



 **KSTC**
 KENTUCKY SCIENCE & TECHNOLOGY CORPORATION

IMPACT REPORT

JULY 1, 2022 – JUNE 30, 2023

FROM THE PRESIDENT

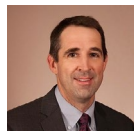
It is my pleasure to share this 2022-2023 KSTC Impact Report with you. Over the past year, the growing KSTC team has introduced new programs, such as the veteran-focused workforce development program, KY VALOR. We've expanded our services with initiatives such as KSBCI 2.0, which brings \$117 million in federal funds to expand access to capital for Kentucky entrepreneurs. And we've taken on new leadership positions, such as regional and national roles with the College Board and Expanding Computing Educational Pathways Alliance.

We've been collaborating with partners across the Commonwealth to position Kentucky as the premiere destination for innovation-driven

science and technology investments such as the NSF Engines competition. And we're using this opportunity to partner in building a roadmap for long-term success by developing a statewide strategic science and technology plan.

Throughout this growth, we remain committed to advancing an innovation-based economy in Kentucky by supporting research-driven products and services, expanding access to capital, and developing Kentucky's talent pipeline.

I encourage you to read more about our work in the pages ahead and look forward to the great things to come from our team in 2023-2024.



Terry Samuel
KSTC President

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KENTUCKY SCIENCE & TECHNOLOGY CORPORATION

KSTC is a private, nonprofit corporation committed to accelerating innovative economic development in Kentucky. We are a fast-paced leader developing and managing creative initiatives in education, economic competitiveness and scientific research since 1987.

SUPPORTING THE THREE PILLARS OF KENTUCKY'S INNOVATION-DRIVEN ECONOMY

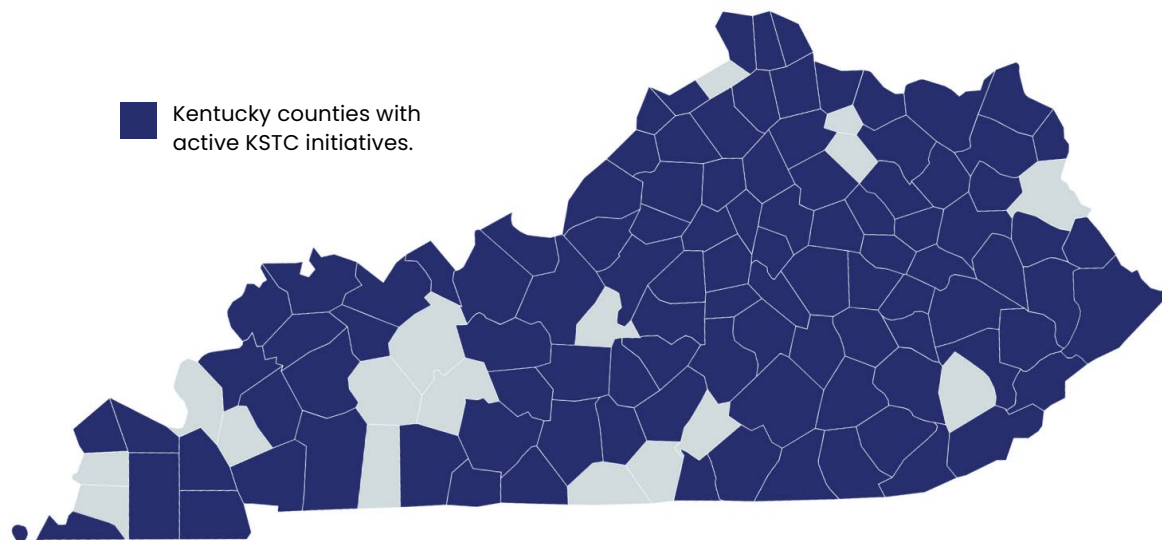
								
Research-Driven Products & Services								
Access to Capital								
Talent								



Left: KSTC team members pose with KY Innovation's Monique Kuykendoll Quarterman at a Venture Connectors event. Right: KSTC President Terry Samuel speaks at KY Inno's Startups to Watch event.

FROM PADUCAH TO PIKEVILLE AND COVINGTON TO BOWLING GREEN

KSTC's services and programs are available to all Kentuckians. In addition to offices in Lexington, Louisville, Covington, Bowling Green and Elizabethtown, our team is located throughout the state. We oversee Kentucky's six regional Innovation Hubs, partner with Kentucky's 24 public higher education institutions, and work with K-12 schools in 90 counties.



FORTIFYING KENTUCKY'S COMPETITIVENESS FOR SCIENCE, TECHNOLOGY AND INNOVATION

The passing of the CHIPS and Science Act in 2022 and the establishment of the NSF's new Technology, Innovation and Partnerships (TIP) directorate opened the door to new federal funding opportunities. KSTC and partners are collaborating to ensure Kentucky is in a prime position to compete for these funds.

- The **Metals Innovation Initiative (MI2)** officially launched in September 2022, bringing together a consortium of metals industry leaders to make Kentucky the preeminent destination for metals innovation. KSTC was a founding partner in MI2.
- In spring 2023, KSTC partnered with the KY Statewide EPSCoR Committee to develop the **Kentucky Science & Technology Plan: Vision 2030**, a seven-year roadmap to exponentially grow our state's capacity for research and innovation.
- With the NSF TIP Directorate Engines Program, KSTC led the **Additive Manufacturing Forward Engine**, which was selected as one of 16 Type-2 national finalists in the NSF Regional Innovation Engines competition, and we are a core partner in the University of Kentucky-led Type-1 **GAME Change Engine**, which received a \$1M development grant. Each project could bring up to \$160M to the region.

