YEAR IN REVIEW

2022

TULSA
INNOVATION LABS

WHO WE ARE

Recognizing that the jobs of the future are rooted in a thriving tech economy, Tulsa Innovation Labs is building a tech hub in Tulsa that expands opportunities for Tulsans and catalyzes inclusive growth. We make programmatic investments in four interconnected ecosystems. Collectively, we refer to these "right-to-win" opportunities as "Tulsa's Tech Niche": Advanced Air Mobility; Virtual Health; Energy Tech; and Cyber.

Through a diverse coalition of public and private partners, led by the George Kaiser Family Foundation—a $5 billion philanthropic organization—TIL is creating an inclusive tech community in the American Heartland.

Tulsa's Tech Niche

TIL is Investing in Tulsa's Right-to-Win Opportunities

ADVANCED AIR MOBILITY
VIRTUAL HEALTH
ENERGY TECH
CYBER

LEADERSHIP

Nicholas Lalla
Founder & Managing Director

Jennifer Hankins
Chief of Strategic Partnerships

PORTFOLIO LEADS

Conor Godfrey
Director, Cyber

Daniel Plaisance
Senior Associate, Advanced Air Mobility

Shawna Khouri
Director, Virtual Health

Justin Kits
Director, Grants & Policy

STAFF

Sahee Abdelmomin
Associate, Virtual Health

Antonella Carranco
Fellow, Energy Tech

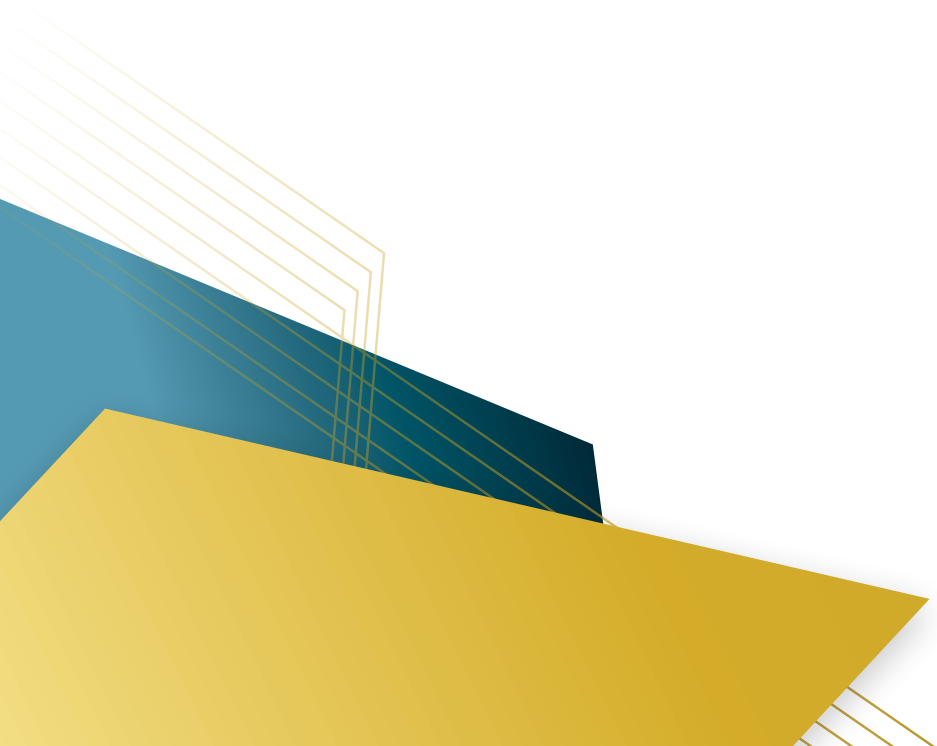
Allison Foster
Manager, Partnerships

Oscar Guillén Arauz
Fellow, Advanced Air Mobility

Alejandra Palomo
Analyst, Partnerships

Bryan Oldham
Manager, Marketing & Communications

Joanna Jeffries
Manager, Operations



2022

YEAR IN REVIEW

TULSA
INNOVATION LABS

Dear Friends,

What a year! I am so proud of the TIL team, our initiative partners, and our Tulsa community. From EIC Rose Rock to Build Back Better to the Cyber Skills Center, TIL earned big wins this year.

