

Figure 1: Texoma Semiconductor Tech Hub Consortium Membership

1) Executive Summary: The Texoma Semiconductor Tech Hub (TSTH), led by Southern Methodist University (SMU), offers a new and innovative model of ecosystem development that will elevate the Texoma region within ten years into a global leader in KTF#2 Semiconductors—the indispensable component of all modern technology advances. The TSTH region, the birthplace of the integrated circuit, serves a 29-county region of 8,500,000 residents. The region, extending from North Central Texas into Southern Oklahoma, is exceptional in that infrastructure currently exists or is planned for the entire semiconductor supply chain, including: 1) the manufacture of bare semiconductor wafers, 2) the use of wafers to create electronic and opto-electronic devices, and 3) the use of those chips in industries critical to economic and national security, such as transportation, artificial intelligence, and defense. The TSTH region is also unique in its proximity to the sources of many raw materials needed for semiconductor manufacturing, like helium.

The heart of TSTH is a scalable Fablet-based ecosystem consisting of distributed, modular fabrication facilities, laboratories, and vehicles along with a digital platform that will be harnessed to address critical gaps by training the workforce of today and tomorrow, serving as prototyping and development facilities for technical innovation, and encouraging the next generation of students to aspire to careers in semiconductors. The Fablet implementation (especially mobile Fablets) will quickly provide *all communities*, access to resources for semiconductor training and entrepreneurship and will meet the needs of industry for trained workers.

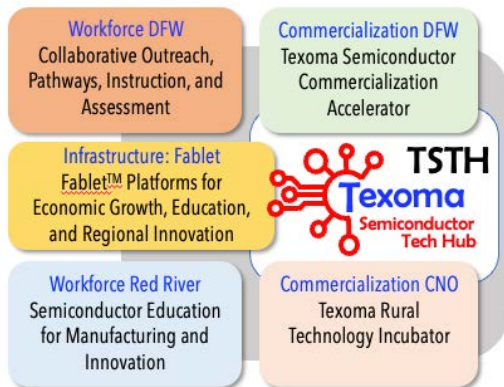


Figure 2: TSTH Component Proposals

2) Synopsis of the Consortium’s Vision for Regional Economic Development: TSTH will significantly benefit urban, suburban, exurban, and rural communities. Atoka, Coal, and Johnston Counties are considered persistent poverty counties. Within TSTH’s region, 88 Opportunity Zones have been identified as economically distressed. TSTH includes 52 consortium members (Figure 1) and will spur economic growth, job opportunities, and revitalization across the region. Since Tech Hub designation, the entire consortium has met regularly to collaboratively identify the five component proposals described below (See Figure 2).

1) Infrastructure: Fablet™ Platforms for Economic Growth, Education, and Regional Innovation: The heart of TSTH is an innovative *distributed ecosystem*

of Fablet platforms that are scalable and place-based. It consists of a central Fablet building on the SMU campus (Fablet-C), eight permanent Fablet satellites (Fablet-S) distributed throughout the region, and a fleet of mobile Fablet vehicles (Fablet-M). In addition to physical Fablet locations, a digital Fablet platform (Fablet-D) will serve as an introduction to the semiconductor industry and an environment where risk-free, affordable, remote learning can occur. *The Fablet ecosystem has been designed to meet the needs of industry, break barriers, and provide access to underserved communities, students, and entrepreneurs, who would otherwise never have access to semiconductor training, upskilling, and prototyping.*

TSTH's workforce development ecosystem is a collaborative, employer-led endeavor for meeting the semiconductor industry's immediate and long-term needs. TSTH will implement two workforce proposals to provide region-wide coverage and address the unique needs of the northern and southern parts of the region.

2) [Workforce DFW: Collaborative Outreach, Pathways, Instruction, and Assessment](#): *Workforce DFW was designed in collaboration with the semiconductor industry to address semiconductor workforce needs across the TSTH region, creating new equitable training and educational opportunities and leading to critical growth in the number of trained workers now and in the decades ahead.* Workforce DFW consists of 1) *Semiconductors Now (SN)*—a broad effort to reach K-12 students, adult learners, and the greater community in activities that promote the opportunities and impact of a career in semiconductors; 2) *Texoma Semiconductor Education Everywhere (T-SEE)*, a collaborative effort to maximize transferrable credit and portable credentials across educational institutions in the consortium so that semiconductor industry workers can obtain the education they need to advance in the industry with less time and effort; 3) *SemiCorps*, combining recruiting activities, training bootcamps, and continuous classroom support to rapidly increase the instructors available for semiconductor training courses that meet industry needs—particularly in institutions that serve non-traditional and/or disadvantaged students and that have historically lacked semiconductor industry-related educational opportunities. As part of SemiCorps, SMU will fund the *Semiconductor Engineering Advanced Degree (SEAD)* program to provide graduate scholarships to students from underserved communities; and 4) *Fablet Interactive Digital Assessment (FIDA)*, a digital platform that leverages the Fablet-D gaming and virtual reality environments and provides tracking of student learning and assessment with opportunities for students to earn “credits” for TSTH-sponsored scholarship opportunities and events.