THANK YOU TO OUR PARTNERS

PROGRAM FUNDERS

- Appalachian Regional Commission with SKED
- Code.org
- Fayette County Public Schools
- GEAR Up with Partners for Rural Impact
- Kentucky Department for Local Government
- Kentucky Department of Education
- KY Innovation at the Kentucky Cabinet for Economic Development
- Lexington-Fayette Urban County Government
- Raytheon
- University of Kentucky
- University of Louisville
- U.S. Department of Defense
- U.S. Small Business Administration FAST Program
- U.S. Department of Treasury

DONORS/MEMBERS

- Central Bank & Trust Company
- Eastern Kentucky University
- Jane and Terry Samuel
- Joanne Lang
- Lexmark International
- Murray State University
- University of Kentucky
- Western Kentucky University Research Foundation

WITH SUPPORT FROM

- Amplify Louisville
- Awesome Inc.
- Blue North
- Bowling Green Chamber of Commerce
- CREATE
- CSforALL
- Greater Owensboro Economic Development Corporation
- GroWest / Sprocket
- Kentucky Community & Technical College System
- Kentucky Highlands Investment Corporation
- Kentucky State University
- Morehead State University
- National Math & Science Initiative
- Northern Kentucky University
- Representative DJ Johnson
- Senator David Givens
- Shaping our Appalachian Region (SOAR)
- Somerset Community College
- Southeast Kentucky Economic Development (SKED)
- Turner Construction



KSTC team members pose with KY Innovation's Monique Kuykendoll Quartermaster at the COKE facility grand opening in Elizabethtown.



advancekentucky.com

With support from partners such as the Kentucky Department of Education, National Math and Science Initiative, Code.org and many others, AdvanceKentucky works with school districts across Kentucky to provide professional development, mentoring and student recruitment to increase enrollment and success in STEM classrooms. We focus our efforts on critical areas that provide opportunities for students as they transition through their academic career. Our efforts are focused through three main initiatives: the College Readiness Program, Access to Algebra and Computer Science Initiatives.

*Top: AdvanceKentucky team presents to the Kentucky Department of Education.
Bottom: Teachers gather in Louisville for Launch Day 2022.*

PROGRAM IMPACT TO DATE

6,000

Teachers Served

155,000

Students Enrolled

\$27M+

Earned through Student Incentives,
Teacher Stipends and Tuition Value





AdvanceKentucky's College Readiness Program increases the number of students enrolling and earning qualifying scores in AP® mathematics, science, English, Capstone, and computer science courses and strengthens the teaching of those courses through initiatives such as student exam prep sessions and teacher

professional learning experiences. This year, our Cohort 14 classrooms experienced a 56% growth in AP® qualifying scores compared to pre-COVID performance after facing significant declines throughout the pandemic. Additionally, teachers reported 93% of their students intended to take the AP® exam.

FY23 SUCCESSES

56%

Increase in AP® Qualifying Scores over Pre-COVID Performance

44

Schools Served

2,187

Students Served



This is the absolute best training. No other training do I get content, strategies, and curricular planning like is offered by AdvanceKentucky. Thank you!

FALL FORUM PARTICIPATING TEACHER

AP® Computer Science Principles mentor Jackie Honghern presents to students during an AP® Exam Prep Session at Eastern Kentucky University.



Access TO Algebra

The Access to Algebra program is increasing the number of students prepared for advanced STEM coursework by increasing participation and success in 8th grade Algebra, especially for students traditionally underrepresented in advanced courses. We accomplish this by providing training to middle school math teachers, student sessions for the PSAT 8/9 exam and monetary incentives for teachers and

students. This year we published a report including data from over 7,000 students in Access to Algebra indicating that 72% of all students in middle school could see significantly higher PSAT 8/9 math scores in 8th grade if they enroll in Algebra 1 or higher, and nearly half of these students would be in range to meet the 8th grade math benchmark.



Teachers in Shelby County participate in the Laying the Foundation Training, which provides 72 hours of math training over three years.

FY23 SUCCESSES

850

8th Grade Students Met College Readiness Benchmark on PSAT 8/9

8

Schools Met College Readiness Goal

\$111K+

Awarded in Student and Teacher Incentives



The Computer Science Initiatives program is working to make computer science education available for all K-12 Kentucky students by serving as the regional partner for Code.org, helping school districts deploy K-12 computer science plans, and preparing teachers to teach computer science. This year, Program Director Monique Rice was selected to co-lead

Kentucky's participation in the national Expanding Computing Education Pathways (ECEP) Alliance alongside the Kentucky Department of Education. Kentucky joins a total of 30 states in the ECEP Alliance, which is dedicated to broadening participation in computing and is made possible with support from the National Science Foundation and Google.org.



Melissa Tomblin, Lighthouse Beacon Foundation; Anthony Mires, Monique Rice and Dr. Sheri McGuffin of AdvanceKentucky; and Dr. Eric Woolridge, Somerset Community and Technical College, visit Dr. Woolridge's Additive Manufacturing Lab.

FY23 SUCCESSES

572

Teachers in Code.org Programs

154

Teachers in iCodeKY, ExtendCSA and 3D Printing Programs

31

Teachers in First Engineering 1 Professional Development



**KENTUCKY
COMMERCIALIZATION
VENTURES**

kycommercializationventures.com

Kentucky Commercialization Ventures (KCV) is an unprecedented model for statewide innovation, empowering ideas that impact lives and transform the Commonwealth. As a science and technology public-private partnership, we bring guidance, opportunities and



KCV's Jericho Wilkerson (right) networking at AUTM 2023 Annual Meeting in Austin, TX.

Executive Director Kayla Meisner with 2022 IMPACT Awardee Dr. Kouroush Jenab (Morehead State University) during 2022 KCV Roadshow.



programs to higher education institutions across the state that do not have dedicated tech transfer resources, turning their research into products, services, startups and investments supported by intellectual property (IP).

OUR PROGRAMS INCLUDE:

Innovation Fellowship

Equipping the next generation of ecosystem builders with the skills necessary to lead the translation of innovative solutions to the real-world market.

Commercialization Internship

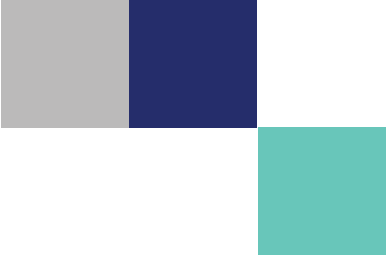
Introducing students to the fields of IP, technology commercialization, business development, marketing, transactional law and more.

