



2021

YEAR IN REVIEW





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Tulsa Innovation Labs

ABOUT TIL

Recognizing that the jobs of the future are rooted in a thriving innovation economy, Tulsa Innovation Labs LLC (TIL) was founded to help build a tech hub in Tulsa that leverages the strengths of the heartland and expands opportunities in tech. Launched in 2020, TIL developed the city's first tech-led economic development strategy, a rigorous and data-driven effort to determine the strongest opportunities for Tulsa's economy. TIL is implementing this strategy and focusing its startup, academic innovation, and talent initiatives on catalyzing five interconnected ecosystems, together called "Tulsa's Tech Niche": virtual health, energy tech, advanced aerial mobility, cyber, and data analytics.



LEADERSHIP

Nicholas Lalla

Co-Founder & Managing Director

Jennifer Hankins

Head of Partnerships

PORTFOLIO LEADS

Conor Godfrey

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DEAR FRIENDS,

We hope you have found a healthy rhythm in these challenging times. Last year, we launched Tulsa Innovation Labs just prior to COVID-19's unwelcomed emergence. This year, with the availability of effective vaccines, we're trying to get back to some semblance of normal.

I'm proud to say that 2021 was a productive year for us, and we're excited to share highlights from our efforts to catalyze an inclusive innovation economy in Tulsa.

If 2020 was about setting up the organization and establishing our core strategy ("Tulsa's Tech Niche"), 2021 was focused on building our team and developing plans for our first wave of new initiatives.

The heart and soul of TIL is our team, and we've doubled in size this year. Proving the opportunity in Tulsa is real and our work is compelling, we have recruited a diverse and impressive team. Without their passion and hard work, we couldn't make the impact we seek for Tulsa. They have spent countless hours this year building major new initiatives — many of which are set to launch in 2022 — and I am so proud of them.

For example, we collaborated with the University of Tulsa on a strategic plan for the new Cyber Innovation Institute that will dramatically expand TU's applied research and commercialization capacity. We won a federal grant from the U.S. Economic Development Administration for a virtual health initiative to support startups

emerging from local universities. Recognizing the urgent need for diverse tech talent, we launched the first phase of the Cyber & Analytics Skills Center at Tulsa Community College. To create industry-led energy tech initiatives, we formalized a partnership with Energy Innovation Capital, one of the nation's leading venture capital firms.

And, just recently, Tulsa's vision for an Advanced Mobility cluster was named a finalist for the federal government's \$1 billion Build Back Better Regional Challenge. Drawing directly upon our work in advanced aerial mobility, TIL served as lead strategist for the regional coalition, which included many prominent Tulsa organizations.

In only our second year, TIL is proving our core thesis: that Tulsa needs a forward-looking, data-driven, and strategically-focused economic development organization. TIL has put the building blocks in place: a strong strategy, a stellar team, and a diverse coalition of partners. For us, 2022 is when TIL lifts off, so stay tuned for opportunities to engage across each of our portfolio areas.

Thank you for your continued support!

Nicholas J. Zalla
Co-Founder & Managing Director

Tulsa Innovation Labs



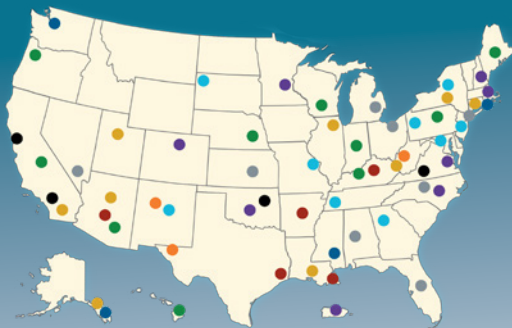
Left to right, back row: Shawna Khouri, Kastle Jones, Jennifer Hankins, Nicholas Lalla, Joanna Jeffries, Conor Godfrey; front row: Daniel Plaisance, Kayla Valencia, Daniel Te, Antonella Carranco, Sahee Abdelmomin.