3) [Workforce Red River: Semiconductor Education for Manufacturing and Innovation](#): *Workforce Red River will transform educational opportunities in the rural counties along the Red River and in Southern Oklahoma by providing access for communities that have historically lacked the resources necessary for them to participate in the modern technology economy.* Workforce Red River consists of: 1) *Manufacturing Workforce*: Partnering with community colleges such as Grayson College, North Central Texas College, and Collin College Technical Campus to grow existing programs by a factor of 5 to 10 times; 2) *Innovation Workforce*: Creating a new ABET-accredited bachelor's degree program in engineering at Austin College to serve the Red River area and Southern Oklahoma, where no similar bachelor's program is available; 3) *Entrepreneur Workforce*: Virtual studios, incubation spaces, and training programs on the Austin College campus with expansion to satellite campuses and ties to the Grayson SBDC in nearby Denison, Texas and in Durant, Oklahoma; 4) *Workforce Infrastructure*: Hosting a Fablet-S at Austin College with equipment for semiconductor characterization. The Fablet-S will be used for workforce training, but it will also provide resources to local industry and the TSTH commercialization component proposals by making this characterization equipment available for prototyping and evaluation of new devices and materials.

TSTH's commercialization ecosystem will harness the technology advancements that originate in local research universities, companies, and in the minds of entrepreneurs and will provide the networking, resources, and access to capital necessary for those advancements to catapult the TSTH region to being a

global leader in semiconductor innovation. TSTH will implement two commercialization proposals:

4) Commercialization DFW: Texoma Semiconductor Commercialization Accelerator Project (TSCAP): focuses on addressing the principal commercialization gaps in the region: investment capital, skilled entrepreneurs, and technology maturation channels that bring stakeholders together. To address the *capital deficit*, Commercialization DFW will develop and/or enhance the following programs: 1) Entrepreneurship Awards, 2) Cleanroom Startup Scholarships, 3) Venture Growth Funds to help startups participate in investor programs and bridge investment rounds, 4) Red River Angel Network—regional investor growth for initial funding, and 5) Semiconductor Investor Summit—a major event to bring investors and business together. To increase the base of *skilled entrepreneurs and technology maturation channels*, TSCAP will create: 1) Innovation Academies—programs to prepare for entrepreneurship 2) Semiconductor Venture Network—a physical and online network of resources for entrepreneurs and investors, 3) Industry Innovation Council—an industry support group dedicated to encouraging and enabling semiconductor business formation and growth in the region, 4) Corporate Innovation Accelerator—an industry-specific program for entrepreneurs focusing on critical industry-identified priorities, and 5) university policies to reward commercialization of innovations developed at their institutions.

5) Commercialization Choctaw: Texoma Rural Technology Incubator (TRTI): This project addresses the unique challenges and opportunities experienced by tribal and non-native residents of the territory of the Choctaw Nation and Southern Oklahoma. Intergenerational poverty and a lack of technical training and education resources (e.g. there is no accredited 4-year engineering program on or near tribal lands) have led to limited access to jobs and “brain drain”. This proposal aims to provide the training, equipment, and investment opportunities necessary to catalyze new business development in this part of the consortium while simultaneously addressing real supply chain needs. In particular, this project focuses on the tail end of the supply chain—starting with the circuit boards on which the computer chips are placed and connected and expanding to packaging and testing as well as end-user applications, that are well-matched to the experience and needs of the people in the region, such as drones and wind and solar-based energy harvesting. The project consists of three principal modules: 1) *Innovation Hub and Rural Venture Design Studio* that will link innovators, venture capitalists, and industry representatives throughout the supply chain to ensure that new ideas and products get proper exposure, and that the needs of end applications are targeted and met; 2) *Initiation of Fablet-S and Fablet-M* that will provide the laboratory space and equipment necessary for ideas to move from the initial concept to the final prototype while also performing outreach to excite the next generation of young people about careers in the semiconductor industry; 3) *Training/Employment Pipeline* that will collaborate with the other component projects, especially *Workforce Red River* and *Commercialization DFW*, to ensure that future workers, entrepreneurs, and inventors have the education and background they need for success in the semiconductor industry.