These successes–three years in the making–have helped us validate our theory of change. TIL's focus on strategic clusters, the value we place on inclusion, and our methodical and collaborative approach are bearing fruit.

Although we have significant momentum heading into 2023, we cannot rest on our laurels. Building an inclusive innovation economy is a generational effort. The work is just now beginning, and we have big plans for the years ahead.

At TIL's first Inside Innovation Summit held in September, I outlined TIL's priorities for 2023. As we close 2022, I want to revisit our priorities for the new year:

First, we will continue to work with local and regional partners to secure broader and deeper strategic alignment, working together to grow Tulsa's most promising tech clusters.

Second, to scale and sustain our initiatives, we will build partnerships with national companies and continue to support our peers engaged in corporate attraction.

Third, we will create more targeted interventions to expand access and opportunity for Tulsans from underserved backgrounds.

Fourth, we will build a more robust development function within our partnerships team to engage state, federal, philanthropic, and corporate partners and connect them to our initiatives.

And fifth, we will share the Tulsa story with wider and more diverse audiences, deploying creative communications tools, including thought leadership pieces, to promote the transformational work happening in our city.

2022 was a good year for TIL. But we need to maintain our sense of urgency because, in emerging technology, the winner is often the person, company, or city that gets there first.

In my first public appearance as the leader of Tulsa Innovation Labs–way back in 2019–I made a hypothesis: Tulsa had most of the ingredients it needed to become a tech hub and through strategic focus and coordinated investment, we could create a thriving and inclusive innovation economy. As I hope you've all recently seen, Tulsa has those ingredients and more! This year has proven that Tulsa's potential is limitless if we work together.

To continued and shared success,

Nicholas J. Lalla

Nicholas Lalla
Founder & Managing Director
Tulsa Innovation Labs

TABLE OF CONTENTS

1 TIL Creates **Economy Forward Framework** to Measure Inclusive Growth

3 TIL Expands **Thought Leadership** Profile

5 Tulsa Community College and National Partners Launch **Cyber Skills Center**

6 TU-Team8 **Cyber Fellows** Expand Cutting-Edge Research

7 TIL Brokers **Agreement** on Advanced Mobility **between Governors** of Oklahoma and Arkansas

9 Tulsa Coalition Wins **$38.2 Million Build Back Better Grant** for Advanced Mobility Cluster

11 **TIL** Brings Together **EIC**, Williams, Devon, and ONEOK to Grow **Energy Tech Startups**

13 TIL Hosts Leadership Council for Inaugural **Inside Innovation Summit**

17 **BloomOK** Celebrates First Year Connecting Virtual Health Technologists with Investors

18 **Looking Ahead**

TIL CREATES ECONOMY FORWARD FRAMEWORK TO MEASURE INCLUSIVE GROWTH

In March 2022, Tulsa Innovation Labs released the Economy Forward Framework (EFF). Created in collaboration with Heartland Forward and the Aspen Institute, EFF is the first system for measuring the inclusive growth of midsized cities' knowledge economies.

EFF began as a way for TIL to measure the growth of Tulsa's knowledge economy, but quickly evolved into a model with broader applicability. Cities across the country struggle to understand and measure inclusive economic growth. EFF provides a set of 9 metrics, across 3 categories that, together, capture the key drivers of inclusive growth in cities with metropolitan statistical area populations of 750,000 to 1.5 million.