GOAL Funding

Reducing barriers to research and commercialization education, tools and resources.

IMPACT Competition

Encouraging ideation to meet some of the state's largest needs and highlight the value of innovators from across the state of Kentucky.



KEY METRICS

91

Presentations

12

Ideas

\$10,245

Associated Commercialization
Income

699

Coaching Sessions

6

IP Assets

28

Total Proposals Submitted

472

Academic

227

Non-Academic

1

Trademark
Registered

2

Copyright
Registrations Filed

5

Led by KCV

12

Supported by KCV

517

Opportunities Shared
with Partners

2

Copyright
Registrations
Granted

1

Provisional Patent
Application Filed

11

KCV-Assisted
Partners

30

Success Stories

9

Commercialization Transactions

\$34,212,364

Total Value of Proposals Submitted

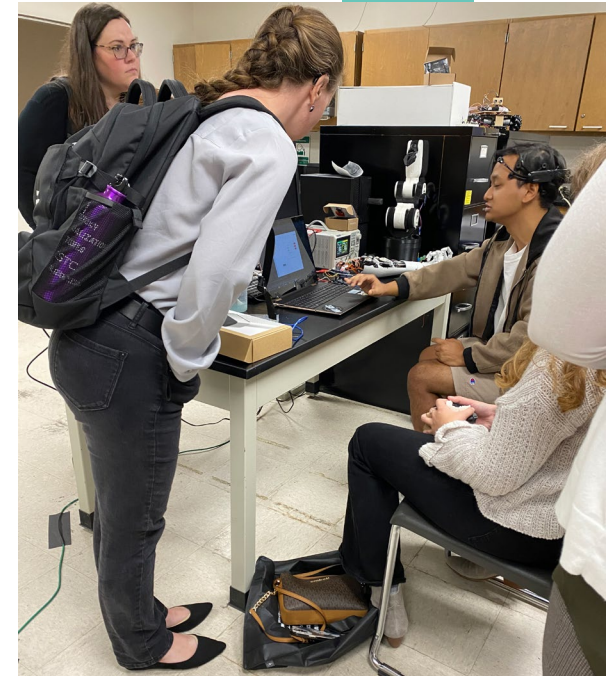
EMPOWERING IDEAS THAT IMPACT LIVES

We create accessible opportunities through high-impact programs such as the GOAL (Growth, Opportunity and Learning) Fund and the IMPACT Competition. This year, we sponsored regional institutions to participate in nationally recognized programs for innovation excellence, including Launch Blue UAccel, LaunchIt, the AUTM Annual Meeting, UIDP HBCU Engage, the ATMAE Annual Meeting, and the Title IV-E Roundtable.

Gus Benson, EKV's KCV champion and director of sponsored projects, attended the AUTM Annual Meeting and noted, "I cannot thank enough the folks from KCV for making me feel so welcome and providing guidance throughout the conference. AUTM showed me how to be more attentive to our client's needs when it comes to grants that have commercialization promise."

For the first time, KCV received entries from all partner institutions for the annual IMPACT Competition. Each of this year's two winners received \$25,000 for their institution to bring their innovations to life.

- **Gill Finley**
Kentucky State University
Increasing Access of Fresh Produce in West Louisville Food Desert Areas Through Sustainable Production
- **Dr. Chris Lennon**
Murray State University
Chromatography-free Thermostable Protein Purification



Top: KCV team visiting lab of Dr. Mahdi Yazdanpour (Northern Kentucky University) during 2022 KCV Roadshow.
Bottom: Meisner leading panel at 2022 Startup Week Louisville.

COMMERCIALIZING RESEARCH TO IMPROVE HEALTH OUTCOMES FOR PREGNANT WOMEN

Dr. Rachel Tinius fell in love with studying the impact exercise can have on health outcomes for pregnant women and their babies when she worked as a graduate assistant on a pregnancy study. As associate professor at Western Kentucky University (WKU), Tinius gathered additional data about the barriers pregnant women face when it comes to physical activity. “There was a lack of knowledge about physical activity when you’re pregnant, especially in rural areas,” she said. That’s why she created BumptUp, an app providing physical activity guidance to pregnant and postpartum women.

Tinius envisioned a digital platform with education, exercises and resources that could reach women no matter where they were but was hesitant to commercialize her idea. “I was really resistant to it for a long time because I’m not a business person,” she explained. “But I realized I can spend 10, 20 years working on something, and if I don’t commercialize it, nobody sees it. And if nobody sees it, it doesn’t actually help anybody.”

Tinius first met KCV when the team visited WKU to talk about the KYNETIC award. KCV followed BumptUp’s progress through initial

app development and an NIH-funded pilot study, providing Tinius with one-on-one support for her initial disclosure and coaching through the UAccel program. She credits the KCV team’s expertise for the successful execution of a licensing agreement between her company, BumptUp Labs, and WKU in 2023. “There have been so many situations where I would have had no idea how to navigate it independently,” she said. “Having people who have done it before and know the nuances was invaluable.”

This is just the beginning for BumptUp. Tinius has been working with an app development company with funding help through KCV’s IMPACT Award, and a public launch is planned for October 2023. She is also pursuing SBIR/STTR funding through the NIH with the help of KSTC’s Kentucky Science and Engineering Foundation program. Tinius recognizes that support from Kentucky’s innovation ecosystem has been critical to turning her research into an impactful app. “This process has brought so many people from different areas of expertise together, and I think that is what is special about commercializing something in academics,” she said. “You can’t be an expert in everything.”



There have been so many situations where I would have had no idea how to navigate it independently. Having people who have done it before and know the nuances was invaluable.



