, is a catalyst to transform Illinois into an economic engine for life science. bioscience, and nanoscience technologies. The ISTP ourrently serves as the Illinois HQ of four international bioscience companies.

State support: \$5 million

44 Lemont

#### Joint Center for Energy Storage Research

(JCESR), Argonne JCESR is a major research partnership that integrates government, academic, and industrial researchers from many disciplines to overcome critical scientific and technical barriers and create new breakthrough energy storage technology. JCESR has been awarded \$120 million over five years by the DOE to develop the next generation of battery technology.

State support: \$30 million



#### Advanced Photon Source (APS), Argonne The mission of the APS is

to deliver world-class science and technology by operating an outstanding synchrotron radiation research facility accessible to a broad spectrum of academic and industry researchers conducting research in areas such as biology, energy, and materials science. The APS has leveraged a total of over \$2 billion in federal dollars and \$90 million

from non-federal sources. State support: \$27.6 million

12 Chicago



#### 1871

1971 is an entrepreneurial hub for digital startups that provides Chicago startups with programming, access to mentors, educational resources, potential investors and a community of like-minded entrepreneurs that help them on their path to building successful businesses. 1971 companies have already raised over \$69 million in venture capital funding.

State support: \$2.3 million

Chicago Innovation

is a new hub for multidis-

ciplinary collaborations and

activities emerging from the

support for business startup

University of Chicago, Argonne,

Fermilab and Chicago's South

use a \$20 million Innovation

entrepreneurs translate their

gies into startup businesses

Fund to help scholars and

ideas and new technolo-

and products.

Side. The new center will

Chicago

Exchange, University of

The Chicago Innovation Exchange



# Health, Technology,

Digital Manufacturing

and Design Innovation

Institute (DMDII).

flagship research institute

design innovation and a

manufacturing hub with

to transform American

manufacturing. Public

contributing a total

the DMDII.

and private partners are

of \$320 million to create

State support: \$16 million

in digital manufacturing and

world-class, first-of-its-kind

the capabilities, innovation.

and collaboration necessary

UI LABS The DMDII will be the nation's

# Innovation Center (HTI).

Convening at the intersection of Health, Technology and Innovation, HTI is the first shared laboratory space aimed at supporting early-stage innovators as they validate ideas, convert technology into products and accelerate to venture readiness. Founded in late 2013, HTI is already working on accelerating the commercialization of publicly funded research at the University of Illinois at Chicago.

State support: \$1.7 million



### The Coalition

Coalition provides coworking and private office space to entrepreneurs and innovators in the Chicagoland energy community. The Coalition houses the Energy Foundry, created by state legislation to support smart grid technology commercialization and adoption.

State support: \$5 million

### University Technology

Park (UTP), IIT The University Technology Park at IIT's mission is to provide a place for companies to grow at virtually every stage of their development by creating an entrepreneurial ecosystem that helps companies thrive and leveraging the resources of IIT, state and local governments, private industry, investors and service providers to foster UTP companies' success. The UTP employs over 300 and affiliated companies have raised \$200 million in venture

State support: \$14 million

capital

MATTER Chicago MATTER is a hub for healthcare entrepreneurs supported with funding from the State of Hinois that will help jump-start and grow early-stage healthcare IT, medical device, medical diagnostics and biopharma companies.

State support: \$4 million

### Illinois Manufacturing Lab (IML), UI LABS

The IML deploys advanced manufacturing technologies to improve the productivity of product development systems and increase the profitability and revenue of small to medium size enterprises (SME), IML is a joint partnership between the State of Illinois and UI LABS.

# **Quad City**

4 Rock Island

#### Manufacturing Lab (QMCL), WIU

QCML is a public-private collaborative effort between industry, academia, and government to maintain the Quad Cities' innovative competiveness and ensure the rapid transfer of new developments in science and technology into manufacturing products and processes. OCML partners with the Rook Island Arsenal to improve weapons and equipment production for U.S. soldiers.

State support: \$0.6 million

6 Edwardsville -



University Park, SIU-E

University Park's mission is to mobilize the vast intellectual and applied research capabilities of SIU-E and facilitate interaction with leading-edge research and technology-based businesses and benefit the economic development of the region by attracting new business and investment dollars to the area. Fifteen companies call the University Park home and employ 33 SIU-E graduates.