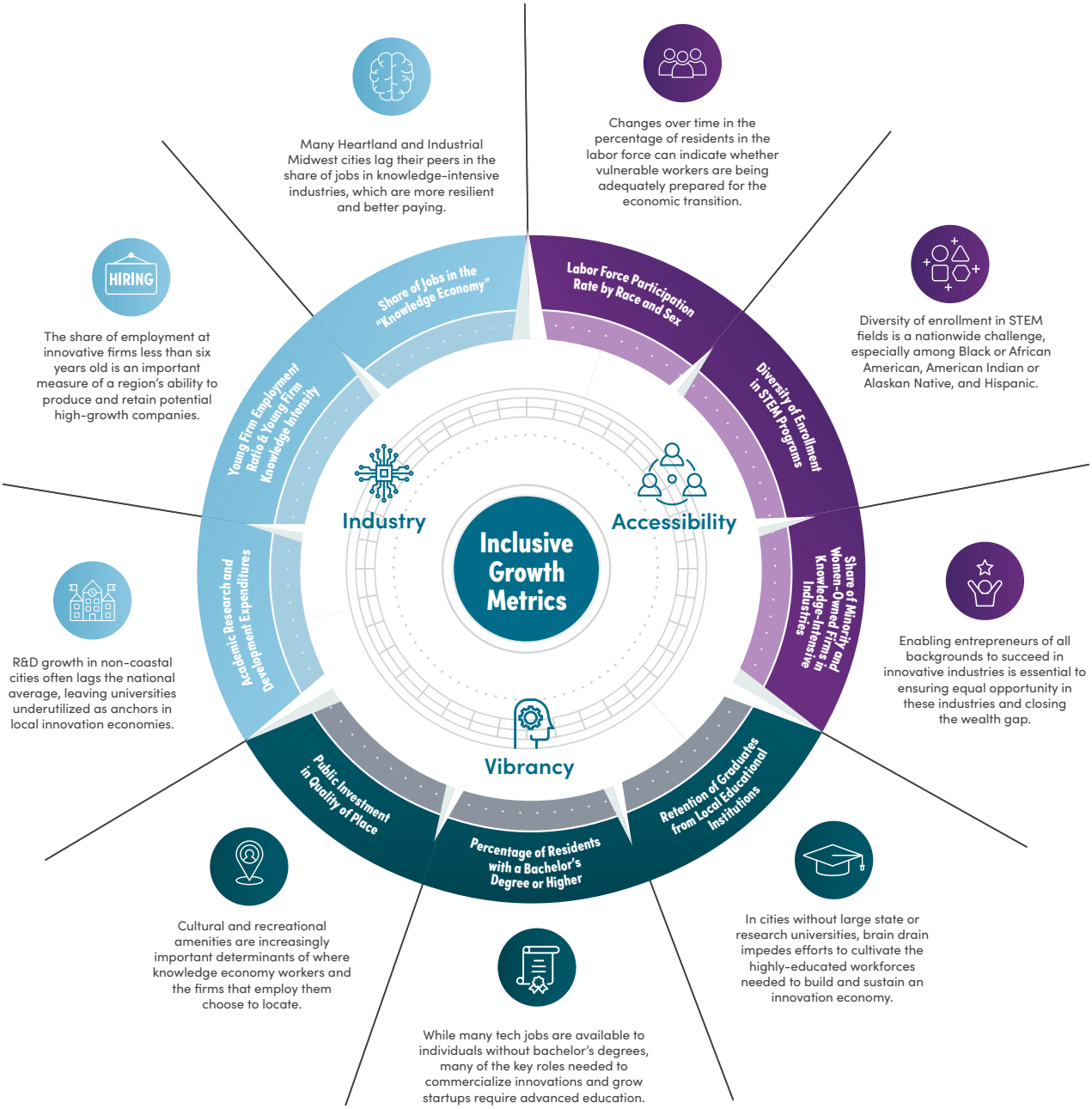
Most importantly, EFF established goals for Tulsa across a five-year timeline. TIL will monitor Tulsa's progress against those goals, share learnings with our peers, and refine our programmatic investments to ensure that we're doing all we can to move the needle on the most important metrics.

"The Economy Forward Framework is a unique and necessary blueprint for inclusive growth. Tulsa and cities like it will flourish or flounder based upon their ability to attract and retain diverse talent and create and expand opportunities for knowledge-based jobs. The momentum Tulsa has seen in recent years is impressive, but accurate measurement against key benchmarks is required to sustain progress. The metrics we identify as key drivers will help guide Tulsa and other cities to a more economically sustainable and inclusive future."

— **Richard Florida,**
Senior Fellow, Heartland Forward

INCLUSIVE GROWTH METRICS

These nine metrics represent the key drivers of inclusive economic growth. Closely monitoring a city's progress across each of them is important for ensuring a city establishes and sustains a positive (and inclusive) growth trajectory.



Many Heartland and Industrial Midwest cities lag their peers in the share of jobs in knowledge-intensive industries, which are more resilient and better paying.

Changes over time in the percentage of residents in the labor force can indicate whether vulnerable workers are being adequately prepared for the economic transition.

Diversity of enrollment in STEM fields is a nationwide challenge, especially among Black or African American, American Indian or Alaskan Native, and Hispanic.