DR. RACHEL TINIUS
CEO AND FOUNDER, BUMPTUP LABS
ASSOCIATE PROFESSOR,
WESTERN KENTUCKY UNIVERSITY
BOWLING GREEN, KY



kyipa.org

The Kentucky Intellectual Property Alliance (KYIPA) is a community of inventors, attorneys, businesses, universities, nonprofits, artists, educators and tinkerers who believe in the power of intellectual property (IP) to protect the innovations developed in Kentucky. We're on a mission to facilitate the creation, protection and advancement of intellectual property in Kentucky by connecting companies, organizations and innovators to one another and to local, national and international IP experts.

KYIPA was founded in 2021 through an agreement between the United States Intellectual Property Alliance (USIPA) and KSTC. Several organizations have supported KYIPA since its founding, including the Kentucky Cabinet for Economic Development and its KY Innovation team, University of Louisville, University of Kentucky, and KSTC's Kentucky Commercialization Ventures initiative. Kentucky is one of the first states to establish an affiliated state intellectual property alliance and is now one of 18 such organizations nationally.

Careers in IP Panel for law students in the Northern Kentucky region, held in partnership with Northern Kentucky University Chase Law School and the Norse IP Law Association.





KYIPA's inaugural in-person event held at Zoeller Pump Co. in Louisville, KY featuring experts Robert Sterne and Jeffery Langer.

In 2023, we expanded our Executive Advisory Committee to a formal Board of Advisors with Mandy Wilson Decker of Stites & Harbison taking on the role of board chair. Mandy is a Registered Patent Attorney and has been a member of the Intellectual Property & Technology Service Group at Stites & Harbison since 2002. In addition to her involvement with KYIPA, Mandy is an active member of the Association of University Technology Managers (AUTM) and the American Intellectual Property Law Association (AIPLA). She is also recognized as a Fellow of the American Bar Foundation.



The volume of quality programming that KYIPA has provided since its inception is impressive and speaks to the talent and dedication of our director and executive advisory committee.

MANDY WILSON DECKER
KYIPA BOARD OF ADVISORS CHAIR

INCREASING IP EDUCATION ACROSS THE COMMONWEALTH

This year, KYIPA formed several important partnerships with organizations across the state to expand its programming and offer our first in-person events. In Louisville, we partnered with the University of Louisville, Zoeller Pump Co, IIPCC, and Kentucky Association of Manufacturers to hold several presentations in the area on strategizing IP filings and understanding the new EU patent systems.

In the Northern Kentucky region, we partnered with NKU Chase Law School and the Norse IP Law Association to provide a presentation on careers in IP and networking for those interested in IP. And, in the Eastern Kentucky region, we partnered with the Kentucky Science & Engineering Fair and the Kentucky Innovation Hub SOAR to provide presentations on the basics of IP.

KEY METRICS

149
Members

6
Virtual Events

6
In-Person Events

325
Event Registrations

73
Legal Consultations & Education Sessions



EASTERN KENTUCKY TRADEMARK BOOTCAMP

In March 2023 we partnered with the United States Patent and Trademark Office (USPTO), Eastern Kentucky Innovation Hub SOAR, Southeast Kentucky Economic Development Corp., Kentucky Small Business Development Center (London Office), and Kentucky Highlands Investment Corp. to host a one-day Trademark Bootcamp in London, Kentucky. Experts from the USPTO covered the trademark registration process from filing and examination to post-registration requirements.

The bootcamp helped local entrepreneurs learn best practices to protect their ideas, their business and their brand. The event was such a success that follow-up Patent and Trademark Bootcamps are planned for fall and winter in different regions of the state.



Top: Careers in IP Panel for law students in the Northern Kentucky region,, held in partnership with Northern Kentucky University Chase Law School and the Norse IP Law Association. Left: USPTO Trademark Bootcamp in London, KY.



ksef.kstc.org

The Kentucky Science and Engineering Foundation (KSEF) has a broad scope to raise the bar on Kentucky's competitiveness in pursuing federally supported research grants and contracts. KSEF is building on previous successes such as the Kentucky Commercialization Fund, the Research and Development Excellence (RDE) and the SBIR/STTR Phase Zero and Phase DoubleZero award programs to raise Kentucky's success rate in winning awards from federal agencies.

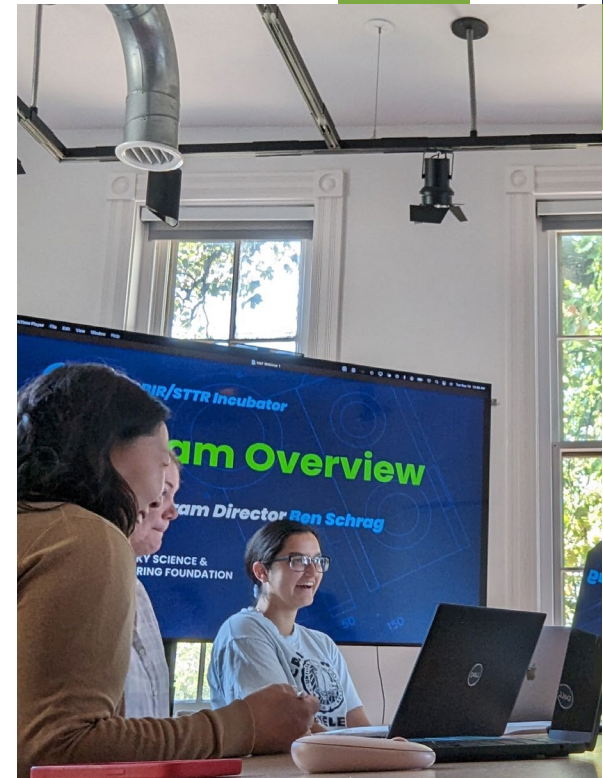
Small Business Innovation Research (SBIR) and Small Business Technology Transfer (STTR) programs are highly competitive, yet they are the sole non-dilutive source

The KSEF team speaks at regional and national events about securing funding through America's Seed Fund.

of federal funding exclusively available to small businesses. The programs encourage companies to de-risk their innovations and further develop a viable product while also providing basic early commercialization guidance.

KSEF consults with these small businesses to prepare them to compete for SBIR/STTR federal awards, a time-intensive effort. We were also the first in the Commonwealth to connect SBIR/STTR federal program officers and consultants with Kentucky tech-based small businesses through outreach and training.