Highlights of Related Commitments & Complementary Initiatives: Texas Instruments (TI) has generously agreed to donate equipment and provide guidance. Sixteen non-consortium local government organizations have agreed to make policy changes that support and incentivize the semiconductor industry. The Texas A&M University System on behalf of Texas A&M - Fort Worth, the University of Texas at Dallas, the University of Texas at Arlington, the University of North Texas, Southern Methodist University, and Baylor University have signed a joint MOU to support TSTH through easy access to their cleanrooms by TSTH members for training and product development. The Department of Education funded “North Texas Semiconductor Workforce Development Consortium” will work with TSTH to help workers attain higher levels of responsibility at work through technical courses and education in *financial fundamentals and management foundations*. The “Texoma Innovation Engine,” which received an NSF Engines Development Award, will collaborate with TSTH on use-inspired logistics projects, research hubs in disadvantaged areas, and workforce development.

The Gates Foundation has provided funding to TSTH member Stemuli and SMU for research in enhanced personalized STEM learning in a video game environment for students from underrepresented groups.

The State of Texas also has multiple programs to support the semiconductor industry, such as the Semiconductor Talent and Workforce Strength program. In addition, Texas has appropriated Texas CHIPS Act funding for the \$698 million Texas Semiconductor Innovation Fund (TSIF) to provide matching funds to semiconductor research, manufacturing, and design projects and related Texas-based businesses. Texas Governor Greg Abbott has confirmed in his support letter that TSTH is eligible to apply for funding from TSIF, which will soon be ready to accept applications. In addition, Workforce Solutions North Central Texas (WSNCT) has committed to support wraparound services in the form of childcare scholarships, transportation, rent and utilities, and tuition assistance with an average value of \$10,000 per worker per year. They commit to pursue apprenticeship and training grants and to focus at least 30% of each grant award on semiconductor industry-related training. They also intend to establish a workforce development and career center with approximately 30% of the training facility's capacity devoted to the semiconductor industry.

Path to Global Competitiveness: The component proposals address the critical gaps of 1) significant growth in the skilled semiconductor workforce at the appropriate levels to address current and future industry needs, 2) training and incentivization for researchers to take technical advancements to full commercialization, 3) paths to bring more capital to small and mid-size businesses in semiconductors, and 4) intentional communities of stakeholders to overcome communication barriers and ensure that commercialization is successful and equitably distributed across the region. The activities of the component proposals uniquely combine with the significant advantages of the region, including 1) a low cost of living and high quality of life, 2) large areas of available land for industry and housing, 3) strongly supportive state and local governments with no state personal or corporate income tax, 4) a diverse economy (including access to the petroleum industry that is a critical source of needed raw materials for semiconductor manufacturing), 5) a large, growing, and diverse population, and 6) a central location with strong transportation access to the rest of the U.S. and the world through air (DFW airport), rail, highways, and sea through the relatively close Houston Ship Channel; (Texas has committed \$142 billion to investment in transportation infrastructure and has approximately 31 international ports of entry.), 7) a climate-friendly utility system with a strong solar and wind component, and 8) multiple research and educational institutions with expertise in semiconductors.

Climate and Environmental Responsibility: The industrial consortium members are making a significant effort to reduce the climate and environmental impacts of semiconductor production. For example, TI's 2022 Corporate Citizenship Report details their environmental commitments and progress. According to the report, by the end of 2022, they had reduced their greenhouse gas emissions by 23% relative to 2015. In the case of overall energy, by the end of 2022, they had reduced their energy intensity per chip by 28% compared to 2015. Water usage decreased by 3.2% compared to 2021, and 90% of all solid waste generated was diverted from landfills. Furthermore, GlobalWafers America (GWA) will also consider the environmental impact of their business activities and will implement activities in the aspects of environment, society, and governance (ESG), with a target of ISO 14001, ISO 14064, and ISO 50001 certifications in the next 10 years. With the Maguire Energy Institute at SMU, TSTH will provide climate and environmental stewardship by training the future leaders in this critical area. In addition, through product development and innovation, TSTH commercialization will advance energy independence for rural households.

Embedding Equity: The TSTH region is highly diverse with 16.4% Black, 7.6% Asian, 1.3% Indigenous and Native American, and 28.8% Hispanic residents, and communities within the region span the entire space of rural, exurban, suburban, and high-density urban populations. Several military facilities in the region also contribute to a significant population of veterans. All of the component proposals have made equity an integral part of their planning and were developed in communication with the entire consortium membership, including

HSIs and HBCUs, and outside partners. The Choctaw Nation leads one of the component proposals and will ensure that adequate resources are directed toward tribal and rural communities in Southern Oklahoma. The Fablet initiative has been designed to ensure excellent place-based coverage of institutions and populations that would otherwise have no access to semiconductor training and resources. All component proposals, will track the rates of participation of members from underrepresented groups and will ensure that events, training, and resources are leveraged to enhance that participation.