Enabling entrepreneurs of all backgrounds to succeed in innovative industries is essential to ensuring equal opportunity in these industries and closing the wealth gap.

In cities without large state or research universities, brain drain impedes efforts to cultivate the highly-educated workforces needed to build and sustain an innovation economy.

While many tech jobs are available to individuals without bachelor's degrees, many of the key roles needed to commercialize innovations and grow startups require advanced education.

Cultural and recreational amenities are increasingly important determinants of where knowledge economy workers and the firms that employ them choose to locate.

R&D growth in non-coastal cities often lags the national average, leaving universities underutilized as anchors in local innovation economies.

The share of employment at innovative firms less than six years old is an important measure of a region's ability to produce and retain potential high-growth companies.

TIL EXPANDS THOUGHT LEADERSHIP PROFILE

TIL is deploying a novel approach to economic development. Focused on catalyzing right-to-win tech clusters and expanding access and opportunity, TIL has tailored its strategy to Tulsa's unique assets. In doing so, TIL is developing subject matter expertise in a handful of tech clusters and earning a national and global reputation for its thought leadership.

Whether keynoting the NWA Tech Summit, appearing at influential conferences like Rock Health Summit, or writing featured op-eds for publications like Next City or The Stanford Social Innovation Review, TIL's thought leadership is elevating the profile of Tulsa and our partners, while shining a light on the city's most promising tech clusters.

TIL's Director of Cyber, Conor Godfrey, giving his keynote.

NWA Tech Summit Keynote

Conor Godfrey gave a keynote speech at October's NWA Tech Summit, outlining how the Heartland is primed to lead the country in innovations across numerous right-to-win opportunities, especially those on which TIL is focused.

Whitepaper with Software Company Asemio

Cyber is a cross-discipline focus that has use cases across nearly every industry of today and the future. Because of this, it's critical for cities to establish strong data infrastructure, and our Director of Cyber, Conor Godfrey, in conjunction with our friends at Asemio, penned a whitepaper on how cities like Tulsa can do just that.

TIL's Virtual Health Associate, Sahee Abdelmomin, at the Rock Health Summit.

Rock Health Conference in San Fransisco

Our Virtual Health team, Shawna Khouri and Sahee Abdelmomin, participated in this year's Rock Health Summit, both virtually and in person. Shawna contributed to panels discussing the need for technological innovation to lead the way in decentralizing healthcare, while Sahee joined a panel to discuss how accessibility to patients must be a focal point of the future of healthcare.

Hari Sreenivasan, PBS Newshour; Ramona Schindelheim, Editor-in-Chief of Working Nation; Nicholas Lalla of TIL

SXSW EDU Panel in Austin

At SXSW 2022, Nicholas Lalla participated in the "Building Innovation Hubs Outside of Silicon Valley" panel, discussing how Tulsa serves as a blueprint for tech hubs in the Heartland. Representing TIL and the city of Tulsa, Nicholas shined the spotlight on the great work being done in our city and why more people should pay attention.

Bloomberg CityLab Conference in Amsterdam

Nicholas Lalla attended the Bloomberg CityLab conference alongside PartnerTulsa Executive Director, Kian Kamas. While there, Nicholas compiled his top 10 takeaways for urban leaders to incorporate into their cities.

Nicholas with Kian Kamas, Executive Director of PartnerTulsa, in Amsterdam.

"I am absolutely thrilled to see the evolution of Tulsa Innovation Labs' thought leadership over the last year. Starting with the Economy Forward Framework, an important blueprint for inclusive cities of the future, to which the Aspen Institute is thrilled to have contributed, to our partnership at The Festival of the Diaspora, and the op-eds and speaking appearances across the country. TIL is quickly becoming a leader in tech-led economic development, and the star continues to point North for themselves, the city of Tulsa, and other cities across the country seeking to innovate within."

— **Cordell Carter, II, Executive Director, Aspen Institute Socrates Program & Founding Director, Aspen Institute Project on Belonging**

First Cyber Skills Center Cohort

TULSA COMMUNITY COLLEGE AND NATIONAL PARTNERS LAUNCH CYBER SKILLS CENTER

Tulsa is committed to being a national leader not just in cyber, but also in educational and career opportunities for diverse cyber talent. The official launch this August of the Cyber Skills Center was a major milestone in Tulsa's journey.