State support: \$1.49 million

**©** Peoria



### PeoriaNEXT, Bradley

University PeoriaNEXT serves as a catalyst in the development of technology-based entrepreneurial businesses resulting in the diversification of our regional economy and the establishment of an epicenter for the entrepreneurial community. PeoriaNEXT facilitates hundreds of partnerships per year and supports over 90 jobs and 16 tenant companies.

State support: \$4.5 million

7 Carbondale



#### Southern Illinois Research Park (SIRP), SIU-C

SIRP's central activity is enterand expand knowledge-based, technology, and researchoriented enterprises at the SIRP's expert technical assistance to local businesses secure over



prise development to locate site through recruitment and eligible existing and startup enterprises. SIRP has helped \$6.5 million in funding and supports close to 400 jobs.

ResearchPark, UIUC

Research Park at the University of Minois at Urbana-Champaign is a technology hub for startup companies and corporate research and development operations. The research park currently hosts 95 companies. Tenant startups have raised over \$576 million in venture

capital since the Research Park's founding in 2001. State support: \$7.97 million

8 Urbana-Champaign



#### Located on campus, the Applications (NCSA), The National Center for Super-

computing Applications provides powerful supercomputers and expert support that help scientists and engineers better understand and improve our world. NCSA is home of the Blue Waters supercomputer and collaborates extensively with industry, including one-third of the Fortune500, NCSA's computing power is a critical resource for local corporations such as John Deere and Caterpillar.

State support: \$60 million

# **Policies – Immigration Reform**

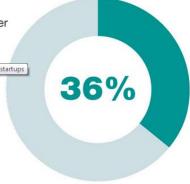
# Immigrant STEM\* advanced degree graduates, Masters and PhD, 2011-2012 Temporary residents Permanent residents/citizen 2012 2,828 3.597 2011 2,668 43% 3.595



Source: National Center of Education Statistics (NCES); ISTC analysis

#### **Immigrant-founded startups**





<sup>\*</sup>Of 223 active companies created from universities in Illinois between 2010 and 2013 for which founder data was available.

\*\*In this case, immigrant refers to anyone foreign born, regardless of immigration status.



Source: ISTC University Entrepreneurship Survey, 2013

# **Policies - S&T Roadmap Technology Clusters**

		DCEO economic development plan industries					
Roadmap technology clusters	Advanced materials	Agribusiness, food processing, and technology	Biomedical/ biotechnical	Clean energy	IT and telecom- munications	Machinery and fabricated metal products mfg	Transportation and logistics
Advanced materials: Alloys							
Advanced materials: Polymers							
Batteries and energy storage							
Biofuels and biomass- derived products							
Medical biotechnology							
Nanotechnology							



# **Policy Focus Areas**

✓ Drive connectivity between academia and industry

Assist high-potential technologies and startups

Ensure resources for capital infrastructure needs



# **Talent - STEM Education**

• Illinois Pathways Initiative - \$10.3M publicprivate initiative to better prepare students for careers in STEM fields



The Illinois Science & Technology Institute (ISTI), runs the R&D Learning Exchange, a coalition of more than 50 cross-sector partners to support more authentic, inquiry-based learning experiences and spark student interest in R&D careers







High Schools	High Schools	Post-Secondary Education Institutions	Industry Partners	Nonprofits & Gov't Agencies
Chicago Vocational Career Academy	DePaul College Prep	Illinois Institute of Technology	АТ&Т	Argonne National Laboratory
Hinsdale Central High School	Glenbrook South High School	Illinois State University	Baxter	Brookfield Zoo
Illinois Math and Science Academy	Lake View High School	Loyola University Chicago	Comcast	Chicago Council on Science & Technology
Instituto Health Sciences Career Academy	Minooka Community High School	Northern Illinois University	ComEd	Fermi National Laboratory
Lane Tech College Prep	Naperville North High School	Northwestern University	Microsoft	iBIO Institute
Lindblom Math and Science Academy	North Chicago Community High School	Oakton Community College	Motorola Mobility	Illinois Business Roundtable
Muchin College Prep	Prairie Central High School	Southern Illinois University	Motorola Solutions	Illinois Junior Academy of Science
Niles North High School	Maine South High School	University of Chicago	Northrop Grumman	Illinois Science & Technology Coalition
Oak Park River Forest High	Maine West High School	University of Illinois Urbana- Champaign	Takeda Pharmaceuticals	Museum of Science & Industry
Palatine High School	Urbana High School		TGG Group	Network for Teaching Entrepreneurship
Waukegan High School	Von Steuben Metropolitan Science Center			NSERVE
Wheeling High School	Washington Community High School			Shedd Aquarium

# CORPORATE STARTUP CHALLENGE







"Smart corporations are aggressively looking to engage with startups through partnerships, investments, and acquisitions. But they need to do so in structured ways that allow them to manage the apparent chaos."

