ILLINOIS INNOVATION INDEX

2023 University Entrepreneurship Report

Universities Drive New Venture Creation

Powered by ILLINOIS SCIENCE & TECHNOLOGY COALITION

INTRODUCTION FOR 2023

The innovation economy of Illinois is powered by investments in the education of more than 27,000 STEM graduates. Many of these individuals will become professionals at large companies, but others will utilize the skills they've acquired to create more entrepreneurial endeavors; generating business plans, creating new technologies and products, and launching new companies through commercialization. This is the focus of the University Entrepreneurship Report.

2023 marks ISTC's 9th publication of this truly distinct Index publication focused on the generation of new small businesses in the state through university assistance and affiliation. The collective work of technology transfer offices (TTOs) across the state creates jobs, provides a foundation for design thinkers with big ideas, and accelerates growth. Our survey covers entrepreneurial endeavors pursued by faculty, staff, professors, and students across our 12 partnering institutions of higher education in Illinois.

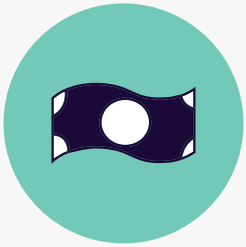
This survey does not include sole proprietorships, small businesses formed by the alumni of these universities, or other companies leveraging entrepreneurship programs offered by the universities (without university founders). ISTC reports its survey data in five-year stretches, thus the startups incorporated into this Index were formed sometime between the beginning of academic year 2018-19 through academic year 2022-23 (See Methodology).

Technology based economic development (TBED) remains a central focus for ISTC and although national economic factors continue to slow growth, the state of Illinois' economic performance over the last two years has remained strong. 2022 marked a significant milestone in the state's history as the economy surpassed $1T in annual GDP for the first time (Chicago Crains).

KEY FINDINGS

- **New university-affiliated startup creation has dipped** from 760 in ISTC's 2022 University Entrepreneurship Report to 694 in 2023
- Of the **694 startups founded over the last five academic years** in Illinois, 107 (15%) were tech transfer (licensing university intellectual property), and 587 (84%) were non-tech transfer (predominantly student-led ventures)
- Of the University-supported startups founded in the last five years, **433 remain active (62%)**
- **36% of startups founded in the last five years have closed** or have not scaled their business, a status called 'inactive"

- 65% of tech transfer startups were in the **Biotechnology sector**
- **Clean tech startups** represent 5% of the university-supported populations, compared to 4% in 2022, this is an industry milestone; it is yet to be determined if this growth is a trend
- Of the active university-supported startups founded over the last five years **83% (359) of our surveyed entrepreneurs remained in Illinois**; this is 2.6% higher than 2022



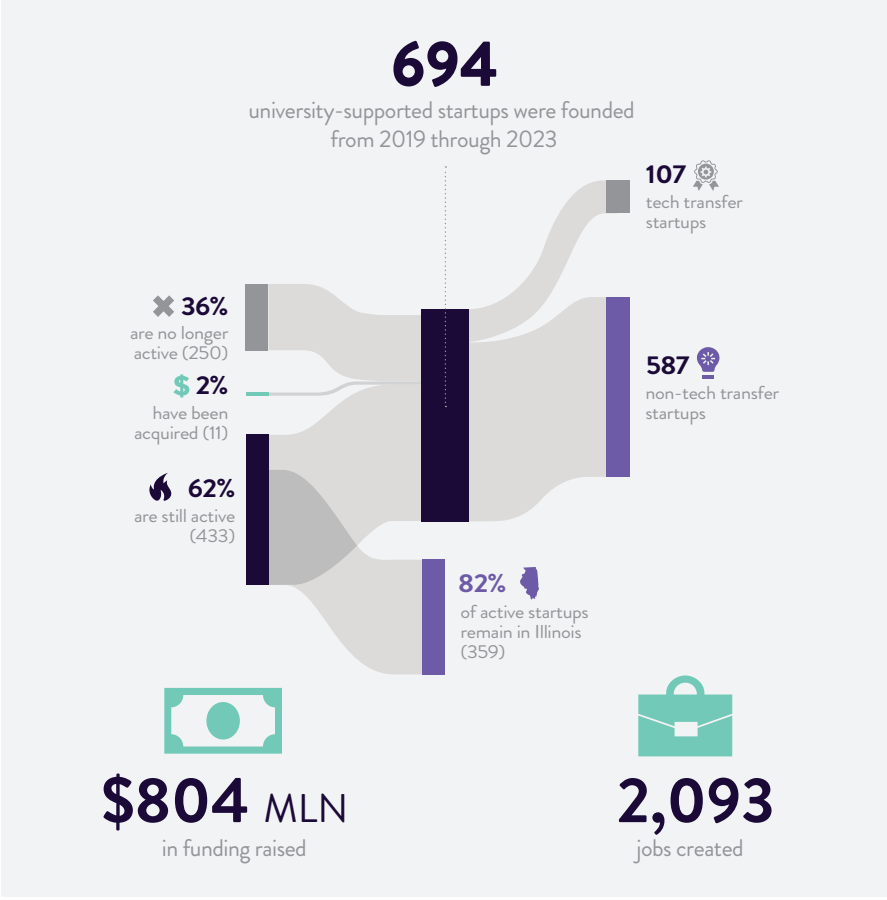
- There have been **2,093 jobs created** as a result of these university-supported ventures
- There are currently **1,558 active jobs** and 1,164 are occupied by founders or employees of a startup headquartered in Illinois
- Since 2017, there has been a 13% year-over-year **cumulative growth in the number of patents** created in Illinois

- **University-affiliated startups founded by women** increased their share of the startup population, from 28% in the 2018 Index to 40% in 2023
- 68% (128) of **startups that have a woman founder or co-founder remain active**; higher than the general population activity rate of 62%
- Most **I-Corp participants** continue to keep their businesses in Illinois (90%) and remain currently active (72%)

2023 OUTLOOKS

Startup Overview

2019 to 2023



Source: ISTC University Entrepreneurship Survey

STARTUP CREATION

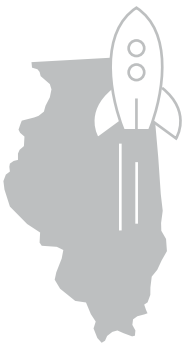
Startup Activity Takes a Slight Dip from 2022 to 2023

Over the last five academic years (2019 to 2023), 694 startups were founded at Illinois campuses. In the previous five-year period (2018 to 2022) 760 startups were created at Illinois universities. This reflects a decrease of 8.7%.