The Cyber Skills Center is a 24-week, part-time training program in either cyber or data analytics powered by our training partners edX and Skillstorm, with wrap-around services for child care, transportation, and in-home technology support to ensure that ambitious Tulsans can overcome potential barriers to access and level up their career. Tuition is free for those selected. The first Cohort–with 20 slots available in cyber and 20 in data–drew almost 400 applications!

The inaugural Cohort is highly diverse (65% non-white & 50% female), representing a cross-section of Tulsa from oil and gas career switchers, to IT professionals, to students looking to re-orient in a high-growth field. The first Cohort will graduate in March and will have the option to rejoin the workforce, pursue an apprenticeship, or receive credit for the training towards a 2 or 4 year degree.

"From the number of community partners to nearly 400 applications for the inaugural class, the launch of the Cyber Skills Center has been embraced by our Tulsa community. Through collaborative partnerships with TIL, edX, and Skillstorm, TCC is expanding the opportunity for upskilling, micro-credentials, and short-term training programs for all Tulsans."

Leigh Goodson, President & CEO, Tulsa Community College

TU-TEAM8 CYBER FELLOWS EXPAND CUTTING-EDGE RESEARCH

The Cyber Fellows doctoral program co-managed by TU, TIL, and venture firm Team8, continues to grow by leaps and bounds. There are now 24 doctoral fellows, with the first cohort of 9 fellows scheduled to graduate in June 2023. There are 15 approved projects touching computer science, electrical and mechanical engineering, data privacy, and, of course, cyber security. Two fellows graduated with their master's degree in 2022, and landed prestigious positions at Boeing and Phillps 66.

New Team8 projects for 2022 included research on intelligent agents, explainable AI, security for machine learning algorithms, and methods for detecting false data injection attacks. In June 2023, we will host a showcase event for graduating fellows to pitch their research and its commercial applications to investors and potential enterprise customers.

"The TU-Team8 Cyber Fellows are the next American cyber titans. I don't know of any other program in America that pairs top-tier research talent with venture capital advisors to drive interdisciplinary cyber research toward cutting-edge commercial technology. As the first Doctoral cohort graduates in 2024, I am excited to see them seed the region, and the nation, with the type of talent and technology that will spark new breakthroughs in the security industry."

Brad Carson, President of the University of Tulsa

THE UNIVERSITY of TULSA TEAM8

TIL BROKERS AGREEMENT ON ADVANCED MOBILITY BETWEEN GOVERNORS OF OKLAHOMA AND ARKANSAS

In August, TIL's Chief of Strategic Partnerships, Jennifer Hankins, and Oklahoma Secretary of Science and Innovation, Elizabeth Pollard, brought together the governors of Arkansas and Oklahoma to sign a memorandum of understanding. This historic agreement allows the two states to collaborate more closely on shared industry priorities and sets up the 412 Corridor (the region from Tulsa to northwest Arkansas) as the epicenter of the advanced mobility industry in the Heartland.

Advanced mobility encapsulates industries like drone technology, logistics, and electric vehicles, that take transportation from what it has been to what it could and should be.

This partnership means that state lines will not impact the best decisions for the region, but rather will allow both states to press forward in innovation and economic prosperity, coordinating regional economic development that benefits the entire region.

"This Memorandum of Understanding, spearheaded by the work of Jennifer Hankins and the Tulsa Innovation Labs' team, showcases the great ability of private-public partnerships to reach across state lines and create regions that are good for living, working, and innovating. I am thrilled to see the work of organizations like TIL bring together local and state leaders for the benefit of technological advancement, workforce readiness, and collaborative partnerships in such a meaningful way."

— **Elizabeth Pollard,**
Oklahoma Secretary of Science and Innovation

Pictured (left to right): Nicholas Lalla, AR Governor Asa Hutchinson, Secretary Elizabeth Pollard, OK Governor Kevin Stitt, Jennifer Hankins

2022 WINNER

BUILD BACK BETTER REGIONAL CHALLENGE
E·D·A
WINNER

TULSA COALITION WINS $38.2 MILLION BUILD BACK BETTER GRANT FOR ADVANCED MOBILITY CLUSTER

In late 2021, Tulsa Innovation Labs began developing a strategy for a Tulsa-based group effort to respond to the Economic Development Administration's Build Back Better Regional Challenge, which asked regions to identify high-potential, right-to-win industry clusters for their region and design a set of projects that enable their region to realize this opportunity.