Expected Outcomes: TSTH intends to target and track three broad categories of outcomes: 1) Direct outcomes related to component project activities. These include metrics such as the number operators, technicians, and engineers in training per year, the number entrepreneurs trained, the amount of venture capital invested in TSTH related startups, the number of networking events held, etc.; 2) Impact outcomes that follow from successful direct outcomes. These include metrics such as the number of operators hired by the semiconductor industry per year, the number of semiconductor patents filed and licensed by local universities and entrepreneurs, the number of startups created, the number of K-12 students who enter the semiconductor pipeline, the scaling and growth of existing companies, etc.; 3) Halo outcomes that benefit the entire region due to the joint efforts of TSTH and complementary organizations. These include the growth in companies that support or benefit from the semiconductor industry (e.g. defense, aerospace, automotive, telecommunications, and AI), reductions in poverty and increased wages, overall increases in educational attainment, affordable housing, and wraparound services, policy changes through TSTH analysis and advocacy, etc. These metrics will be evaluated with respect to place-based and equity-based criteria to ensure that the economic benefits of TSTH benefit the entire population and region.

Timelines: Each of the component proposals has an appropriate timeline specified related to the current status of the subregion being targeted, the urgency of industry needs, and the resources that can be brought to bear on the problem. The Fablet proposal and Workforce DFW are expected to complete the majority of their activities within three years. Commercialization DFW will complete the majority of its activities within four years. Workforce Red River & Choctaw will complete their activities in 5 years. However, the work of TSTH will not sunset with any component project. It will be a long-term scalable effort with the goal of continuing to grow the semiconductor industry. This will help ensure long term economic and national security for current and future generations.

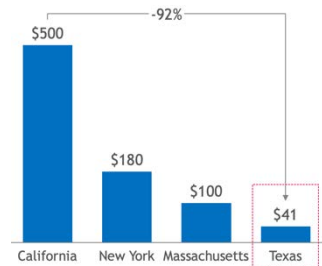


Figure 3: All comparative VC investments since 2018.

3) Problems Slowing Technology Advancement & Commercialization: The Texoma region has been held back due to the dearth of risk-capital for semiconductor innovation. Compared to the vigorous investment activities in real estate and oil and gas in the region, technology investments have been almost non-existent. For example, Texas has significantly lower venture capital (VC) investments compared to other leading states (see Figure 3). In the last decade, considering the number of new startups launched per year, the Texoma region has been held at 2.1:7.5 disadvantage compared to other VC-

funded semiconductor regions.

The TSTH region is ripe for innovation/startups. Planned major semiconductor investments, including by TI and GlobalWafers America, worth more than \$35 billion, require auxiliary startups and related service providers to support their operations. There is also a significant need for university policies to encourage entrepreneurship and entrepreneurship training, and new venture capital funds are needed to provide the investment required for new startups and expansion of existing companies. In addition, one of the principal showstoppers for the semiconductor industry in other regions is a lack of available workforce. TSTH estimates that semiconductor related regional job openings in 2023 was 2400, growing to almost 10,000 in 2030, and a 7-year total of 35,000. Of these, approximately 350 of the job openings were for semiconductor

operators/technicians in 2023; this will grow to 1,250 openings by 2030 and 5,000 openings overall.

#### 4) The Hub's Competitive Advantage in Addressing National Security & Economic Development

As shown in Figure 4, semiconductor-based integrated circuits (ICs) are the building blocks for electronic applications throughout modern society, and they are crucial to our national and economic security. Without semiconductor manufacturing, none of these other applications or technologies (e.g. data centers, transportation, the power grid, weather prediction, quantum computing, *artificial intelligence*, and many military applications) are possible. Ensuring that a robust semiconductor supply chain that supports and benefits from cutting edge technology advancement exists within the United States is of primary importance. TSTH is well-positioned to provide critical pieces of this supply chain.