TIL BUILDS DIVERSE TEAM FROM AROUND THE COUNTRY



Over the past year, TIL has doubled in size. We have recruited top strategists, content and industry experts, and economic development specialists from across Oklahoma and the nation. The team includes the former leader of Cyber NYC; an entrepreneur who holds virtual health patents; a former national security advisor from the U.S. State Department; a Muskogee native who boomeranged from Seoul to London to New York and returned to Tulsa to lead energy tech initiatives; and an economic developer with experience building partnerships in Kansas City, Oklahoma City, and Tulsa. We also have two Tulsa Service Year Fellows who have joined us from Northwestern and Princeton Universities. Together, we're working on a new vision for economic development in Tulsa, and we're having fun doing it.

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Key

- ADVANCED MANUFACTURING
 - AEROSPACE and DEFENSE
 - AGRICULTURE and NATURAL RESOURCES
 - BIOTECHNOLOGY and BIOMANUFACTURING
 - ENERGY and RESILIENCE
 - HEALTHCARE and DIGITAL HEALTH
 - INFORMATION TECHNOLOGY
 - TRANSPORTATION, CONSTRUCTION, and LOGISTICS
 - WATER and BLUE ECONOMY
- Dots mark the lead institution of finalists*



TULSA'S ADVANCED MOBILITY VISION A FINALIST FOR \$1 BILLION BUILD BACK BETTER REGIONAL CHALLENGE

Amidst a wave of large-scale federal investments in tech-led economic development, Tulsa Innovation Labs served as lead strategist for a coalition of economic development organizations and community stakeholders who responded to the U.S. Economic Development Administration's Build Back Better Regional Challenge.

In mid-December, Tulsa was named a finalist for the Challenge and awarded a \$500,000 planning grant. Tulsa was one of 60 finalists among 529 applications from across the nation, and our projects are now advancing to the next phase of the competition.

REGIONAL COALITION PARTNERS: BUILD BACK BETTER REGIONAL CHALLENGE



Building on legacy strengths in aerospace, manufacturing, recent momentum around electric vehicle production, and TIL's work in advanced aerial mobility, the coalition built a cohesive regional vision for an Advanced Mobility growth cluster that reflects our priorities of economic diversification, inclusivity, and strategic, data-driven investments.

At the core of this vision is a TIL-backed innovation hub that will leverage the research strengths of Oklahoma State University and the University of Tulsa to drive research projects in high-growth niches of the advanced mobility sector, such as base system design, advanced materials, electric propulsion, and battery reuse and recycling. By pairing top-level faculty with industry experience and robust commercialization pathways, this center will turn academic expertise into a true economic asset.



Jamey Jacob (left) and TIL's Kastle Jones at the launch of OSU's new program, Oklahoma Aerospace Institute for Research and Education (OAIRE).

TIL's Left to right: TIL's Brian Ratajczak, Kastle Jones, Daniel Plaisance, and Jennifer Hankins, touring the EXCELSIOR building at the OSU College of Engineering, Architecture and Technology.



TIL leads the development of Advanced Aerial Mobility programs that complement our regional growth strategy. We look forward to our continuing work with TIL to position Tulsa as a leader in this emerging industry."

— Kian Kamas, Executive Director of Tulsa Authority for Economic Opportunity (TAEO)

In addition, the proposal includes workforce development programs designed to respond to anticipated growth in this industry, a nationally unique flight testing infrastructure to retain innovative companies and entice corporate partners, and an industrial infrastructure to ensure that the economic benefits of these investments are felt by workers across the region. In total, these investments would make the Tulsa region a leading hub for innovation, testing, and production, and the exercise of building this proposal has strengthened our region's commitment to this vision.

BLOOMOK WINS FEDERAL GRANT TO SUPPORT VIRTUAL HEALTH STARTUPS

TIL was selected by the U.S. Economic Development Administration for its Build to Scale Capital Challenge Award for our BloomOK project. The Build to Scale Capital Challenge seeks to increase regional access to early-stage capital for scalable technology startups.

Designed by TIL, the BloomOK program will increase access to early-stage investment for virtual health startups and bolster regional investors' confidence in investing in the highly regulated virtual health market. BloomOK will

accomplish this by supporting due diligence activities and providing virtual health subject matter expertise to regional investors, including Oklahoma Life Science Fund, Cortado Ventures, i2E, Atento Capital, and regional angel investors.