The Tulsa Regional Advanced Mobility (TRAM) Cluster effort was spearheaded by Tulsa Innovation Labs' Chief of Strategic Partnerships, Jennifer Hankins, and Senior Associate for Advanced Air Mobility, Daniel Plaisance, along with a collection of local partners, who built on TIL's strategy to make Tulsa the epicenter of Advanced Mobility innovation in the United States. A coalition of more than 10 local, private, public, and tribal partners jointly developed the TRAM Cluster proposal, with goals that include workforce development projects, building infrastructure, creating a world-class research facility at OSU-Tulsa, and developing state-of-the-art testing ranges for new technologies.

In September, the TRAM Cluster was named one of 21 winners of the EDA's Build Back Better Regional Challenge, out of 60 finalists and 529 initial applicants, proving the region's strength and right to win in Advanced Mobility. This showcase of world-class partnerships and collaborative energy is striking and sets the Tulsa region apart.

This $38.2 million grant, plus the more than $30 million match by local philanthropies and other donors, will enable the launch of all of these programs in 2023.

We couldn't have done this without our coalition partners, including Oklahoma State University, INCOG, PartnerTulsa, Tulsa Ports, Osage LLC, George Kaiser Family Foundation, and more, who have made such a project possible.

"The Build Back Better win is a testament to what our city can do when we come together and align on a forward-looking vision. The Tulsa Regional Advanced Mobility Cluster leverages Tulsa's existing assets and targets new investments to position our region as a leader in advanced mobility, logistics, and electric vehicles. Thank you to TIL and coalition partners for their leadership on this game-changing grant!"

— **G.T. Bynum, Mayor of Tulsa**

COALITION PARTNERS

TULSA INNOVATION LABS
GEORGE KAISER FAMILY FOUNDATION
A supporting organization of Tulsa Community Foundation
TULSA REGIONAL CHAMBER
INCOG
OSAGE LLC
TULSA PORTS
CITY OF Tulsa
A New Kind of Energy.
PARTNER TULSA
OSU
TULSA COMMUNITY FOUNDATION
Tulsa Airports Improvement Trust

THANK YOU TO OUR FOUNDING PARTNERS

Williams

devon

ONEOK

GEORGE KAISER FAMILY FOUNDATION
A supporting organization of Tulsa Community Foundation

TIL BRINGS TOGETHER EIC, WILLIAMS, DEVON, AND ONEOK TO GROW ENERGY TECH STARTUPS

In September, Tulsa Innovation Labs launched a first-of-its-kind initiative: EIC Rose Rock. This three-pronged initiative includes a venture fund, a startup incubator, and a corporate innovation service to position Tulsa as a leader in energy technology and innovation.

Tulsa Innovation Labs partnered with Energy Innovation Capital, one of the nation's leading energy venture capital firms, to invest $50 million in seed and series A funding in startups across three areas of energy technology: energy transition, sustainability of conventional energy, and digital transformation.

"I had no intention of leaving BP...or Houston when I first learned about the Rose Rock opportunity. However...the unique partnership with GKFF, Devon, ONEOK, and Williams allowed me to continue being a value-added investor who could bring more than just capital to investment. Tulsa offered us an opportunity to build a legacy for our family and teach our children about the value of community..."

— **David Clause,**
Managing Director of EIC Rose Rock

These three investment areas are prioritized to expedite ground-breaking solutions that optimize operations, reduce the environmental impact of current energy sources, and enable increased adoption of new forms of clean energy, ensuring we are positioned to meet society's growing demand.

EIC Rose Rock

The initiative also includes Rose Rock Bridge, a non-profit startup incubator offering $100,000 in non-dilutive funding, office space, and connections to corporate partners for startups looking to grow in Tulsa.

Leading EIC Rose Rock is David Clouse, who previously worked at BP Ventures, where he invested in oil, gas, and sustainable technologies.

INSIDE INNOVATION

TIL HOSTS LEADERSHIP COUNCIL FOR INAUGURAL INSIDE INNOVATION SUMMIT

TIL is guided by an impressive and diverse set of advisory councils, composed of leaders from Tulsa and around the world. Our council members have made an enormous impact on Tulsa Innovation Labs over the past three years. Because of the pandemic, many of them have not gotten to experience Tulsa in real life. So, for the first time, we brought TIL's full Leadership Council together in Tulsa for an immersive experience in our community and to see the fruits of their labor.