To increase capacity for this support and in order to scale, we deliver Proposal Labs and provide microAwards to allow small businesses to prepare stronger SBIR/STTR applications.





CONSULTATIONS

122

Companies

459

Consultation Hours

96

Companies Intending to Submit

7

Federal Agencies (out of 11)

MICROAWARDS

41

Applications Received

17

Contracts Executed

\$87,500

Funds Committed

\$4,861

Average Award Amount*

FEDERAL AWARDS

2022 Compared to 2021

36

2022 Total Awards

32

2021 Total Awards

20

Phase I

16

Phase II**

2022

2021

**The 16 Phase II Awards resulted from 24 Phase I Awards in 2021, a 2:3 conversion ratio.

\$21.1M

2022 Federal Awards

2022

2021

\$16.4M

2021 Federal Awards

*Average award amount is based on requested reimbursement and does not equal total of funds committed.

DEVELOPING STRONG SBIR/STTR SUBMISSIONS WITH AGENCY-SPECIFIC PROPOSAL LABS

This year we implemented three new agency-specific Proposal Labs: USDA, NIH and NSF. The hardest aspect of proposal writing for an innovator is putting ideas into words. The second hardest is doing so on a tight schedule and staying on task. We break down each agency's ask into manageable "bite-size" sections with specific deadlines. The Proposal Labs are designed to help innovators jumpstart the most difficult sections of one or multiple agency requests. As clients progress, we pivot to target the agency with the most likelihood of success. The ultimate goal is to help companies submit multiple proposals for award within a year.

7

Agency-Specific Labs

99

Participating Companies

44

Department of Defense (DOD)

1

The National Aeronautics and Space Administration (NASA)

1

Department of Energy (DOE)

6

United States Department of Agriculture (USDA)

19

National Institutes of Health (NIH)

28

National Science Foundation (NSF)

UNHEARD OF SUPPORT FOR SBIR/STTR PROPOSAL DEVELOPMENT

Joshua Covington is more familiar than most when it comes to the challenges faced by school systems and educators today. As a former teacher and high school principal, he knows all too well the complicated dynamics at play with teacher shortages, funding issues and waning student engagement. Though promising, educational technologies never seemed to take the intricacies of student engagement and public school resources into account. “I saw this need for a different type of solution when it comes to education,” Covington said. That’s why he started GradEd Gaming and developed a product that combines virtual reality (VR) and gamification with artificial intelligence instruction.

He connected with KSEF when a friend suggested he look into government grants to get GradEd Gaming off the ground. When it comes to SBIR/STTR, “I knew nothing,” he said. After an initial meeting, the KSEF team enrolled Covington in the NSF Proposal Lab, a series of webinars and resources that support companies in submitting an SBIR/STTR proposal to the NSF, and paired him with a dedicated consultant.

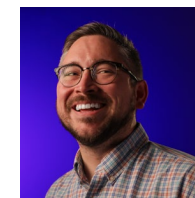
Covington completed the proposal in just a month – an exceptional pace in the world of SBIR/STTR. He credits his speed to the support and templates he received from KSEF, but admits it was a full-time job. “Any time I needed help, they were right there to help me. That kind of support is unheard of.”

Next, Covington plans to complete the NIH Proposal Lab, and the KSEF team is keeping an eye out to match his innovation with other federal funding opportunities. He’s also developing the GradEd Gaming curriculum and is connecting with others in Kentucky’s innovation ecosystem, such as the Amplify Louisville Innovation Hub, to build out his minimum viable product.

“Ultimately,” Covington says, “our focus is providing a resource to schools that is equitable – we want to be a product that can be used in every school regardless of how much money they have.”



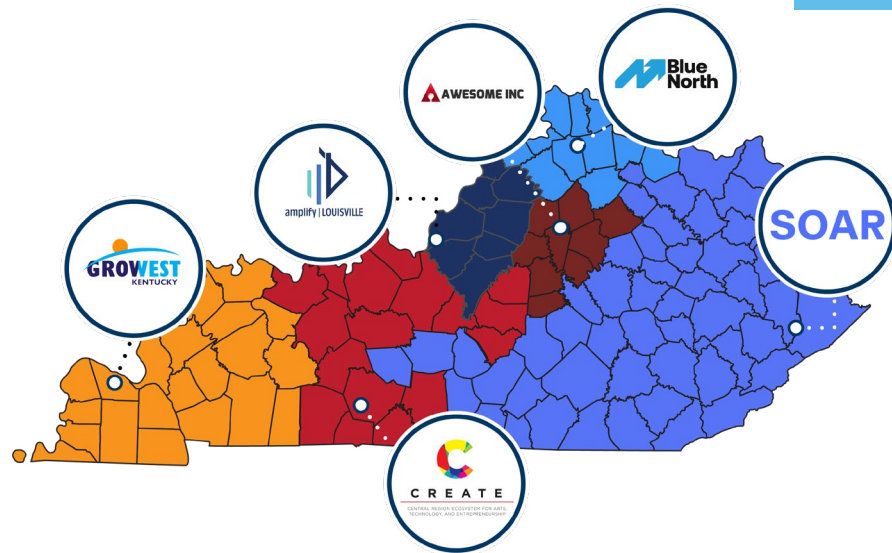
Our focus is providing a resource to schools that is equitable – we want to be a product that can be used in every school regardless of how much money they have.



JOSHUA COVINGTON
CEO AND FOUNDER, GRADED GAMING
LOUISVILLE, KY

KENTUCKY'S INNOVATION HUBS

kstc.org/kentucky-innovation-hubs



The Kentucky Innovation Hubs are a network of six regional centers with the purpose of driving economic development through entrepreneurship and innovation. Each Hub acts as their region’s “front door” to assist entrepreneurs across industries and stages of development as they advance their businesses. Our goal is to increase the likelihood that scalable, venture-backable businesses can launch in Kentucky and can obtain both public and private investments to grow.