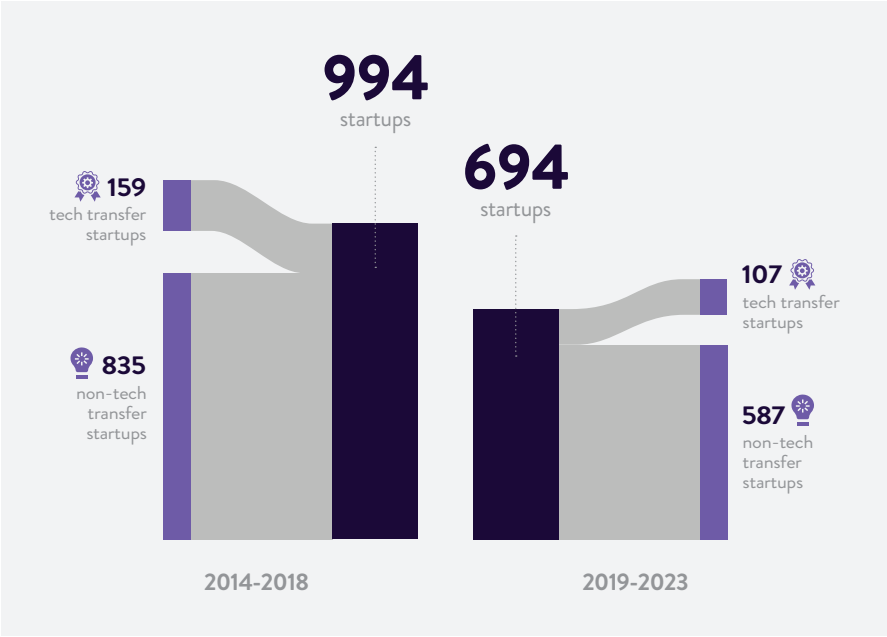
Comparing to years prior reveals that startup creation has slowed in the state. Between 2014 and 2018, 994 university-supported startups were created on Illinois campuses. 835 of those startups were non-tech transfer while 159 were tech transfer.

The creation of non-tech transfer startups, which are considerably more likely than tech transfer startups to be created exclusively by students, continued to slow during the most recent five-year period. The 2023 survey shows there are 44 less non-tech transfer startups in this year's dataset compared to last year (641 vs. 597).

To date, 433 of 694 (62%) university-supported startups created in the last five years, remain active. This percentage of continued activity is down 13.2% from the 75.5% reported in the 2022 University Entrepreneurship Report. There were 250 (36%) startups that were formed and went inactive within the last five academic years, while 11 (2%) have been acquired. Of the startups that remain active, 359 (83%) remained in Illinois. 74 active university-supported startups moved outside the state.



Startup Activity by Period



Source: ISTC University Entrepreneurship Survey

▲ ***Alnair Therapeutics wins $585,000 at the 27th Annual Edward L. Kaplan, '71, New Venture Challenge on Thursday, June 1, 2023.*** *(Photo courtesy of the University of Chicago's Polsky Center for Entrepreneurship and Innovation. Photo by Anne Ryan.)*

STARTUP SPOTLIGHT

THE UNIVERSITY OF CHICAGO

MARVIEW

Polsky New Venture Challenge & Top Prize Winner

The University of Chicago's Polsky Center for Entrepreneurship and Innovation hosted the 27th edition of its signature venture competition, the Edward L. Kaplan, '71, New Venture Challenge (NVC) Finals, on June 1, 2023. The top three prize winners—Alnair Therapeutics, reOrbital, and EverLeather—together received nearly $1.2 million to scale their businesses (UChicago Press Release on Competition).

While they didn't win this year's New Venture Challenge, clean tech startup Marview used the opportunity to pitch and further develop their business plan. They walked away from the competition with new connections and $85,000 in venture funding after taking the 4th place prize. Marview founders, Eric O'Neil and Brian Schmid, recognized that the wide availability of logistics and software applications for overland transport was not present for maritime shipping. While it is easy to find data on traffic conditions and delivery times for highways and road systems, there are not as many applications compiling the data collected by ships and maritime operators. Marview offers this data in one centralized location and provides insights to business owners so they can better understand opportunities and difficulties within the global supply chain.

Early-stage startups benefit from startup competitions at universities across the state, including DePaul University's Coleman Entrepreneurship Center Pitch Madness Competition; Illinois State University's Means Center Startup Showcase; Illinois Tech's Innovation Challenge and Kaplan Pitch Tank Competition; Northern Illinois University's College of Business Big Idea Pitch Competition; Northwestern University's VentureCat; Bradley University's Big Idea Competition; Southern Illinois University's Saluki Pitch Competition; Loyola University's New Venture Pitch Competition; the University of Chicago's Edward L. Kaplan, '71, New Venture Challenge (NVC); and University of Illinois at Urbana-Champaign's Cozad New Venture Challenge.

Some of Illinois' active university funds include Illinois State University's William and Nancy Yarger Entrepreneurial Support Fund; Northwestern University's N.XT Fund, Lakeside Discovery, NewCures, and NUSeeds; the University of Chicago's George Shultz Innovation Fund and Startup Investment Program; University of Illinois' Illinois Ventures along with Illini Angels and the I-Start Seed Fund; and University of Illinois-Chicago's UIC Pitch Competition funds. Several other sector-specific opportunities for Illinois entrepreneurs are present across the state, such as the University of Chicago's DeepTechU Venture Conference, Duality, and the University of Illinois Urbana-Champaign's AgTech Accelerator.

▲ *Photo courtesy of Mike Stubbs*

STARTUP SPOTLIGHT — BRADLEY University

THE CLAW LLC

Bradley University and the Expansion of the Peoria NEXT Innovation Center

Interview with Mike Stubbs

Peoria has recently made strides to showcase how regional innovation can thrive in ex-industrial regions. Despite the lack of resources that the downstate has at its disposal in terms of patent generation and startup creation, particularly around financing, Peoria is an example of how small—and medium sized communities can lead into the future. ISTC caught up with Mike Stubbs, Bradley University's director of technology commercialization and director of the NEXT Innovation Center, about Peoria's innovation community. "Each step we take to improve Peoria's small business environment is done in pursuit of the Comprehensive Economic Development Strategy (CEDS) that was constructed by a cross-section of groups in collaboration with the Greater Peoria Economic Development Corporation. Our goal is to market Peoria as a hub not just for manufacturing, but also for agricultural innovations and life sciences. Peoria NEXT is home to the only leasable wet lab space outside a university for more than 100 miles." The Pritzker Administration and the Department of Commerce and Economic Opportunity have certainly taken notice. This year, the Illinois Manufacturing Excellence Center announced an agreement with Peoria NEXT to cover the first three months

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of tenancy at the incubator for any small-or medium-sized manufacturing firm looking to relocate. This adds to the quantity of strong programming already created, like the IMEC Supply Chain Resource Center, the AgLab, and the Peoria SmartStart Dashboard created last year. Mike commented on the value of the Supply Chain Resource Center; "Without one central database, it can be difficult to find these niche suppliers due to these smaller shops having a smaller presence online, which is the benefit of the IMEC Supply Chain Resource Center." Bradley University in Peoria hosts the Big Idea Competition each year. In Spring 2022, 'The Claw' LLC won the competition with an innovative new epoxy applicator. Epoxies are used in a variety of construction and homebuilding projects. Founders Devin and Joe Soldati, and Matthew Klein wanted to find a less labor-intensive method for applying trade adhesives. Their design replaces the traditional 'ratcheting' method for applying epoxies with a new screwing mechanism. This screwing schematic is particularly useful in securing anchor bolts embedded into concrete; these bolts are later used to attach additional structural elements to the concrete base. The Claw team recently became the most recent Bradley University startup to complete the Distillery Labs gBETA Accelerator program. This collaboration between Bradley and Distillery is one example of how Peoria sets the standard for cross-sector cooperation. The Claw announced they achieved patent pending status with the U.S. Patent and Trademarking Office in April 2023.