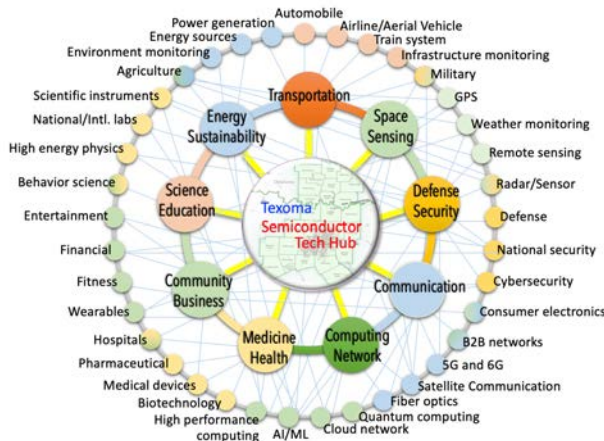


Figure 4: Applications and fields that depend on semiconductor manufacturing.

The TSTH region is central to the U.S. with efficient access to other regions through air, rail, and highways. The entire manufacturing process can

occur within the TSTH region from bare wafers to the use of chips in final products, reducing transportation and energy needs. The Texas power grid has a strong climate-friendly wind power component, and new rules for electric utilities promote reliable power even during extreme temperatures in summer and winter. Existing and new fabrication facilities are also designed to survive extreme storms and weather.

Industrial growth in the TSTH region is exploding, especially in the Sherman, TX area (near the Red River that serves as the border between Texas and Oklahoma). One contributor to this economic growth is the fact that the average cost of living in the other top five semiconductor related states is considerably above the national average. This leads to a requirement for higher salaries in other states. In contrast, the average cost of living in the 29 counties that correspond to TSTH is 20% lower. This allows a lower average salary and accompanying lower costs devoted to employee wages without adversely affecting the employees' standard of living. Texas also has no state personal or corporate income tax.

In addition, the forward-thinking policies of Sherman, TX, have attracted multiple companies to move to Sherman and/or expand their Sherman-based operations. Local lawmakers have purchased water rights at the nearby Lake Texoma, which is one of the largest reservoirs in the country. Plenty of available water has been a significant factor that attracted some of the major semiconductor manufacturers to the region.

GlobalWafers America (GWA) is building a \$5 billion fabrication facility in Sherman to manufacture the 300-mm silicon wafers that are the first step in the manufacturing process for integrated circuits (ICs), the first of its kind in the United States in over 20 years. When complete, it will be among the largest in the world. Most wafers are currently manufactured in Asia, increasing the importance of this facility to fill a critical gap in the U.S. supply chain. Currently only 3-4% of the 300-mm silicon wafers manufactured worldwide are produced in the U.S. Within the next five years GWA Phase 1 will be in full production, and this number will increase to approximately 8%. With the build out and production of Phase 2 the U.S. share will grow to around 12%, a 3 fold increase.

Texas Instruments (TI) chose Sherman, TX for expanding its manufacturing footprint. TI is ranked among the top 10 integrated circuit manufacturers in the world. The potential \$30 billion investment includes plans for four (4) fabs to meet demand over time, supporting up to 3,000 direct jobs. The first production is expected to commence in 2025. Another new TI fab in Richardson, TX began initial production in September of 2022, and at full production, it and the other TI Richardson fabs will manufacture more than 100 million analog

chips every day. Many other semiconductor related companies are moving to or expanding here, several of whom are TSTH members with explicit commitments to TSTH.

North Texas ranks third in industrial diversity (index 0.79), boasting a strong presence of diverse industries, including aviation, telecommunications, automotive, finance, food, health care, hospitality, life sciences, logistics, energy, and manufacturing. The foundational industry connecting these seemingly unconnected industry sectors is the semiconductor industry. Combined with the heavy presence of defense contracting companies (5<sup>th</sup> in the nation), the TSTH region presents unique strengths and opportunities.

5) Expected Participation from Private Sector Entities: The private sector, including companies and investors, is an integral part of TSTH. Private sector consortium members include Texas Instruments, GlobalWafers America (GWA), GlobiTech, Inc., Coherent, Lockheed Martin, STRIKE Photonics, Archer Optx, Stemuli Studios, Capital Factory, Intelligent Epitaxy Technology, Inc., C-STAR, The Provenance Chain Network, CVInc., and Dallas Quantum Devices, among others. These members represent crucial pieces of the supply chain. For example, GWA will manufacture the bare silicon wafers that are the necessary building block for the majority of the semiconductor chips manufactured today. Texas Instruments uses silicon wafers to manufacture a wealth of semiconductor devices for analog and embedded system applications. Coherent is a leader in materials, networking, and lasers. STRIKE Photonics specializes in gallium-based photonic semiconductor chips, and CVInc specializes in advanced packaging. The Provenance Chain Network and C-STAR bring important supply chain credentialing and tracking to the consortium. Our commitment index identifies the strong commitments from our private sector members.

