

# ALAMO MULTI-TECH VENTURE CAPITAL FUND-OF-FUNDS MARKET ASSESSMENT REPORT

Presented to the Honorable Phil Hardberger, Mayor  
and  
The City of San Antonio

Strategic Development Solutions  
Economic Innovation International, Inc.  
Sustainable Systems, Inc.  
Brooke Private Equity Advisors

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SUSTAINABLE SYSTEMS, INC



STRATEGIC  
DEVELOPMENT  
SOLUTIONS



ECONOMIC  
INNOVATION  
INTERNATIONAL, INC.

# Table of Contents

1.0	EXECUTIVE SUMMARY	3
2.0	PROJECT SUMMARY	8
3.0	FUND DEVELOPMENT TEAM	10
4.0	METHODOLOGY	13
4.1	Interview Methodology	14
5.0	DEMAND ASSESSMENT	16
5.1	Definition of Industries	16
5.2	Research and Intellectual Property Creation in Texas	17
5.3	State Programs Encouraging Entrepreneurship in Texas	23
5.4	Networks and Resources by Industry	25
5.5	Interview Findings	25
6.0	SUPPLY ASSESSMENT	36
6.1	Research on Venture Capital Availability	36
6.2	Interviews Findings – Venture Capital Firms and Investment Bankers in Texas	43
6.3	Interview Findings – National Venture Capital Firms and Associations	48
7.0	ENTREPRENEUR BARRIER ASSESSMENT	54
7.1	Purpose	54
7.2	Methodology	54
7.3	Findings	54
8.0	FUND BUSINESS MODEL AND TERM SHEET	58
8.1	Investment Strategy	58
8.2	Fund Management	59
8.3	Investor Strategy	61
8.4	Fund Terms	62
9.0	CONCLUSION AND NEXT STEPS	64
10.0	APPENDICES	66
10.1	Interview Questions	66
10.2	Institutions Recognized in NIH and Patent Research	68
10.3	State Programs of Note	74
10.4	Networks and Resources by Industry and Area	77



10.5	General Trends/Future Projections for Venture Capital in Various Regions of Texas	79
10.6	Trends/Projections for Life Science Venture Capital by Region of Texas	81
10.7	High Technology Venture Capital by Region of Texas	83
10.8	Green/Clean Technology Venture Capital by Region of Texas	85



## 1.0 EXECUTIVE SUMMARY

### Project Summary

This report provides a market assessment for a \$100 million Alamo Multi-Tech Venture Capital Fund-of-Funds (“Multi-Tech Fund-of-Funds”). Such a fund-of-funds will invest in biomedical, biotechnology, high technology, and green/clean technology venture capital funds and companies. The purpose of this fund is to bring venture capital dollars to investment-worthy funds and deals in the state of Texas, beginning with San Antonio, in order to grow the technology and venture capital capacity of San Antonio and Texas.

This Multi-Tech Fund-of-Funds will also have Double Bottom Line (DBL) characteristics. DBL funds pursue a market rate of financial return (the First Bottom Line) and substantial economic, social, and environmental returns (the Second Bottom Line). However, it is important to be clear that there is no Second Bottom Line without consistent success in meeting the First Bottom Line. The Alamo Multi-Tech Fund seeks to achieve both bottom lines.

The San Antonio Mayor’s Office and the City of San Antonio originally contracted Strategic Development Solutions, Economic Innovation International, Inc., and Sustainable Systems (the “Fund Development Team”) in August 2008 to assess whether the current state of the biomedical, biotechnology, high technology, and green/clean technology industries in San Antonio could support a venture capital fund. The Fund Development Team produced a Feasibility Assessment Report in November 2008 indicating the likelihood of an affirmative answer to this question. As a result of this, the Mayor included the creation of a Multi-Tech Fund-of-Funds as one of the aspects of *Mission Verde*, San Antonio’s Sustainability Plan. This Market Assessment Report is the next step in the creation of a Multi-Tech Fund-of-Funds. It provides a more complete assessment of the need for venture capital in San Antonio, as well as the state, overall, and the capacity of San Antonio and Texas to support the creation of a \$100 million Multi-Tech Fund-of-Funds.