There have recently been changes in leadership in the Peoria innovation community. Doug Cruitt has been named the new executive director of Distillery Labs (interview with Doug about the Technology and Innovation Center). Peoria NEXT Director Mike Stubbs noted that he is excited to work with Doug as they are both passionate about the growth and revitalization of the region. He is hopeful that collaboration with Distillery will help Peoria NEXT reach its goals for 2024, including reaching capacity for its wet lab space, which is currently at 85% occupancy for the year.

Illinois is home to some of the most innovative universities in the United States. Pitchbook's data on alumni founders cites that the University of Chicago's Booth School and Kellogg School of Management at Northwestern are both in the top ten nationally for MBA programs that facilitate womens' entrepreneurship. The state of Illinois has 3 institutions within the top 20 universities in the U.S. for total venture capital raised by alumni founders: #11 Northwestern with $50B, #14 University of Chicago at $45B, and #19 University of Illinois Urbana-Champaign (UIUC) at $33B. At UIUC, the $33B fundraised by former students represents the 4th highest total in the nation for public universities.

DEPAUL UNIVERSITY
Coleman Entrepreneurship Center

NORTHERN ILLINOIS UNIVERSITY
EIGERlab

WESTERN ILLINOIS UNIVERSITY
Quad City Manufacturing Lab

BRADLEY UNIVERSITY
Peoria Next

ILLINOIS STATE UNIVERSITY
Means Center

UNIVERSITY OF ILLINOIS AT SPRINGFIELD
Innovate Springfield

SOUTHERN ILLINOIS UNIVERSITY EDWARDSVILLE
Research Park

SOUTHERN ILLINOIS UNIVERSITY CARBONDALE
Research Park, Small Business Development Center

ROSALIND FRANKLIN UNIVERSITY
Innovation and Research Park

NORTHWESTERN UNIVERSITY
The Garage

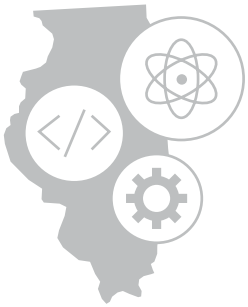
ILLINOIS INSTITUTE OF TECHNOLOGY
University Technology Park, Kaplan Institute

THE UNIVERSITY OF CHICAGO
Polsky Center

UNIVERSITY OF ILLINOIS AT CHICAGO
Health Technology Incubator

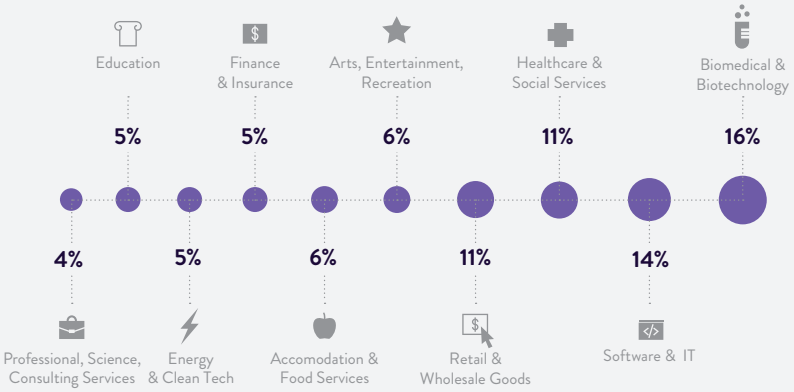
UNIVERSITY OF ILLINOIS AT URBANA-CHAMPAIGN
Research Park, EnterpriseWorks

When examining university-supported startups founded over the last five years by industry, the biomedical and biotechnology sectors continue to lead with 114 new ventures. Software and Information Technology follow closely behind with 102 and Healthcare and Social Services round out the top with 80 new ventures. Other industries include Retail and Wholesale goods (79), and Utilities and Clean Tech (35). Clean Tech startups went from representing 4% of the university-supported startup population in the 2022 University Entrepreneurship Report, to 5% in 2023. Biotechnology startups in our dataset that licensed university IP made up 70 of the grand total of 107 tech transfer startups or 64.8%.



Startups by Industry

Top 10 Industries
2019 to 2023



Source: ISTC University Entrepreneurship Survey

▲ ***Top Tier Lessons team members Cara Bognar (left) and Allison Landis (right).*** *(Photo courtesy of University of Illinois Urbana-Champaign.)*

STARTUP SPOTLIGHT

UNIVERSITY OF ILLINOIS URBANA-CHAMPAIGN

UNIVERSITY OF ILLINOIS URBANA-CHAMPAIGN
Student Startup Competition

The Cozad New Venture Challenge for 2023 featured a new track for innovators in the health space. Carle School of Medicine's Health-make-a-thon was integrated into the New Venture Challenge this year and women-led startups finished first and second in this year's competition. Top Tier Lessons, led by University of Illinois Urbana-Champaign (UIUC) swimmer Cara Bognar and Grainger School of Engineering student Allison Landis, finished in first place and received a $45,000 prize.

This year has been big for Top Tier Lessons and their University of Illinois colleagues, as the team also tied for first place at

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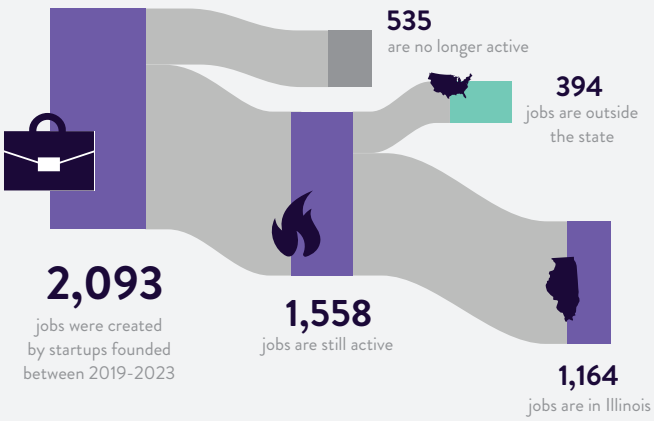
the Polsky Center's College New Venture Challenge earlier in March. Top Tier Lessons joins a prestigious list of Cozad Grand Prize winners, including recent winners Natrion, Trala, and Psyonic. Second place at the Cozad New Venture Challenge went to two other innovators who are women—Priya Kumar and Uditha Venkata Velidandla. Priya and Uditha are building a medical device company to improve accessibility at the gynecologist's office. The competition was extremely stiff this year as Cozad had record participation in their entrepreneurial workshops; 90 teams participated in the Demo Showcase in Champaign. They have named the device company Sakura MedTech and plan on building out their team with the help of colleagues at the Research Park and the University of Chicago. Between the Cozad and Polsky Center New Venture Challenge, Sakura MedTech has won $50,000 in prize money, a major milestone for young business builders.