By catalyzing funding to hardware, software, and software-enabled systems that enable the decentralized delivery of healthcare, BloomOK will promote the development of tech solutions that will improve health outcomes for urban and rural Oklahomans alike.

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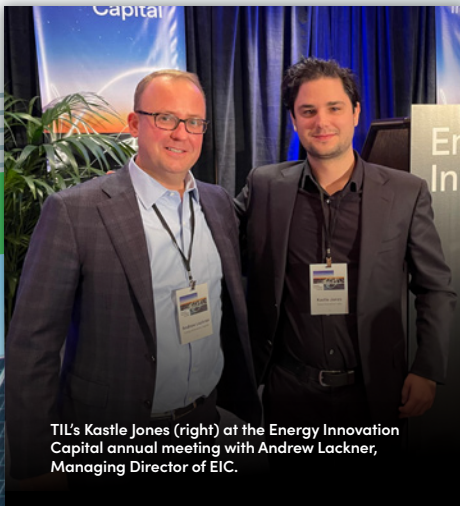
TIL ESTABLISHES MAJOR PARTNERSHIP WITH EIC, NATION'S LEADING ENERGY TECH-FOCUSED VC

Energy Innovation Capital

Energy innovation is critical to ensuring Oklahoma's long-term economic resilience. Oil and gas companies are facing increasing pressure from government mandates and investors to decarbonize.

Companies must effectively incorporate operational efficiency and energy transition innovation into their business models to tackle these emerging trends and create more resilient jobs for our community. For Tulsa, this shift presents an opportunity to become an emerging hub for energy innovation and set the standard for the future of the oil and gas industry.

Energy Innovation Capital, the nation's foremost venture capital firm investing in next generation energy technology, and TIL established a partnership to co-develop and launch a suite of energy tech initiatives. Three interconnected initiatives aim to fast-track energy innovation in Tulsa by recruiting top energy tech startups, facilitating collaboration with corporations, and providing scale-up capital.



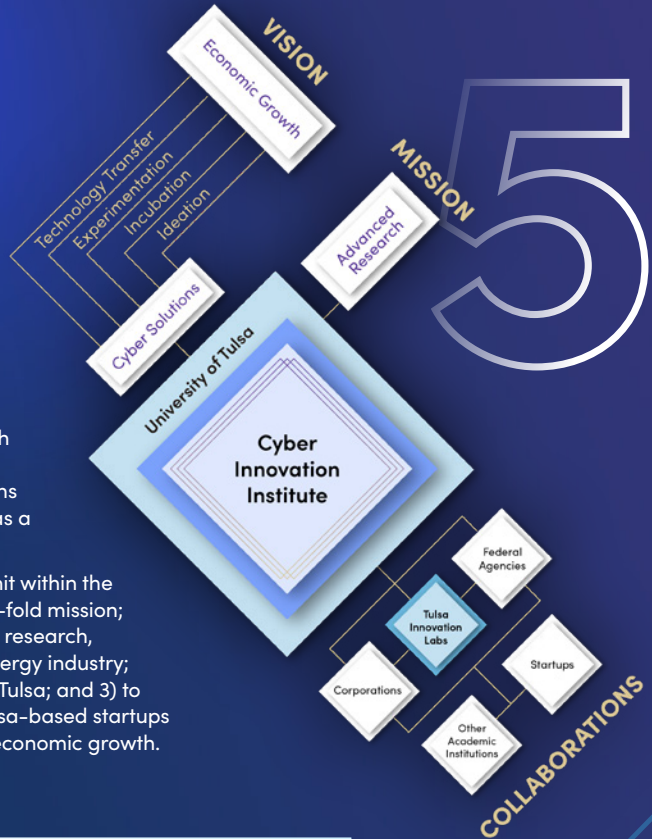
TIL's Kastle Jones (right) at the Energy Innovation Capital annual meeting with Andrew Lackner, Managing Director of EIC.