"...85 percent of corporate respondents said that collaboration with startups and entrepreneurs will drive success for their organization in the future."

- 2014 GE Global Innovation Barometer

# MISSION



The Illinois Corporate-Startup Challenge creates a bridge between the major corporations that serve as the backbone to Illinois' economy and the startup businesses that will power it through the 21st century. By better connecting the corporate world to the entrepreneurial community, the Corporate-Startup Challenge will not only foster more innovation but also advance a stronger Illinois economy. Every six months, we assemble a class of Fortune 1000 corporations and pair them with startup companies that address their innovation needs through a highly curated matchmaking process.

# PROGRAM LEADERSHIP





The Corporate-Startup Challenge is made possible because of the leadership of **Governor Pat Quinn** and the generous support of the Illinois Department of Commerce and Economic Opportunity



The **Illinois Innovation Council (IIC)** is a leadership group convened by governor Pat Quinn to identify and advance strategies that accelerate innovation, economic growth and job creation. The IIC created the Corporate-Startup Challenge to encourage all Illinois companies to support the growth of the state's emerging businesses.



The **Illinois Science & Technology Coalition (ISTC)** is a member-driven, non-profit entity that drives public-private partnerships between industry, research universities, federal labs and government. The ISTC administers and provides staff support for the Corporate-Startup Challenge on behalf of the Illinois Innovation Council.

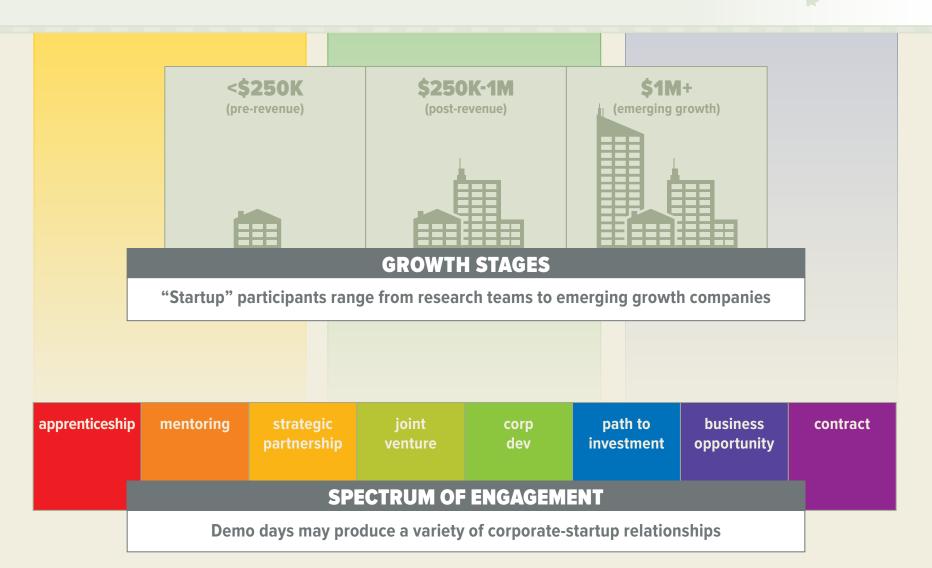


### Freshwater Advisors

**Freshwater Advisors** is a venture development firm that helps high-growth entrepreneurs and corporations with business development, market research, strategy execution, and fundraising advisory services. Freshwater provides consulting and project management support for the Corporate-Startup Challenge.