Within the last five academic years, our universities and research affiliates helped create 2,093 jobs. University-supported startups create flexible and impactful roles, meaningful high-skilled positions, and innovative ideas that push the state's economy forward. Of the more than 1,500 active jobs, 75% (1,164) remain occupied by founders or employees of a business headquartered in Illinois. Increases in federal funding for workforce development could transform many of these small businesses, and help them grow.

Job Creation

2019 to 2023



Source: ISTC University Entrepreneurship Survey

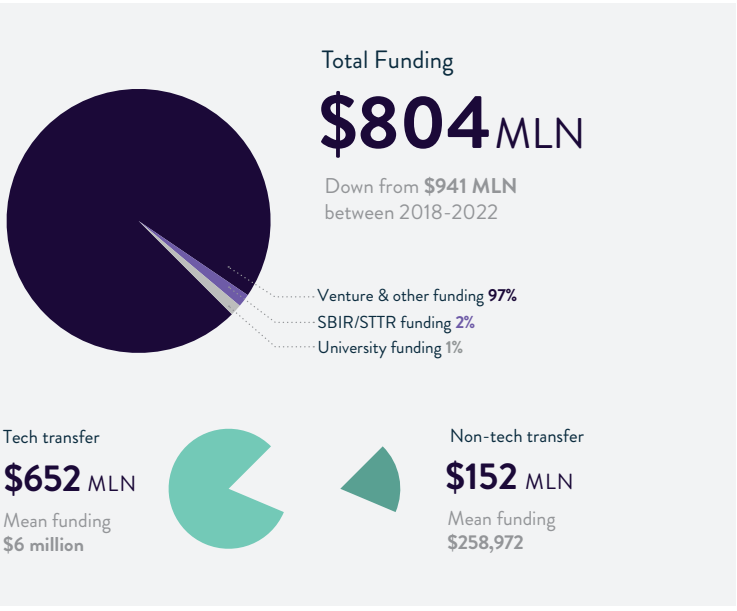
FUNDING

Startup Funding Slows

Last year, we reported that for the period from 2018 to 2022 funding numbers were $941M. This year, we find that for startups formed over the last five academic years, funding fell to just $804.1M. Startup founders usually receive funding from four sources; university investments like competition prize money, venture capital investment, private equity financing, and federal grants. Each of these pathways make up the total funding amount that we report. Non-tech transfer startups—those predominantly student-founded enterprises—were again disproportionately impacted by the decrease in funding, receiving $152M compared to the $170M reported in our 2022 University Entrepreneurship Report. For tech transfer startups, $652.1 million was allocated toward those ventures from 2018 to 2022. The average non-tech transfer startup received $258,972. Overall, most of the funding—$782.1M (97%)—came from venture capital and other sources, including federal grant programs, nonprofits, and accelerators. Universities accounted for $10.4M (1%) of the funding, which is $600K (0.26%) higher than the 2022 University Entrepreneurship Report. Small Business Innovation Research (SBIR) made up $12.5M (2%) of funding.

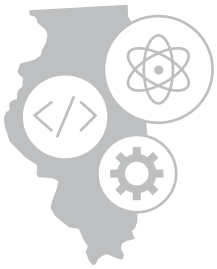
Startup Funding by Source

2019 to 2023



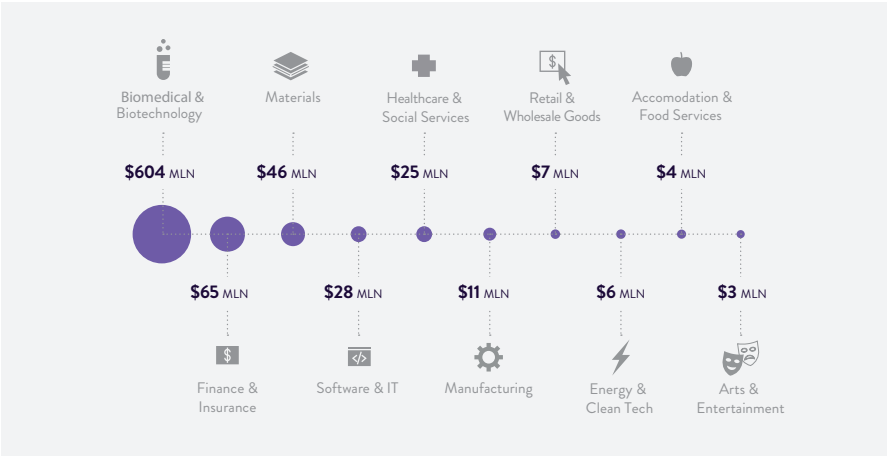
Source: ISTC University Entrepreneurship Survey

Biomedical and biotechnology startups received an overwhelming majority of the funding with $604M. Other industries that received funding include Finance and Insurance ($65M), Materials ($46M), Information Technology ($28M), Healthcare ($25M), Manufacturing ($11M), Retail ($7M), Clean Tech ($6M), Accommodations and Food Services ($4M), Arts and Entertainment ($3M), Education Tech ($1M), Real Estate ($1M), Agriculture ($600K), Transportation ($500K), Other ($300K), and Professional Services ($150K).



Funding by Industry

Top 10 Industries
2019 to 2023 ($M)



Source: ISTC University Entrepreneurship Survey

University-supported startups that receive direct university funding are slightly more likely to have remained active or have been acquired over the last five years as opposed to those who did not receive such support. The data shows that 67% of startups that receive direct university funding support remain active or have been acquired, compared to 61% of startups that did not receive the same university support.