INNOVATION HUBS

Amplify Louisville is a place for founders, investors and other entrepreneurial stakeholders to connect, collaborate and access meaningful resources that help them start, build and grow their businesses.

Awesome Inc creates and grows high-tech startups through community events, technology education courses, and a shared workspace environment, ultimately making a significant impact on the lives of entrepreneurs in Lexington.

Blue North serves as the “thread” for their Northern Kentucky business ecosystem by building a close-knit community that connects entrepreneurs to critical resources and reduces barriers to opportunity. Their mission is to give founders’ ideas time to grow and prosper.

CREATE fosters an innovation environment in and around Bowling Green that brings collaborators together to share their networks, design and test new ideas, commercialize proven solutions, and grow those solutions.

Dave Knox, left, was named executive director of the Blue North innovation Hub in Northern Kentucky at the start of FY23.

GroWest is a digital economic development organization in Western Kentucky. Through Sprocket, their mission is to help entrepreneurs move their businesses forward through support programs and connections that give small businesses the advantage needed to compete in the digital economy.

SOAR Innovation has many programs and tools to help entrepreneurs in Eastern Kentucky start their journey and get the essentials set up with the least amount of time and money. SOAR Innovation's mission is to help founders to be successful.



KSTC's support of the Innovation Hubs enables the development of innovative technologies, companies, and quality jobs in communities throughout the Commonwealth by increasing deal flow of technology-based and innovative businesses in Kentucky; increasing the understanding of startup processes and investment practices; and providing value-added services to the startup investment community. We connect the Hubs to each other, to startup resources and programs including other KSTC

initiatives, and educate them on best-in-class processes to deliver their services to their startup clients.

Kentucky's Innovation Hubs help startups raise, accelerate, and hire by equipping the next generation of leading tech entrepreneurs with the tools needed to build, launch, and scale highly impactful businesses through connections to capital, customers, mentors, talent, partners, and a community of entrepreneurs and influencers.



Before starting Yornest, I was a junior in college with no idea about a startup besides knowing that I wanted to solve a problem that I was deeply passionate about. Once I discovered Amplify and got access to the vast networks and resources they provide, it helped shape me to be a better entrepreneur.

MICHAEL BRIZENDINE, YORNEST

SHINING A LIGHT ON KENTUCKY'S STARTUP WINS

This past fiscal year, we presented a quarterly “State of Startups: Kentucky” report highlighting the collaboration among the Innovation Hubs and statewide entrepreneurial support organizations in fueling the vibrant ecosystem that is Kentucky’s startup community. This public report is delivered as a webinar and highlights the vital importance of venture



Michael Brizendine with the Amplify Louisville team.

capital that invests in the early-or seed-stage, innovation-based, high-growth companies in Kentucky. It also underscores the importance of fostering a healthy environment for innovative and tech-enabled Kentucky startups in catalyzing sustained economic growth in our state.

Innovative, entrepreneurial, early-stage companies are businesses like no other. They birth big ideas. They build better

mouse traps. They reimagine cutting-edge products, solutions and innovations.

But, early-stage startups take longer than typical small businesses to gestate. Their journey requires not only capital investment, but a supporting ecosystem, roadmap and technical assistance to help guide them on their way to long-term success. Our regional Innovation Hub organizations provide the gateway to those resources.

Sharing the journey of the innovation-based startup is worth the investment. The majority of new jobs and wealth over the past three decades were created by innovative startups. And startups deliver a significantly larger economic impact than other companies in terms of revenues, investments, jobs and salaries.

In addition to providing a snapshot of early-stage business successes, the number of startups funded and funding amounts through our quarterly webinar, we also shine a light on startup activity throughout the state. Through intentional outreach and relationship building with journalists, the Hubs have garnered more than 25 media mentions in the past year covering their support for Kentucky’s entrepreneurs.

KEY METRICS

5,383

Startups Served Through
1:1 Coaching

577

Number of Event/Programs

2,548

Startup Connections Made to
Appropriate Resources

21,668

Number of Event Attendees

360

Startups Advanced Using the
Village Capital Viral Pathway of
9 Stages of Startup Growth

143

Number of Startups Funded

94

New Startups Created or
Attracted to the State

\$185M

Amount of Investment in
Startups Funded

495

Number of New Jobs Created

“

Our utility patent was issued on September 6th (U.S. Patent Number 11,435,934). I would have never of pulled it off without the financial assistance associated with Awesome Fellowship, and of course, Tony.

SCOTT STUCKEY, INQUIRY TECHNOLOGIES

“

With support from organizations like [GroWest's] Sprocket, and a sophisticated tech-enabled co-working space... [Qbrick] is surrounded by future-thinking entrepreneurs and is jumping in and learning how to swim.

RAKESH RAMICHANDRAN, QBRICK



keyhorse.vc

Keyhorse Capital invests seed and early-stage venture capital to support entrepreneurs willing to build and scale innovative companies in Kentucky. We invest in idea to growth stage companies and technologies across industries and sectors. In partnership with the Kentucky Cabinet for Economic Development and KY Innovation, we manage several initiatives to increase the availability of equity investment capital for fast growth and scalable young businesses across the state.

Funds Include:

- **The Idea Fund** – “Pre-Seed” funding pilot with Kentucky’s Innovation Hubs, accelerators, and pitch competitions
- **Kentucky Enterprise Fund** – “Seed” stage investments in startups
- **Kentucky Growth Capital Fund** – “Series A” and early growth stage investments ... launching FY24
- **Kentucky Strategic Ventures Fund** – “Fund of Funds” investing in venture capital funds ... launching FY24

**INVESTMENT PROGRAM
TOTALS TO DATE**

\$45M

In investments

\$90,000

Average Salary for New Jobs Created

\$1.5B+

In Follow-On Capital

PORTFOLIO MILESTONES



Bexion Pharmaceuticals

Covington, KY

A clinical-stage biopharma company developing targeted therapies for cancer dosed its first patient in a clinical study at CTI Clinical Research Center.