# PROGRAM MODEL DNA





# PROGRAM PROCESS







**PILOT CLASS** 

**SPRING 2014** 

**WINTER 2015** 





















**ADM** 









# PILOT CLASS - CORPORATE INNOVATION OPPORTUNITY AREAS

**Battery/Power Management** 

**App Development** 

**3D Printing/Rapid Prototyping** 

**Consumer-Machine Communications** 

**Cyber Security** 

**Hardware/Devices** 

**Health + Wellness** 

**Materials and Material Science** 

UX/UI

**Sensors** 

**Data Analytics** 

**Digital Imaging** 

**E-Commerce** 

**Machine-Machine Communications** 















### **PROGRAM TRANSPARENCY:**

# **COMMUNITY PARTNERS**

### **Civic & Non-Profit Groups**



### **Incubators and Accelerators**



### **Venture Capital**



### **Universities/Labs**

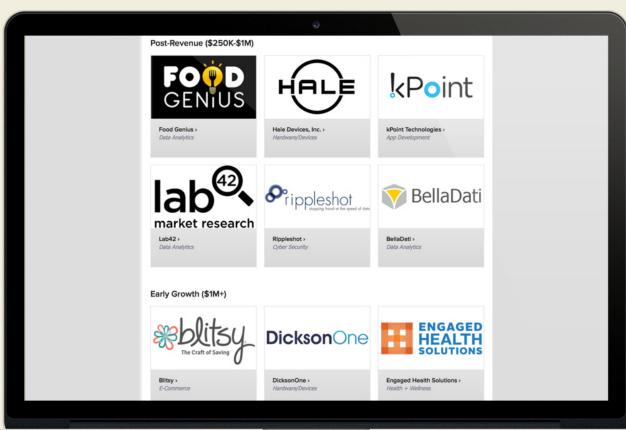








# **DIGITAL PORTFOLIO**







# TRACKING ENGAGEMENT:

# **INNOVATION FACILITATION**

### **Value**

for Corporations <> Startups

# **Tracking & reporting**

module in custom-built platform

### "Scorecard"

for corporate tracking of engagements

# **Streamlined processes**

to facilitate engagement (e.g. develop boilerplate language for pilot/prototype agreements)

INNOVATION SCORECARD	21
Meetings	3
Advisors Placed	2
IDAs	1
Partnerships Secured	1
Investment Commitments	\$750,000
Investment Dollars	

# **ILLINOIS** CORPORATE-STARTUP CHALLENGE



### AGGREGATE PROGRAM METRICS

startups + emerging technology companies referred by 30+ community partners

companies interviewed

companies referred to portfolios (21-34 startups per corporate portfolio)

selected to present at private demo days to date (31 from university partners)

companies have received ongoing engagement through mentorship, contract, or investment opportunities

















# **ILLINOIS** CORPORATE-STARTUP CHALLENGE



### **PROGRAM OUTCOMES**

# Startup matchmaking effort shows early wins, expands



















# **AWARENESS**





Illinois Science and Technology Coalition honored by national group Originals

This article is related to: Business, J.B. Pritzk

based company founded by Northwestern University students that developed antenna

See STARTUPS on Page 8





**EVENTS** 

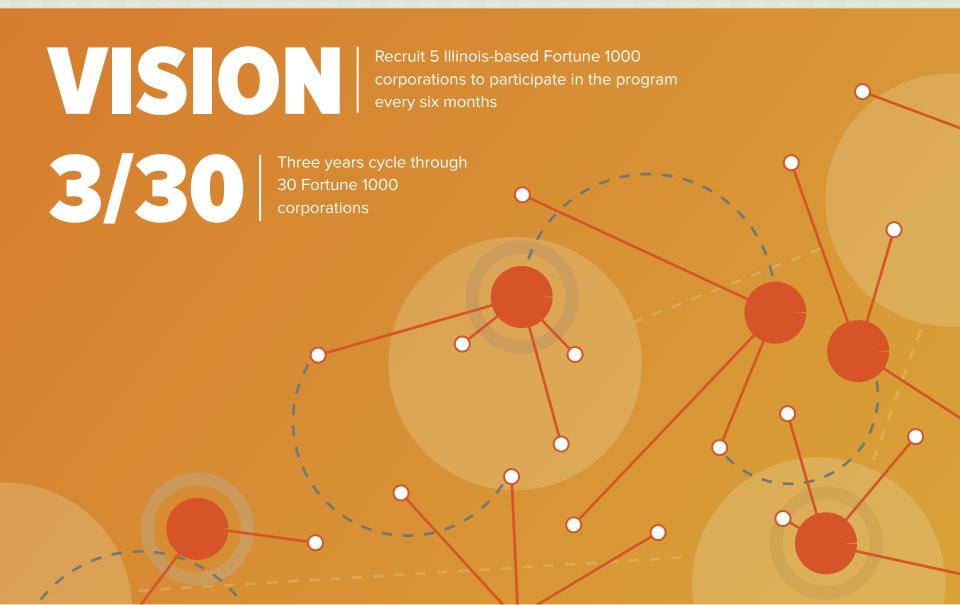
BLUE SKY ORIGINALS

INNOVATION HUB

Big-company innovation

# LOOKING FORWARD





# **Contact Us**

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