Direct University Funding

2019 to 2023

Source: ISTC University Entrepreneurship Survey

I-Corp Participation and SBIR Funding

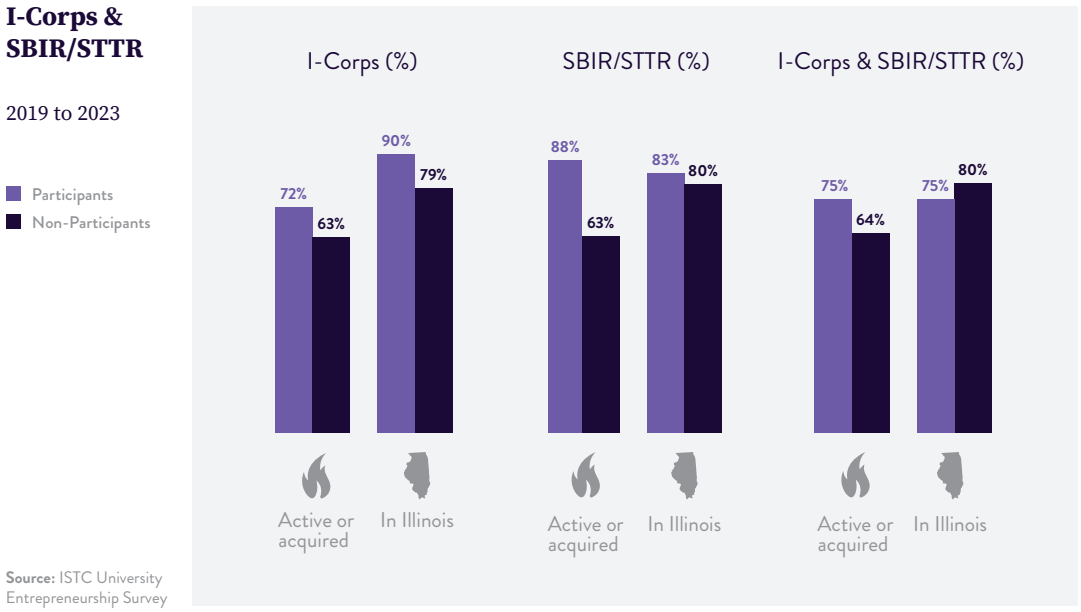
I-Corp is a federally funded program administered by the National Science Foundation (NSF). It allows teams of researchers to learn about the market potential of their products which are developed and fine-tuned at university laboratories. The Great Lakes I-Corp Hub has three affiliates in Illinois: University of Illinois-Urbana Champaign, University of Illinois-Chicago, and the University of Chicago. The program has developed a standardized curriculum for exploring hard tech commercialization which includes workshops over a six-week period in which teams begin to identify the market potential and customer targets for their novel product or service. The University of Illinois Urbana Champaign's Grainger College of Engineering and EnterpriseWorks manages the program with assistance from the Illinois Ventures team.

There are 76 former I-Corp participants in our survey data for the last five academic years. Of that number, 55 (72%) remain active or have been acquired. Most I-Corp participants—68 (90%)—kept their business in Illinois.

Over the last five academic years 24 university-supported startups in Illinois received SBIR or STTR grants. SBIR recipients in our dataset received close to $13M due to the federal program which received reauthorization last year. These grants are administered by the National Science Foundation (NSF) in collaboration with several affiliated agencies like the Department of Defense, the Department of Health and Human Services, and the Department of Energy. First time SBIR awardees usually receive $50K to $250K in non-dilutive funding.

I-Corps & SBIR/STTR

2019 to 2023



Source: ISTC University Entrepreneurship Survey

FOUNDERS

Increasing Rates of Women Founders

Our University Entrepreneurship Index survey includes questions about the demographic profile of the respondents' student and faculty founders. For the 2023 University Entrepreneurship Report, we received 467 responses to the question about women-founded startups. ISTC estimates that 40.3% of all university-supported startups over the last five academic years have had a woman founder or co-founder—the highest number of women-founded startups on record. There are 188 startups founded by women and 90 (48%) of those businesses received direct university funding. These women-owned startups also remain more active. Based on responses, 128 such startups that feature a woman as a founder remain active, 68% of the total, which is higher than the general population activity rate of 62%.

University diversity and equity programs within the tech space in Illinois serve as a model for other states in how to effectively promote representation for women within the innovation ecosystem. Programs like the Women in Entrepreneurship Institute at DePaul University, the Propel Program at Northwestern University, and the University of Illinois Research Park's AWARE Program are examples. Both programs were formed in 2018 and provide curriculum, one-on-one mentoring opportunities, pitch competitions, and cash prizes for women entrepreneurs.

▲ *Founder Bethany Valente won the 2022 Loyola Launch's New Venture Pitch Competition award*

STARTUP SPOTLIGHT — LOYOLA UNIVERSITY CHICAGO

MIGR-AID

Finding Success through Loyola's Entrepreneurial Programming

Interview with Bethany Valente

This year's University Entrepreneurship dataset includes startups from Loyola University Chicago for the first time. Business and business management are among the most popular degree paths at Loyola for undergraduate students. The Quinlan School of Business launched its first pitch competition in 2022, offering

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winners $6,000 in cash prizes. The 2023 version of the 'Launch Loyola' Startup Pitch Competition is set for November 10. More academic competitions centered around design thinking like Launch Loyola will grow innovation and opportunity in Chicago.

Loyola has already succeeded in supporting a startup actively commercializing a product. 'Migr-AID,' a student-led venture, is creating a migraine diary accessible for people with light sensitivity and dizziness brought on by chronic headaches. Doctors often recommend keeping a journal to track the consistency and intensity of headaches. But, for people with chronic migraines, an online or in-app diary can often be cumbersome. Founder, Bethany Valente, won the 2022 Loyola Launch competition with her product and plans on scaling the design and build of the diary over the next few years. Bethany just recently received a Notice of Allowance to continue the development of her app, which limits the light and sound exposure someone suffering from a migraine will have to encounter when utilizing a symptom tracking app.

The numbers in this report support the assumption that equity-focused initiatives for women may be contributing to increases overall. Over the course of our reporting on university entrepreneurship, we have seen the proportion of university-supported small businesses featuring a woman as a founder or co-founder continue to rise. Our 2018 University Entrepreneurship Report found 28% of startups featured a woman founder. The average rose to 33% in 2020 and in 2023 the average is 40%. We also asked our participating universities about startup founders and their place of birth. We received responses from universities about 253 of the startups in our dataset. Of those 253 responses, we estimate that around 48% of university-supported startups in Illinois have a foreign born founder or co-founder. This is the highest rate of startup creation by foreign born founders in the history of ISTC's collection.

Women & Foreign born Entrepreneurs

2019 to 2023

University-supported startup founders

Source: ISTC University Entrepreneurship Survey

40%

40% of university-supported startups feature a woman as founder or co-founder

48%

48% of university-supported startups feature a foreign born founder or co-founder

TECH TRANSFER METRICS

Patent Generation Continues to Grow; Licensing Revenue Falls

The U.S. Patent and Trademark Office usually takes between four to six years to confirm a patent. Universities guide the patent application process to get their new IP across the finish line, which can often be an arduous journey. Universities are deeply engrossed in this work because of the multitude of benefits they can garner from the commercialization of a researcher's work, which constitutes the final stage of the technology transfer process. Technology and innovation created through advanced research are transferred out of the university through licensing. Licensing agreements can consist of exclusive or non-exclusive agreements where an entity may be permitted to use new technology in a commercial venture. These licenses can form the backbone of a commercial venture's IP and be utilized in potential future infringement cases. These license agreements also help universities participate in the upside of a large exit; money that can then be used to help support the next big innovative research project.