BehaVR

Elizabethtown, KY

A developer of virtual reality therapeutics designed for mental and behavioral health, BehaVR acquired OxfordVR and complemented the acquisition with a \$13M Series B funding round led by Optum Ventures and Oxford Science Enterprises.



Narratize

Taylor Mill, KY

A developer of an AI-powered storytelling platform that transforms scientific, technical and medical insights into compelling stories that accelerate time-to-market for organizations such as P&G, Boeing and NASA, Narratize won \$100,000 at HearstLab's pitch event for early stage, women-led startups.



DesiCorp

Louisville, KY

A manufacturer of thermally stable packed red blood cells for applications in disaster relief situations, battlefield settings and remote rural emergency rescue situations, DesiCorp was selected to receive grant funding through the Small Business Innovation Research Matching Funds Program.



Liberate Medical

Crestwood, KY

A developer of a noninvasive nerve and muscle stimulator that synchronizes with breathing treatments to help prevent respiratory muscle atrophy in mechanically ventilated patients, Liberate Medical raised \$6.2M in new investments led by Scientific Health Development.



PowerTech Water

Lexington, KY

A developer of technology which speciates and removes dissolved metals with onsite recovery for material purification industries, PowerTech Water expanded into a new 26,000 square foot facility enabling increased manufacturing capabilities, additional workforce and larger-scale systems.

FUNDING KENTUCKY'S EARLY IDEAS

This year, we successfully concluded a pilot run of Kentucky's Idea Fund and are currently in pursuit of extended funding to expand this initiative. The Idea Fund is designed to offer pre-seed funding to startups and entrepreneurs exhibiting high growth potential. These participants are actively engaged in accelerators, boot camps and pitch competitions, but have historically lacked access to capital.

Collaborating with these organizations dedicated to supporting entrepreneurs enables us to extend our reach and bolster the support offered to startups in Kentucky. This initiative encompasses a series of events spanning across the state, delivering essential resources to entrepreneurs seeking avenues for advancing their businesses.

Measured against a set of robust metrics, this impactful program holds the potential to provide valuable assistance to socially and economically disadvantaged young companies and entrepreneurs in Kentucky.

We are collaborating with statewide accelerators, pitch competitions and boot camps to provide:

- Access to Funding
- Networking Opportunities
- Feedback and Validation
- Structured Guidance
- Access to Resources
- Credibility and Branding
- Fast-Track Growth
- Community and Support



Render Pitch Competition (top) and Wild Accelerator (bottom) winners supported by Kentucky's Idea Fund.



INCREASING ACCESS TO CAPITAL FOR KENTUCKY SMALL BUSINESSES

In February 2023, it was announced that Kentucky will receive a \$117M federal award, allocated in three phases over a 10-year period, to launch a suite of initiatives known as the Kentucky Small Business Credit Initiative 2.0 (KSBCI 2.0).

The funding will support venture capital programs administered through Keyhorse Capital and loan support programs and Community Development Financial Institutions through the Kentucky Cabinet for Economic Development with an emphasis on access for underserved business owners.



Left: Kelby Price of Keyhorse Capital shared startup funding options at the Eastern Kentucky Innovation Hub's SOAR Summit. Above: Keyhorse Capital and Commonwealth Seed Capital hosted the #KYBacked event for regional investors, in Lexington, KY.



The utilization of these funds is thoughtful, sustainable, and will support Kentucky businesses ... and entice outside businesses to relocate to our beautiful commonwealth.

JEFF NOEL,
SECRETARY, KENTUCKY CABINET FOR
ECONOMIC DEVELOPMENT



Investors networked at #KYBacked event hosted by Keyhorse Capital and Commonwealth Seed Capital (top left). Keyhorse Capital attended pitch competitions and startup events across the state, including 5Across at Awesome Inc in Lexington and the Startup Appalachia Pitch Competition.

FY23 INVESTMENT PROGRAM TOTALS

220

Applications Reviewed

\$117.6M

Funds Requested*

54

Awards**

\$5.1M

Amount of Awards

* "Requested" calculation is artificially capped at KEF maximum permissible investment (\$500K) and KSBCI 2.0 planned maximum (\$2.5M); Actual funding requested by companies in FY23 exceeded \$150 Million and included companies who did not self-identify as either Kentucky Based or Interested in Relocating to Kentucky. ** Due to the nature of investment rounds and KSTC's matching requirements, not all investment or grant awards move forward to completed transactions.



FY23 INVESTMENTS





kyapex.com

The Kentucky APEX Accelerator promotes inclusive economic development across Kentucky by assisting companies in providing products and/or services to federal, state and local governments and agencies. We accomplish this mission by coaching, training and equipping businesses with the tools they need to succeed in the government contracting domain. Our services also include increasing access to subcontracting opportunities and facilitating opportunities for small businesses to work with large prime contractors.

Formerly known as the Kentucky Procurement Technical Assistance Center,

the program rebranded to Kentucky APEX Accelerator in January 2023 after the national Procurement Technical Assistance Agency to the Department of Defense and rebranded as the APEX Accelerators Program.

Our support extends to all 120 counties across the Commonwealth, with regional offices in Lexington, Morehead, Covington, Louisville, Elizabethtown, Bowling Green and Paducah. We are the only program in the state specifically designed to assist businesses in securing government contracts and/or subcontracts at no cost to the client.

Elizabethtown Procurement Consultant Shawn Rogers networks with small business owners at an outreach event.



LOCAL SERVICE, NATIONAL RECOGNITION

On March 30, 2023, The Department of Defense (DOD) Office of Small Business Programs awarded Kentucky APEX Accelerator with the Nunn-Perry Award for its work in the Mentor-Protégé Program. KY APEX Accelerator was recognized alongside Raytheon Missiles and Defense, FUSE

Integration and California State University as one of four Mentor-Protégé teams to win the award in fiscal year 2022.

The DOD Mentor-Protégé Program pairs large companies with small businesses to help large prime contractors meet their Small Disadvantaged Businesses subcontracting goals and enable small businesses to expand their footprint in the defense industry. The Nunn-Perry Award recognizes excellence for teams that demonstrate a positive return on investment, technical assistance, protégé growth and impact on protégé development.