UNIVERSITY OF TULSA'S CYBER INNOVATION INSTITUTE COMPLETES STRATEGIC PLAN

In collaboration with the University of Tulsa and Boston Consulting Group, TIL conducted a rigorous strategic planning process to develop a new Cyber Innovation Institute in Tulsa.

The Cyber Innovation Institute will leverage TU's existing cyber assets and transform them into an applied research center that will house both innovative breakthroughs and practical applications for industry partners, positioning Tulsa as a recognized leader in cyber security.

The Institute will operate as a special unit within the University of Tulsa. It will pursue a three-fold mission; 1) to make TU a national leader in cyber research, particularly cyber applications in the energy industry; 2) to attract world-class cyber talent to Tulsa; and 3) to create commercial opportunities for Tulsa-based startups and other businesses to drive regional economic growth.



The Cyber Innovation Institute will supercharge TU's already best-in-class cyber research capabilities, and offer students, professors, and industry partners the chance to commercialize the very best ideas and technology. This means tremendous commercial opportunities for regional businesses and company growth in Tulsa and NE Oklahoma."

— Brad Carson,
President of the University of Tulsa

Helping to evolve Tulsa's tech economy is in our DNA. With the rise of computers in the late 70s and 80s, Tulsa Community College was dubbed the MIT of the Southwest for its critical role in training a technology-based workforce. Today, the Cyber and Analytics Skills Center is the centerpiece of our effort to develop tech talent and advance our region. With TIL and OSU-Tulsa, this initiative responds to current and future employer demand with industry-aligned training. At the same time, it ensures equity so Tulsans of all backgrounds can access training and secure quality jobs in these fast-growing sectors."

— Dr. Leigh Goodson,
TCC President & CEO

TULSA COMMUNITY COLLEGE LAUNCHES CYBER & ANALYTICS SKILLS CENTER

The Cyber and Analytics Skills Center (CAC) is a partnership between Tulsa Community College, Oklahoma State University, and Tulsa Innovation Labs to create a diverse cyber and analytics talent pool that widens access to tech careers and fuels Tulsa's growing innovation economy.

In 2021, TCC and TIL launched the first phase of CAC: an accelerated training program. Through a competitive RFP process, TCC and TIL will select operators to run cyber and analytics training programs that upskill job seekers and place them in local jobs.

At maturity, CAC will engage 100 students per year in the accelerated training programs for both cyber and analytics (~50 students in each track), as well as provide a pathway to a four-year degree at OSU-Tulsa for 100 additional students each year.

The CAC will put diversity, equity, and inclusion at the core of its model and provide a number of wraparound services to ensure Tulsans from all backgrounds can access this promising career ladder.





HOLBERTON SCHOOL GRADUATES FIRST COHORT OF SOFTWARE DEVELOPERS

Holberton School, a leading software engineering academy, opened its third U.S. campus in Tulsa in January 2020—the first project hosted on TIL’s platform. The program’s tuition-deferred structure makes it an equitable pathway to higher education. In fall 2021, Holberton graduated its first cohort and has already exceeded industry standards for job placement rates. Graduates have landed jobs at local companies in Tulsa, such as Respond Flow, Consumer Affairs, and Gitwit. Students in this cohort faced substantial challenges since most of their educational time was during the pandemic, but Holberton adapted accordingly to ensure student success.





TU-TEAM8 CREATES NEW RESEARCH PODS FOR CYBER FELLOWS

In 2021, the TU-Team8 Cyber Fellows initiative worked with a second cohort of top-tier Ph.D. students on cutting-edge cyber topics, such as machine learning-based intrusion detection, human-agent interaction, and attack graph generation, to name a few. The nine cyber fellows engage in interdisciplinary research with faculty spanning the College of Engineering and Natural Sciences, Collins College of Business, and the psychology department, and similarly draw in master's students with relevant research interests. This year, the initiative created new groupings of research "pods," which maximized collaboration and the type of interdisciplinary insight required for genuine breakthroughs. Venture capital firm Team8 continues to provide hands-on mentorship to channel research toward commercializable ideas and technology with immediate industrial applications.