6) Commitments from Government, Non-profit, and Philanthropic Sources: The consortium commitment matrix shows multiple commitments from economic development corporations and local governments who are consortium members. In addition, the Hub has the support of 16 local government organizations (non-consortium members) across 8 counties, who have expressed interest in making policy changes that support semiconductors. These policy changes include (1) creating economic development incentive policies specifically for the semiconductor industry, (2) expediting inspection and permitting

Projects	Funding Source
Fablet	<ul style="list-style-type: none"> <li>• Grants: Federal and State Grants, and Foundation Grants</li> <li>• Industry Contracts &amp; Investment: R&amp;D contracts with IP sharing arrangements, prototype development, product and process test and evaluation, donations</li> <li>• Membership Fees: Received from tiered industry affiliate members</li> <li>• Additional Funds: training, events, conferences, capital campaign</li> </ul>
Workforce	<ul style="list-style-type: none"> <li>• Industry funded WFD programs</li> <li>• Grants and Contracts from public and foundation sources</li> <li>• Customer paid Courses, certificates</li> <li>• Training, events, conferences</li> <li>• Capital campaign</li> </ul>
Commercial	<ul style="list-style-type: none"> <li>• Sponsor fees &amp; investment paid by venture funds, accelerators, incubators</li> <li>• Innovation Council membership fees paid by industry participants</li> <li>• Access fees paid by startups for mentor networks, coworking, events</li> <li>• Subscription and registration fees for courses and on-demand training</li> </ul>

Table 1: Sources of Sustainability

requirements for semiconductor companies, (3) paying for impact fees for semiconductor companies, and (4) other possible incentives in support of the semiconductor industry. These policy changes will support scaling-up of existing semiconductor companies, the local success of startups, and they will incentivize companies to relocate to the TSTH region. Furthermore, TSTH will harness assistance programs offered by Workforce Solutions of

Texoma, North Central Texas, Tarrant County, and Greater Dallas for wraparound services, including tuition assistance, supplies, books, uniforms, travel assistance, and childcare.

7) Long Term Self-Sustainability: As outlined in each component proposal, TSTH's activities will become operationally sustainable within 3 to 5 years. The Hub will leverage federal and state funds, funds from the

large and diverse industry base in the region, and funds from the supportive philanthropic base in the region. Furthermore, TSTH will create revenue streams through its education and training offerings and commercialization activities as detailed in Table 1.

8) Pursuing Economic Benefits for Local Residents: Both Texas and Oklahoma are among the 27 “Right to Work” states in the U.S. According to the Bureau of Labor Statistics, 6.8% of wage and salary workers in Oklahoma and 4.5% of wage and salary workers in Texas were union members in 2023. Both states are below the national average with respect to the annual average cost of living. The low cost of living allows the wages earned by workers to go farther even without union-negotiated wages. The need for a skilled labor force also keeps wages competitive.

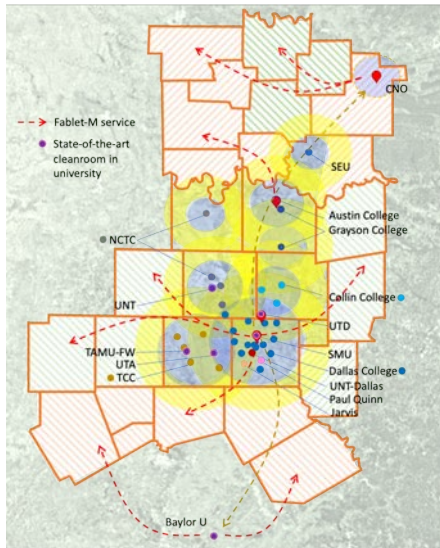


Figure 5: Distributed Fablet Placement for Comprehensive Coverage of TSTH Region.

For example, according to SEDCO, at full production the four fabs being built by TI in Sherman, TX are expected to produce 3200 direct jobs (\$274 million direct wages), 2335 indirect jobs (\$71 million indirect wages), and 1556 induced jobs (\$48 million induced wages). GlobalWafers America (GWA) anticipates that the Phase 1 buildout and production ramp for their fab will create and fill more than 300 permanent positions with an average salary of twice the per capita income of the area. They are developing a local hiring plan for positions that are projected to be filled by those in the local community without requiring relocation. In accordance with this, they are also committed to adjusting hiring requirements to match the educational statistics of the region so that local workers will benefit.