In Illinois, patent generation continued to grow in comparison to the national average. Since 2017, there has been a 13% year over year cumulative growth in the number of patents created in Illinois.

Tech Transfer Metrics

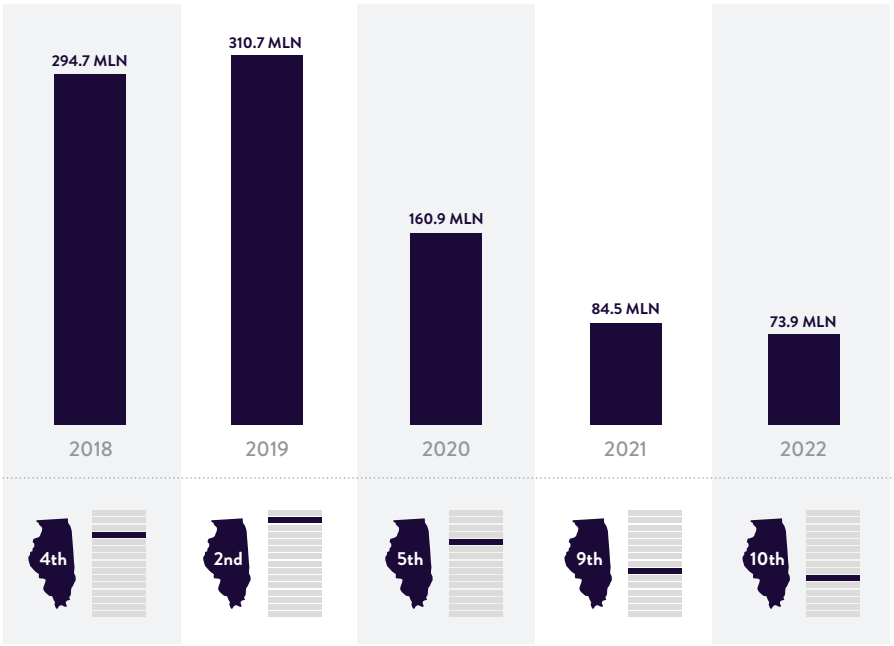
	Invention Disclosures	Patents	Licenses & Options	License Revenue 2018-2022
2021	736	256	252	**$921** MLN
Cumulative Annual Growth Rate 2017 to 2021	-.3% in Illinois -.7% nationally	.5% in Illinois .5% nationally	8% in Illinois 6% nationally	
State rank	11th	11th	15th	5th

Source: Association of University Technology Managers (AUTM)

Between 2016 and 2020, Illinois was first place in five-year licensing revenue ($1.3B) compared to other states. Between 2018 and 2022, Illinois fell to fifth place in five-year licensing revenue ($924M) as detailed in the Association of University Technology Managers' (AUTM) most up to date survey. This $0.2B drop reflects the loss of one major company's Patent Protection.

Licensing Revenue

Illinois Licensing Revenue 2018-2022



Source: Association of University Technology Manager-Licensing Survey

Important Factors

The Important Role of Universities in Entrepreneurship

Entrepreneurial education continues to be tailored to the needs of the current community of innovators at Illinois universities. This education includes SBIR workshops and entrepreneur-in-residence programs like those at the University of Illinois' Research Park, Northwestern's Office of Innovation and New Ventures (INVO), the Southern Illinois Research Park, Elmhurst University's E-Celerator, and The Polsky Center at the University of Chicago.

All of our university partners are change makers for Illinois. Improvements are made each year across the state to accommodate the needs of incoming design thinking students in STEM. The University of Illinois Urbana-Champaign expanded their Technology Entrepreneurship Center's Cozad New Venture Challenge by creating a new Healthcare Innovations Track, as a hub for diagnostic focused startups and ventures centered around wearable medical devices (Grainger College of Engineering). Loyola University and their incubator, Ignite Lab, expanded their program offerings in the Fall of 2022 by creating the New

Venture Pitch Competition with plans on expanding the program in 2023 (Quinlan School of Business). Additionally, Bradley University's Peoria NEXT Research Center announced a new partnership with the Illinois Manufacturing Excellence Center (WCBU-NPR). Northwestern announced its first cohort of tenants for their planned Querrey InQbation Lab (Northwestern).

Also launched in 2023 is Hyde Park Labs, a long planned lab space for University of Chicago faculty founded startups. The lab will be operated by the Cambridge Innovation Center and feature nine floors of dedicated wet lab space, a startup incubator, and researchers from the University of Chicago Pritzker School of Molecular Engineering. The incubator will eventually be home to University of Chicago spinouts and faculty-founded commercial ventures. As part of the University of Chicago's commitment to sustainability, there will also be a Community Engagement Program guided by the lab and a resource center located at the new building.

Universities offer a solid foundation of support to entrepreneurs and, despite economic challenges, Illinois entrepreneurs remain prolific and at the front of national efforts to reinvigorate STEM.

The State of Venture Capital

Venture capital fundraising has slowed since a record year in 2021 with both megafunds and niche middle market firms proceeding with more caution. According to a Carta report on venture capital funding for Q2 2023, financing was down 58% since Q2 2022 (Carta Q2 Report). A lack of available funding can dissuade would-be innovators interested in licensing university technology as they weigh the possible downsides in taking such research to market.

University-affiliated startups are not fully insulated from inflationary pressures and higher interest rates. In our current report, only 60 startups had generated over $500,000 in funding compared to the 127 startups that had reached that level in our 2020 collection. Funding has fallen off as the economy has cooled and this is consistent with macroeconomic trends. A recent study shows that there has been a 30-50% reduction in venture deals over this same timespan (Crunchbase). The statistic that best paints this picture within our dataset is the drop in follow-on funding received by startups.

We've identified a trend that in the year following a startup's university funding support, the startups captured an average of 6.5x the original amount of direct university investment in external funding. In this year's dataset that amount of external funding captured decreased to 1.9x the original amount of direct university funding.

Federal Decisions

The federal government has created several new initiatives which could assist startups in Illinois. $750M in supplemental funding for FY23 was allocated towards research on Long COVID-19; Illinois is sure to play a vital role in this research. Four different 'platform protocols' are being pursued by the NIH in continuation of the federal government's RECOVER program, first started in 2020 (NIH Press Release). Research like this can uncover new pathways to recovery for people suffering from Long COVID-19. The established goal of the RECOVER program is to make Long COVID care more comprehensive, coordinated, and person-centered. Commercial ventures can both participate in this research to create new services or elect to utilize the research to treat newly uncovered symptoms of the virus. An additional platform on exercise intolerance is being explored and, if created, will be particularly ripe for marketable solutions in the wearable technology space.