ROCK HEALTH & TIL TEAM UP ON SUMMITS

Last October, TIL's virtual health team partnered with Atento Capital to host Rock Health and several local and national virtual health leaders in Tulsa for a two-day forum to discuss virtual health adoption and investment opportunities and challenges. Rock Health is a leading full-service seed fund that supports digital health startups.

The event kicked off with the Health Innovation Roundtable, which gathered healthcare leaders, academics, and business experts to identify the challenges of healthcare delivery in rural America and how virtual health innovations can mitigate those challenges. This two-day event also featured a Virtual Health Investor Roundtable that discussed trends and opportunities within the virtual health landscape with leadership from Intermountain Ventures, Echo Investment Capital, Boyd Street Ventures, and more.



Connectivity independence requires that all American Indians should have access to affordable, reliable broadband to access digital health services."

— Chuck Hoskin, Jr.,
Principal Chief of Cherokee Nation

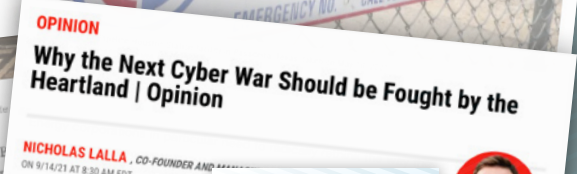


TIL's Shawna Khouri (standing) with Chief Chuck Hoskin, Jr. (seated, right) at the Health Innovation Roundtable.

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TIL'S WORK EARNS GROWING RECOGNITION

TIL's work in Tulsa is serving as a national model for inclusive economic growth. While only two years old, TIL is already garnering national recognition. From an ABC News article examining the equity-focused rebuilding of the Greenwood District through technology and business initiatives like TIL to an opinion piece in Newsweek by our co-founder and managing director, Nicholas Lalla, on why Tulsa is the next big opportunity spot for the war on cyber attacks, our work is reaching audiences far beyond Tulsa.



"Why the Next Cyber War Should be Fought by the Heartland" by Nicholas Lalla

Newsweek: <https://www.newsweek.com/why-next-cyber-war-should-fought-heartland-opinion-1628556>

THE TIL TEAM IS WORKING ON AN EXCITING RANGE OF PROJECTS, INCLUDING:

CANOPY

Canopy is a virtual health initiative aimed at catalyzing startup growth by supporting entrepreneurship and accelerating the commercialization of virtual healthcare innovations from regional educational institutions like Oklahoma State University and the University of Oklahoma. To date, Canopy has established key collaborations, identified operating partners, and secured funding. As we look toward a 2022 launch, the initiative is currently looking to hire a director and manager.

OSU ADVANCED AERIAL MOBILITY (AAM) CENTER

Earlier this year, Oklahoma State University announced the launch of the Oklahoma Aerospace Institute for Research and Education (OAIRE). In an effort to commercialize OAIRE's AAM research, TIL has worked closely with OSU leaders to establish a distinct vision for an initiative housed at Tulsa's Helmerich Research Center. The proposed AAM Center will strengthen research and commercialization activity in Tulsa, making Tulsa a national hub for advanced aerial mobility research and development.

TIL LEADERSHIP COUNCIL SUMMIT

TIL hopes to host all leadership council members in Tulsa in spring 2022 for the first Advisory Council Summit. This summit will provide discussion opportunities, networking events, and the chance to get to know Tulsa. We are excited for council members to interact with each other and TIL members and engage in thought leadership.

A NEW FRAMEWORK FOR MEASURING INCLUSIVE GROWTH

In partnership with the Aspen Institute and Heartland Forward, TIL is creating a new framework for inclusive growth by defining a sustainable vision of success for Tulsa and other communities around the country looking to catalyze tech-led economies. This framework includes nine metrics across three categories that will help quantitatively evaluate the progress mid-sized cities are making toward achieving robust economies for the future.

FOUNDING PARTNER

GEORGE KAISER FAMILY FOUNDATION

A supporting organization of Tulsa Community Foundation

INITIATIVE PARTNERS

Energy
Innovation
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Holberton

LSF
Oklahoma Life Science Fund



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∞ TEAM8