The TSTH region’s Workforce Development Boards also work to ensure that opportunities for good jobs are made available to local residents, including those from groups that may otherwise have difficulty accessing those jobs. TSTH will also work with the Veteran and Transitioning Military Program to recruit veterans from National Guard bases such as those in Ardmore and Shawnee, OK, Tinker Air Force Base near Oklahoma City, OK, and the former Carswell Air Force facility in Fort Worth. Services are also prioritized for other populations with employment barriers, including foster youth, justice-involved individuals, and parents receiving public assistance or who are at risk of becoming dependent on public assistance. The Fablet concept and the programs and opportunities being developed by TSTH have been conceived with the intention of ensuring that opportunities for education and training that will provide pathways to good jobs are distributed throughout the region (Figure 5).

9) Ensuring Equity: TSTH believes that education, workforce development, and economic opportunity are fundamental rights that everyone deserves. Our approach is built on inclusivity, reaching all residents. Among others, this includes people from Black, Asian, Indigenous and Native American, and Hispanic communities, women, LGBTQ+ individuals, people with disabilities, veterans, dislocated workers, foster youth, those with low incomes, and rural residents. A striking statistic is Dallas County’s ranking as having the third highest rate of childhood poverty in the U.S. The involvement of the Choctaw Nation, the third largest tribal nation in the U.S., with high poverty levels, emphasizes the importance of these funds for fostering economic growth. TSTH’s plans are designed to break barriers and provide training and job opportunities that were previously inaccessible to these communities, thereby driving meaningful change and creating new avenues for prosperity. The participation of HBCUs like Jarvis Christian University and Paul Quinn College, and HSIs such as Dallas College, UT Arlington, and the University of North Texas at Dallas, ensures that advanced educational needs are met while performing critical outreach to minority communities.



Fablet-S placement has been designed to ensure that new and upgraded facilities are targeted toward populations and areas that would otherwise have had no access to semiconductor equipment for learning or commercialization. For example, a Fablet-S will be allocated to Jarvis Christian University, a majority Black institution with a strong commitment to educating adult learners that does not currently have the facilities or resources for semiconductor training. Access to this Fablet-S will also be made available to nearby students from Paul Quinn College and Dallas College. The Fablet-M vehicles have been designed to provide critical resources to schools and populations throughout the region. Outreach and programs targeted to veterans will be provided by the SEMI Foundation, a consortium member with extensive experience in this space.

10) Overview of the Outcomes: The joint impact of the component projects and complementary work by TSTH partners is expected to benefit the entire region above and beyond the direct work of the component projects. Some of TSTH's goals include:

- Measuring the number of operators, technicians, and engineers at each education level hired by the semiconductor industry in the region on a yearly basis so that educational programs and recruiting can be adjusted to reduce the number of semiconductor positions that go unfilled within a two-year timeframe.
- Identifying the number of TSTH-trained entrepreneurs in the first year who acquire adequate venture capital funding and mentorship to launch a startup within three years of completed training and increasing the percentage of successful startups by 30% every year thereafter.
- Strengthen the tail end of the semiconductor supply chain through the successful launch of two or more businesses within Choctaw Nation within 3-4 years focused on PCB manufacturing, packaging, test, and/or end-user applications.
- Record every six months the number of students, trainees, innovators, and entrepreneurs (including those from underserved communities), who utilize the Fablet ecosystem to identify where additional Fablet resources and/or outreach are needed to meet the needs of the semiconductor industry.
- Measure the number of educational credits earned at one TSTH institution that can be transferred for credit at another TSTH institution so that the semiconductor workforce can advance up the career ladder with the goal of 50% of all related credits being transferrable within 5 years.

11) Plans to Accommodate the Growth in Housing Demand: The most significant semiconductor-related growth in the TSTH region is located in Sherman, TX, in Grayson County due to the presence of the new fabrication facilities being built by Texas Instruments and by GlobalWafers America in addition to other related companies (e.g. Persys and Tokyo Electron) that are entering the area to provide services and equipment to

Table 2: Development Status for Housing in Sherman, TX as of 8/2023

	Single-family Lots	Multi-family Units	Manufactured Housing
Construction/Building	4,292 lots	1,990 units	
Engineering Review	2,521 lots	3,187 units	409 units
Planning	4,573 lots	11,352 units	
Total	11,386 lots	16,529 units	409 units

the industry. Thus, in the immediate future, the greatest need for new housing growth is in the Sherman area. This area is historically rural and is surrounded by large areas of open farmland. Thus, there is plenty of land

available for new housing developments. The city of Sherman is accommodating this growth through new construction and permits for both single family and multi-family units as shown in Table 2.

Other tools TSTH will harness to promote affordable housing include 1) Public Facility Corporations (PFCs) that help middle-income families obtain housing; 2) funds provided by the Texas Department of Housing and Community Affairs to nonprofits and local governments to address local housing needs; 3) programs administered by the Oklahoma Housing Finance Agency (OHFA); 4) Tax Increment Financing (TIF) District funding to incentivize the building of affordable housing in targeted areas with unmet needs.