The federal government, through the American Rescue Plan Act (ARPA), also reauthorized the State Small Business Credit Initiative (SSBCI), which is an important federal program for small businesses. This program was first created in 2010 to provide access to capital to underrepresented entrepreneurs. Access to capital is crucial to young companies and the SSBCI funding is utilized for the Advantage Illinois program, which has multiple capital opportunities. Two new programs created through the influx of these federal dollars are the new Advantage Illinois Loan Guarantee model to assist previously rejected small businesses and a direct equity venture capital arm managed by the Illinois Department of Commerce and Economic Opportunity (DCEO). The fund is currently being called Illinois INVENT and eligible companies in AgTech, EnergyTech, IT, Life Sciences, Medical Technology, Manufacturing, Quantum Sciences, and Transportation and Logistics will be considered for investment.

One of the main pieces of the landmark CHIPS and Science Act signed by President Biden last year is the Regional Technology and Innovation Hubs program. The Regional Technology and Innovation Hubs program is a competitive grant that was created to transform regions with available assets into globally competitive centers for innovation capable of manufacturing and deploying critical technologies. New businesses are among the eligible applicants for federal funding, but they must be members of a consortium and not apply individually. The program will direct high impact financing to regional coalitions, some of which may be utilized in workforce development training in alignment with the federal government's goals to diversify the STEM economy. In addition, one of the strategies the EDA seeks to fund is the recruitment of researchers and

faculty. The EDA is specifically looking for consortiums to provide a strategy on how they will recruit and retain professors with a track record of startup success. Regional Tech Hubs received a $500M allocation in the Federal fiscal year 2023 budget and ISTC is part of a broader coalition seeking an increase in funding to the authorized level of $3B. This additional funding could better support the Implementation Phase of the program and lay a strong foundation for the long term goals of the CHIPS and Science Act. We hope that this program will catalyze additional partnerships and collaboration opportunities for Illinois businesses, academic institutions, and nonprofits who could benefit from the creation of a Regional Technology and Innovation Hub in the state.

▲ ***Student-founded startup Pathize Health, Co-founders Alex Bahram and Mason Secky-Koebel.*** *(Photo courtesy of Northwestern University.)*

STARTUP SPOTLIGHT — Northwestern University

PATHIZE HEALTH

Update on Budding Student-Founded Startup

Interview with Alex Bahram and Mason Secky-Koebel

In the 2022 University Entrepreneurship Report, ISTC highlighted the achievements of the student-founded startup JupiterDX. Co-founders, Alex Bahram and Mason Secky-Koebel, recently decided to rename the startup Pathize Health to emphasize that platform assists in finding the path to managing chronic illnesses. Pathize helps people struggling with long-term illnesses like Long COVID-19 manage their symptoms and care journey. Alex noted that the new name reflects their desire to reduce the amount of time, cost and suffering associated with managing these illnesses.

Over the last year, since we first caught up with Alex and Mason, the team has grown. They added a Head of Product in August 2023, adding to their team that already consists of numerous patient advocates and advisors. The team has been assisted by programming provided by The Garage at Northwestern and is currently developing a strategy for attracting more Angel Investment. They received a $500,000 pre-seed investment in January 2023 from Drive Capital, the largest VC in the Midwest and early investors in Duolingo in 2017. Drive Capital has targeted preseed and early-stage companies based in places like Atlanta and Toronto with emerging biomedical markets.

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In 2022, Drive identified Chicago as one of those emerging markets. The company hopes to use their pre-seed funding to assist with developing their outward-facing application, now live on App stores.

The federal government also announced a list of drugs that will be negotiated under the Inflation Reduction Act. This adjustment is part of the federal government's plan to curtail prescription drug prices, which will receive input from manufacturers and go into effect on January 1, 2026 and could have an impact on funding for biomedical startups. Research suggests that more than 40% of major firm R&D spending is related to acquisitions and licensing of small companies and their biopharmaceuticals. "Smaller companies are able to utilize larger companies' size, brand, and expertise in marketing and navigating regulations creating revenue streams for continued accumulation of R&D" (Philipson and Durie, 2021). It's incredibly important to educate congressional representatives and the general public about the importance of a system that appropriately incentivizes innovation and risk-taking. This is a great example of how federal policy can impact entrepreneurship, not only in life-sciences but across all sectors. Successful ventures need to stay up to date on federal policy and navigate an ever changing landscape.

Roadmaps Outside of Chicago

Even as investment from venture capital slows, there are opportunities for Illinois communities to thrive. Roadmaps for this type of success can be seen throughout Illinois' vibrant downstate communities. One particular example is the thriving innovation engine in Peoria. Peoria launched their Comprehensive Economic Development Strategy in 2019 in collaboration with the U.S. Economic Development Agency (EDA). These last few years of implementation and coordination have produced major achievements for the community.

In early 2023, Distillery Labs announced that their planned expansion would be completed in mid-2024. This expansion includes the Adams Street Campus, a 40,000 square foot incubation and lab space being constructed by a local Peoria construction firm. The Peoria NEXT Innovation Center doubled their lab tenancy in 2022 and is close to maximum occupancy. The Turner School had nearly 2,000 attendees at their seminars and workshops in 2022 with more expected for 2023. The Small Business Development Center (SBDC) network is also active in

Peoria, with the Bradley University SBDC assisting more than 400 unique clients over the last two years.

Communities further south of Peoria are also leveraging resources. In Carbondale, the Board of Trustees at SIU have cleared the way for the creation of iFERM, a research facility training students and faculty interested in fermentation and biotechnology. Additionally, the lab space will assist other agriculture-related programs on campus, like the Cannabis Science Center and the Center for Aquaculture.

Meanwhile, north of Chicago, the Lake County region is rapidly scaling their offerings to university spin outs within the biomedical space. Helix 51, Rosalind Franklin's incubator, utilized $2M in matching funds from DCEO to open nearly 15,000 sq. ft. of wet lab space and added two new companies to their list of tenants. Helix 51 is the only biomedical incubator north of downtown Chicago.

LOOKING FORWARD

The Continuing Role of Universities in Entrepreneurship

Over the last five academic years, universities have contributed over $10M to university-affiliated startups and their founders. Startups that received a direct university allocation over the last 5 years are more likely than non-recipients to remain active as a business (66.6% vs. 61.8%). Additionally, startups that received a competition award or some other form of financial recognition are also more likely than their peers to receive some form of follow-on fundraising (20.1% vs. 16.3%).

Incubators serve a vital foundational role for student entrepreneurs leaving the university and continuing their business journeys. Entrepreneurs in the state are sometimes driven to seek funding avenues elsewhere, oftentimes leading to relocation. Over the past decade, Illinois' university entrepreneurship centers have set out to reverse this trend by improving the pipeline to resources outside campus. These resources include 1871, BLUE1647, iBIO, the Industrial Council of Nearwest Chicago (ICNC), Illinois Science and Technology Coalition (ISTC), World Business Chicago (WBC), P33, mHUB, MxD, TechNexus, Techstars, and many, many more. Industry-specific resources include 2112, CBC Accelerator Network (CBCAN), Healthbox, gBeta, Hyde Park Labs, Evergreen Climate Innovations, Current, Duality, P33, mHub's CleanTech Accelerator, MATTER, and The Hatchery, among others.