### Fund Development Team & Brooke Private Equity Advisors

The Mayor’s Office contracted with Strategic Development Solutions, Economic Innovation International, Inc., and Sustainable Systems (the “Fund Development Team”) to conduct this feasibility assessment. Together, these three firms have over 80 years of economic development and development finance experience and have created numerous innovative financial vehicles—including more than 30 venture capital funds across the U.S. and the globe. The Fund Development Team has also led the development of a national Double Bottom Line private equity industry that today has approximately \$20 billion of capital under management.

The Fund Development Team is partnering with Brooke Private Equity Advisors (BPEA) on this fund. Brooke Private Equity Advisors (BPEA) is a private equity management firm that provides investment and advisory services to institutions and high net worth families regarding all aspects of private equity and venture capital investing. BPEA also acts as the fund manager for funds of funds specializing in business and financial services, retail/consumer, healthcare, technology/media/telecom, and industrial firms. BPEA has worked closely with members of the Fund Development Team on the creation of other venture capital funds of funds and has been involved in this feasibility assessment. The principals of BPEA are recognized as industry



leaders in both this country and overseas, and will serve as the fund management for a \$100 million Alamo Multi-Tech Venture Capital Fund-of-Funds.

## Methodology

The Fund Development Team conducted extensive primary and secondary research for this report. In addition to evaluating quantitative data, the Fund Development Team conducted 79 interviews with entrepreneurs, entrepreneurial networks, leaders of research institutions and incubators, venture capital firms, investment bankers, deal flow experts and other industry and venture capital experts throughout Texas and the U.S. All interviewees were active in the biomedical, biotechnology, high technology, and/or green/clean technology industries. Findings from all data sources are detailed in this report.

## Study Findings

The Fund Development Team found the following:

### *The Venture Capital Market Overall*

- The venture capital market is in flux nationally and in Texas. Given the current market turmoil, the number of venture capital firms and funds is falling. However, venture capital investments in the life science, high technology and green/clean technology industries continue to grow.
- Within the venture capital market, firms and funds are moving to finance later stage companies as a way to minimize risk and expedite returns. Many of the deals in Texas require seed and early stage capital rather than later stage financing. Thus, this trend is problematic for companies and funds in the state.

### *The Need for Venture Capital in Texas*

- There is a large unmet need for venture capital – particularly seed and early stage capital – throughout Texas.
- There are venture capital funds in the state focused on the life science, high technology and green/clean industries.
- Different areas of Texas receive different amounts of venture capital. Currently, Austin is the state's leader in terms of number of companies financed and Dallas is the leader in terms of dollar value. San Antonio lags all other major submarkets in Texas in terms of number of companies funded and amount of financing received.
- Of the funds active in Texas from 2000 to 2008, many have not fully deployed the capital that they have raised. This may suggest that deal flow in the state may be an issue.
- Due to the lack of seed and early stage venture capital in Texas, companies in the state must get further down the growth path than comparable companies in venture capital-rich areas in order to obtain venture capital.



### *Judgments Regarding a Texas Fund-of-Funds*

- Most venture capitalists interviewed conclude that a fund-of-funds is needed to help the venture capital landscape in Texas.
- Venture capital and investment banking firms also concluded that Texas can support a \$100 million fund-of-funds and favored a state-wide footprint rather than a region-specific footprint. Though San Antonio has a need for venture capital, most venture capital firms are quite clear that the San Antonio region cannot support its own \$100 million Fund-of-Funds.
- Venture capital firms are receptive to a Texas-based Multi-Tech Venture Fund-of-Funds so long as it brings them value and capital without impeding autonomy.