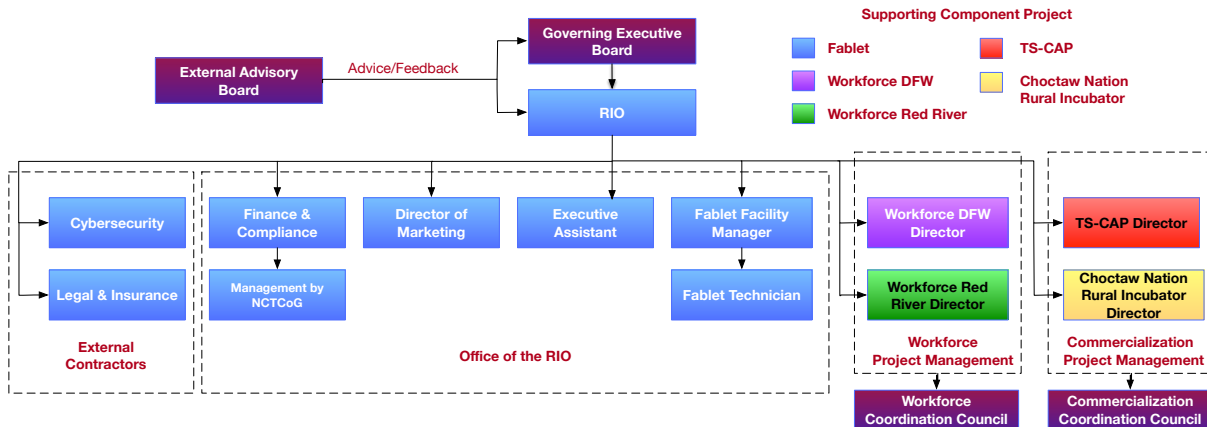


Figure 6: Governance Structure.

12) Governance and the Office of Regional Innovation: The Regional Innovation Officer (RIO) will be based at SMU and provide overall vision, strategy, and management for TSTH. The RIO will report to the TSTH Governing Executive Board (GEB), and both will solicit feedback from the already established External Advisory Board (EAB). TSTH has been actively seeking individuals who have experience in leadership roles across industry, public offices, workforce, and investment and have worked with regional stakeholders. Since Phase I, we have interviewed 7 people who were identified through our networks and by consortium members. There is a 3-stage process: introductory meeting, meeting with the TSTH leadership, and a final meeting with a committee comprising all proposal leads. The GEB provides final approval.

Adding New Consortium Members: New consortium member organizations will be nominated by current members or by request of the prospective organization. The GEB will approve admittance to the consortium. Other details of consortium management and interaction will be specified in bylaws and MOUs among consortium members. Figure 6 shows the consortium governance structure.

New Consortium Members	Reason
Tarrant County College	Access and coverage for underserved community
Educate Texas at the Communities Foundation of Texas	Programmatic coverage across TX and OK
Bonham Economic Development Corporation	Leverage for Economic Development
CVInc	Semiconductor Technology Capability
Dallas Quantum Devices	Semiconductor Technology Capability
Workforce Solutions North Central Texas	Access to community and workforce programs
Workforce Solutions Greater Dallas	Access to community and workforce programs
Capital Factory	Access to entrepreneurial and investment network
Texas A&M-Fort Worth, Texas A&M Semiconductor Institute	Access and coverage for underserved community
Allen Economic Development Corporation	Additional leverage for Economic Development
Southeastern Oklahoma State University	Access and coverage for underserved community
Actium	Access to entrepreneurial and investment network
Gainesville Economic Development Corporation	Leverage for Economic Development
Tech Titans	Leverage for Economic Development
North Central Texas Council of Governments	Leverage for Economic Development, and policies
Texoma Council of Governments	Leverage for Economic Development, and policies

13) Activities & Changes between Phase 1 and Phase 2: An Executive Board of consortium members was created that met multiple times a week to plan and guide the development the component proposals. Other meetings that included all consortium members were often

held on Wednesdays, and the members were invited to two all-day workshops, for proposal planning. A "launch event" with members and national leaders was also held at SMU. The Workforce and Commercialization Councils have been meeting weekly. TSTH has a [website](#) and [LinkedIn](#) page.

Since the Phase I proposal, we have recruited 16 additional consortium members who provide additional resources to the communities that the Hub intends to serve, programmatic support for workforce development and commercialization activities, and expertise and capacity in related semiconductor technologies.