The inaugural Inside Innovation Summit consisted of fireside chats, tours of historic areas of Tulsa, and a behind-the-scenes look at some of the recently launched initiatives in the TIL portfolio. We came together, shared ideas, networked, and made lasting memories. We are grateful for everyone who participated.

We were grateful for the opportunity to hear from local leaders from organizations like PartnerTulsa, Build in Tulsa, and the George Kaiser Family Foundation who gave guests a peek behind the curtain for how all of these organizations are working together to move Tulsa forward.

"The Inside Innovation Summit was a truly unique event where local and national leaders were brought together to experience the hard work the TIL team has put in over the last three years to help transform Tulsa's innovation economy. I am ecstatic knowing that this is just the beginning for the city of Tulsa and look forward to the next Summit."

— **Rose Washington-Jones, Chief Executive Officer of TEDC Creative Capital**

Who said we don't know how to party? Inside Innovation started with an amazing kickoff party featuring local Tulsa artist Branjae (of Kate Bush's wedding fame) and concluded with a happy hour with George Kaiser himself.

Everyone was given a look into the history of Black Wall Street and the new Greenwood Rising museum, so that we do not forget where the city has been, but remember that we are stronger together as a collective unit.

Summit Welcome Reception

THANK YOU, TULSA, FOR HOSTING A GREAT SUMMIT!

New perspectives, insights, and opinions were shared across numerous panels and roundtables

Tulsa's rich history was on full display, in the Historic Greenwood District and Black Wall Street

Utilizing Startups to
Jumpstart Innovation Panel

A week of great guest speakers, including George Kaiser and Oklahoma Secretary of Science and Innovation Innovation, Elizabeth Pollard

INSIDE INNOVATION 2022

BLOOMOK CELEBRATES FIRST YEAR CONNECTING VIRTUAL HEALTH TECHNOLOGISTS WITH INVESTORS

2022 was the first operational year for BloomOK, a TIL Virtual Health initiative. BloomOK supports early-stage investors in Oklahoma by augmenting their capacity and expertise in virtual health. Funding to support this effort was granted through the EDA's Build to Scale Capital Challenge program, the Oklahoma Life Science Fund, and George Kaiser Family Foundation.

BloomOK supports due diligence activities by providing free virtual health subject matter expertise to regional investors. By supporting existing sources of capital with BloomOK's extensive network of subject matter experts (SMEs), the program is catalyzing regional investments in virtual health start-ups. TIL is proud to announce that BloomOK will expand its offerings to provide regional investors with advanced mobility SMEs in 2023.

"BloomOK provides support to investors, companies, and VCs interested in investing in an industry that presents many unique due diligence challenges and regulatory hoops. BloomOK's mission is to provide all the resources to navigate the due diligence process, opening up new opportunities for investors to enter a field that, to this point, has been all but inaccessible. We are thrilled to see Virtual Health at the forefront of investment in Oklahoma and beyond, and cannot wait to see the impact this program has on early-stage companies in the space."

— **Dr. William Paiva,**
Managing Partner, OLSF Ventures

BLOOMOK

OLSF
Oklahoma Life Science Fund

ON THE HORIZON

The work never stops at Tulsa Innovation Labs. We have more exciting plans in 2023, including some new initiatives:

Project Nexus
Virtual Health Technology Piloting Program

Women in Energy Project
Supporting Female Energy Leaders in Partnership with EIC

Cyber Innovation Institute
Research Commercialization Engine at University of Tulsa

LaunchPad
R&D Center at OSU - Tulsa

Want to keep up with Tulsa Innovation Labs?

SIGN UP FOR OUR MONTHLY NEWSLETTER

Visit our website, tulsainnovationlabs.com

FOUNDING PARTNER

GEORGE KAISER FAMILY FOUNDATION
A supporting organization of Tulsa Community Foundation

INITIATIVE PARTNERS

TULSA COMMUNITY COLLEGE
OLSF Oklahoma Life Science Fund
OSU
SKILLSTORM
TOMMYE INNOVATION HUB AT THE UNIVERSITY OF OKLAHOMA
SKYWAY 36
THE UNIVERSITY of TULSA
edX
TEAM8
EIC Rose Rock
OSAGE LLC