Organizations such as KY APEX Accelerator provide technical assistance, coaching and support to the Mentor-Protégé teams.



Executive Director Nancy Brown accepts the Nunn-Perry Award on behalf of the KY APEX Accelerator program during the DOD Mentor Protégé Summit 2023.

KEY METRICS

2,498

Active Clients

1,207

Active Clients in Distressed Counties

393

New Clients

84

Training Events

1,343

Training Event Attendees

OUR CLIENTS RECEIVED

4,027

Consulting Hours

\$619.6M

in Federal Contracts

4,740

Federal Contracts

\$1.65B

in Non-Federal Contracts

127,350

Non-Federal Contracts



I came across the KY APEX Accelerator searching for help and support. Eric and his team not only helped me finalize my registration with SAM.gov but also helped develop my statement of capabilities and introduced me to various small business advocates.



TONY COLE
FOUNDER OF SENEZCO AND
CURRENT VICE PRESIDENT OF U.S.
OPERATIONS
NICHOLASVILLE, KY

AN INTRODUCTION TO GOVERNMENT PROCUREMENT FOR KENTUCKY BUSINESSES

SenezCo specializes in fire science and engineering. Their scope of services encompasses protection design, building code consulting and forensic engineering. With a principal office location in Nicholasville and additional offices in Texas and North Carolina, the SenezCo team collaborates with architectural and engineering firms on complex projects around the world.

Tony Cole, the founder of SenezCo and current Vice President of U.S. Operations, shared that working with the Kentucky APEX Accelerator has been vital to the company's entrance into government procurement.

"When I started this business I included chasing U.S. Federal Government work as part of our business plan," Tony said. "I tried to register on the SAM.gov website but couldn't complete the process. The federal contracting space was new to me, and I wanted to get into the process, but I wasn't having any luck."

"I came across the KY APEX Accelerator searching for help and support. Eric and his team not only helped me finalize my registration with SAM.gov but also helped develop my statement of capabilities and introduced me to various small business advocates."

Procurement Consultant Eric Byrd supported Tony and the SenezCo team in a variety of areas, including navigating government systems registrations, providing training on government contracting topics, facilitating introductions to government agencies, and setting up a Bid Match profile to notify the company about relevant contract opportunities. An introduction to small business professionals at the U.S. Army Corps of Engineers (USACE) led to SenezCo receiving a contract with USACE, and in September 2023 the SenezCo team secured their first federal award with the help of KY APEX Accelerator.



CONSTRUCTION DIVERSITY ACCELERATOR



KY APEX Accelerator consultants worked with Turner Construction and UK to host the 2nd annual Construction Diversity Accelerator (pictured on this page) to give underrepresented construction businesses the skills needed to be competitive in their industry.

Consultants provided 110 hours of coaching in areas such as business readiness assessments, capability statements, and government certifications.





kyvalor.com

KY VALOR (Veterans Accelerated Licensure Occupational Recruitment) helps veterans capitalize on their military experience to meet career goals and find a fulfilling post-service career in Kentucky. Our team actively recruits service members and their spouses to open positions in Kentucky to fill workforce gaps and build a unique talent pipeline throughout the state. We take a personal, one-on-one approach to match service members with open jobs

and communities based on their unique experience and career goals.

KY VALOR builds on the success of KSTC's previous grant from the U.S. Department of Labor which established 44 accelerated pathways for service members to 55 licensed occupations covering more than 180 Military Occupational Specialties. Kentucky is one of only three states with these military-friendly pathways.

KY VALOR's Nicki Stewart shares resources at a Kentucky Department of Veterans Affairs event.



KEY METRICS

138

Employment Partnerships Established

367

Service Members and Spouses in Recruitment Pipeline

58%

of Recruitment Pipeline Outside of Kentucky

HELPING SERVICE MEMBERS MAKE KENTUCKY THEIR POST-SERVICE HOME

KY VALOR officially kicked off November 2023 with digital marketing efforts including the launch of kyvalor.com. The team began a national recruitment effort in early 2023, visiting 11 military bases in eight states in only three months. Additionally, team members have a regular presence at Kentucky bases Fort Knox and Fort

Campbell and are attending regional job fairs and recruitment events. We take a personal approach to help not only service members, but also their families, find meaningful post-service careers based on career goals, prior education and Military Occupational Specialties, desired location, financial requirements and more.



Representative DJ Johnson (center) is recognized for supporting the launch of KY VALOR by Executive Director Molly Bode and KSTC President Terry Samuel.



As a veteran, I know the men and women who serve our nation possess the skills and work ethic that make them fantastic members of the workforce. The VALOR program simply eliminates the red tape that often slows down or stands in the way of their transition from public service to private life.

KENTUCKY REPRESENTATIVE
DJ JOHNSON

SOLVING WORKFORCE GAPS WITH A HIGHLY SKILLED TALENT POOL

One of the major benefits of hiring veterans is their prior training and experience. With our 44 accelerated pathways to 55 licensed occupations, Kentucky employers can fill open positions quickly with highly skilled, experienced employees. We've partnered with 138 employers to date to connect them with this unique talent pool and solve workforce gaps. The team has also established relationships with more than 50 career centers, higher education institutions, chambers of commerce and veterans groups to expand their employer and recruitment network.

KY VALOR team members are advocating for more organizations to follow suit. Executive Director Molly Bode spoke about the success of Kentucky's accelerated pathways on a panel discussing occupational licensing and military families for the National Interstate Council of State Boards of Cosmetology in April 2023.



Left: Executive Director Molly Bode speaks at the Northern Kentucky Chamber of Commerce Hiring and Retaining Veterans Event. Below: KY VALOR recruiting at military bases across the country.





Left: The KY VALOR team meets with Toyota Regional Director of Government Affairs and Kentucky Workforce Innovation Board Member Kim Menke. Below: The KY VALOR team attends the Hooray for Heroes event in Radcliff, KY.





kstc.com