University-affiliated startups excel through this extended community and state ecosystem pipeline. Growth is only possible through a concerted effort of universities, ecosystem partners, and venture capital. ISTC continues to be a part of this ever growing and diverse ecosystem and encourages venture capital and corporate innovation divisions to support the efforts through program participation, sponsorships, mentorship and capital investments.

Tuning in to Expanded Financing Opportunities

Financing is vital to the success of university-affiliated startups, who often prioritize the support of venture capital investors over SBA loans or other small business support. University-supported startup founders in the state of Illinois will have more financing opportunities to take advantage of over the coming year than ever before.

Our data estimates that 11-12% of university-affiliated startups in the state rely on venture capital investment as opposed to other non-university affiliated small businesses (1%). We anticipate the percentage of startups that will utilize venture capital funding over the next year to drop as the venture capital market cools, creating more opportunities for advanced tech founders to explore and take advantage of state and federal funding for startups.

The State of Illinois is committed to helping Illinois' businesses, non-profits, and educational institutions maximize available federal dollars. This includes the matching grant program for businesses through the Small Business Innovation Research (SBIR) or Small Business Technology Transfer (STTR) programs. There is perhaps no more important emerging program in Illinois than the Illinois SBIR Matching Funds grant managed by the State's Department of Commerce and Economic Development (DCEO). This program could prove key in managing venture capital fundraising shortfalls over the coming year. Applications are made on a rolling basis to DCEO and the state has applied $5M to the program until the end of 2024. These funds can make Illinois SBIR applicants more attractive during the screening process.

The State of Illinois' $15M matching grant program assists entities in alignment with the state's economic development priorities. Through a competitive Notice of Funding Opportunity (NOFO), qualified entities can apply for up to $2 million in matching grants. Applications will be accepted and reviewed on a rolling basis until available funds are depleted. Projects located in underserved areas or low-income communities will receive additional points during the review process. To apply for the grant, please visit the DCEO website. This program is also intended to make applicants more competitive during the federal grant application process, similar to the goal of the SBIR matching funds program. These two matching fund programs will help conveners and businesses in the technology based economic development (TBED) space win more federal grants and have increased budgeting flexibility.

Equity remains a priority of these programs and ISTC firmly supports the state's efforts to promote entrepreneurship in Economic Opportunity Zones (EOZ). These funding opportunities will help promote the number of underrepresented groups in STEM starting their own businesses, and promote university-affiliated startups.

DCEO offers other programs to support entrepreneurs, including Advantage Illinois, the Small Business Job Creation Tax Credit, the Illinois Angel Investment Credit Program and others. Under the Climate and Equitable Jobs Act (CEJA), which was signed into law in 2021, DCEO was

chosen to lead the state's workforce development efforts. One such effort is the creation of the 'Clean Energy Contractor Incubator Program,' which will provide training and mentorship for small businesses in the clean energy space. Training will prepare diverse owners of small businesses for the world of procurement and contracting in pursuit of the larger goals of CEJA. Learn more about DCEO programs and services.

Supporting Immigrant Entrepreneurs

Our data shows that startups with foreign born founders consistently outperform the general population of university-affiliated startups and are more immediately investable. More must be done to ensure that barriers are eliminated for foreign born founders. An estimated 48% of University-affiliated startups in IL have an immigrant founder. 50% of Unicorn companies in the U.S. have an immigrant founder. Many founders abandon their startups without options to stay in the country. Many seek H1B positions with larger companies or return to their countries of birth. Collectively we lose viable companies, employers, and taxpayers. The United States needs to quickly adjust to the realities of an interconnected world and revolutionize the way that innovators can migrate. Canada, and other nations like the United Kingdom, have implemented new laws that allow immigration to be more accessible to innovators and small business owners. ISTC supports the United States following suit with a startup visa of its own that promotes the inclusion of international talent in domestic job creation, business growth, research and development, and higher education.

Continuing Support for Roadmaps Outside of Chicago

The state of Illinois is an extremely diverse state and what works in one city, county, or region may not work in another. Earlier we mentioned the great success of Peoria, which didn't happen overnight and took years of planning, partnerships, fundraising, governance, and implementation. ISTC believes that thoughtfully created hub and spoke pilot programs are possible across the state especially in regions with a centralized support system of a university or community college, strong corporate partnerships, an SBDC, and community leadership that supports innovation and entrepreneurship. There are numerous federal grants to help support these efforts and with the addition of state matching funds, ease the burden of communities, especially in EOZs.

An example of university hub and spoke community success is the Polsky Exchange which is operated by the Polsky Center for Entrepreneurship and Innovation. The startup incubator features work and meeting spaces, mentoring, a Fabrication Lab for prototyping physical products, and a full calendar of programming and workshops designed to help entrepreneurs

launch and grow their ventures. The Center is part of University of Chicago's committment to supporting economic development in the community. The Exchange also includes an Illinois SBDC. One of 39 SBDCs in Illinois, the SBDC at the Exchange is the first specifically dedicated to supporting professional services and technology entrepreneurs on Chicago's South Side.

Closing Remarks

In our last University Entrepreneurship Report, we breathed a sigh of relief as the state emerged strong in a post pandemic economy. Today, even in an economic slowdown, Illinois remains strong in the entrepreneurial landscape. There are numerous factors that support entrepreneurship beyond programs and capital investment and that includes the health of a state. The Pritzker administration ushered in the Rebuild Illinois Capital Plan and the work is reaping rewards. In the most recent CNBC Business rankings, Illinois ranks 17th, up two spots (19th) from 2022 and more importantly, up 13 spots (30th) from 2019. Illinois ranks #2 in the nation for infrastructure (up from #3 in 2022), #2 in the nation for education (up from #6 in 2022), #6 in the nation for access to capital (up from #8 in 2022), and #9 in the nation for cost of living (up from #20 in 2022).

When asked to comment, Lt. Governor Juliana Stratton stated, *"Since day one, our administration has been committed to the work that ensures Illinoisans can thrive so we can go even further together. By investing in our schools, infrastructure, and businesses, we are championing an Illinois that soars to greater heights."*

For almost 35 years, ISTC has worked diligently in its mission to create educational opportunities, programs, and policy in which all Illinoisans can not only survive, but thrive and we look forward to continuing to be a connector, convenor, and champion for the state of Illinois as it soars to even greater heights.

ILLINOIS SCIENCE & TECHNOLOGY COALITION

The Illinois Science & Technology Coalition (ISTC) is a member-driven nonprofit that measures, connects, and advocate for Illinois' innovation economy. Created by the State of Illinois 30 years ago, we create powerful links between the state's universities, industry, startups, and government to strengthen our economy and talent pipeline through data collection, policy advocacy, and programs.

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