### *Perception of San Antonio and Texas by Venture Capital Firms*

- There is no wholesale bias against investing in San Antonio or, more broadly, Texas by venture capital firms in the state or at the national level. In fact, the Fund Development Team found that Texas has a strong reputation within the venture industry nationally.
- While Texas has a strong reputation nationally, San Antonio has a virtually non-existent reputation within the venture capital industry. However, national venture capital firms are eager to find deals in San Antonio if they exist.
- National venture capital firms are willing to consider relocating their financed companies to San Antonio and Texas.

### *Deal Flow*

- Research and intellectual property creation, two harbingers of deal flow, are strong throughout Texas. Commercialization of research and intellectual property in Texas has been lacking in the past, though that is changing.
- Texas has quality deal flow in the life science and high technology industries currently. It aspires to have substantial deal flow in the green/clean technology field, but does not yet.
- Though deals exist throughout the state, it is difficult for outsiders – whether they be in other cities or other states – to find them. This is due to regional rivalries, a disinclination to share information, and limited entrepreneurial networks within the state.

### *Issues Affecting Entrepreneurs and Deal Flow*

- Venture capital firms are aware of deal flow in Texas and San Antonio but cite structural issues – such as lack of management depth and minimal entrepreneurial infrastructure – as impediments to large scale venture capital investing in the state and city.
- Those in San Antonio and Texas are aware of these barriers to entrepreneurial growth and venture capital financing and are making improvements in both areas. A number of



interviewees noted that enhanced cooperation among stakeholders, particularly in San Antonio, could help the city and state improve in these areas.

### **Fund Business Model**

As there appears to be sufficient deal flow to support a \$100 million Alamo Multi-Tech Venture Capital Fund-of-Funds, the Fund Development Team and Brooke Private Equity Advisor will work to build a Fund-of-Funds with the parameters described below.

#### *Investment Strategy*

The Multi-Tech Fund-of-Funds will be a fund-of-funds with direct investment capabilities. The Fund-of-Funds will invest in:

- 1) Local Managers: The Fund will invest in three to four venture capital funds currently active in Texas and investing in life science, high technology and/or green/clean technology.
- 2) National Managers: The Fund will invest in seven to nine venture capital funds currently located outside of Texas and minimally active in Texas investments currently, if at all. If invested in by the Fund, these funds will invest in life science, high technology and green/clean technology in San Antonio and/or Texas.
- 3) Direct Investment: A small portion of the Fund, up to 33%, may be used for direct investment into companies in San Antonio and/or Texas. This allows the Fund to go into deals side-by-side with the other funds in which it invests.

#### *Management*

Management of the Fund-of-Funds includes the Fund-of-Funds Manager, Local Office and Regional Advisory Network.

- 1) Fund-of-Funds Manager: The Fund will have experienced management with a proven track record. This will provide investors with confidence and entrepreneurs with the resources they need to grow once an investment is received. The Fund Manager will be a partnership of BPEA and SDS (a member of the Fund Development Team). Within the Fund Manager structure, BPEA will be the Investment Manager and SDS will be the Double Bottom Line Manager. Economic Innovation International and Sustainable Systems, also members of the Fund Development Team, will be consultants to the Fund.
- 2) Local Office: It is clear from the statewide interviews conducted throughout this study that an on-the-ground presence in San Antonio and Texas is critical to identifying deal flow and building relationships that will facilitate the Fund's success. The Fund anticipates having a single local office in San Antonio with at least one person. The local office will be responsible for deal sourcing, relationship building, initial deal intake, and providing on-the-ground management expertise to companies receiving investment.
- 3) Regional Advisory Network: The Fund anticipates having a Statewide Advisory Committee, made up of experts in the industry sectors that the Fund is investing in. It is expected that a significant number on the Advisory Committee will be from San Antonio, however, not all



members will be. Instead, the Fund-of-Funds Manager will seek input from people throughout the state in order to find the best deals and advice possible. Such an Advisory Committee has no governance function for the Fund, but rather provides advice on deal flow as well as technological market viability of investment opportunities.

### *Investor Strategy*

The initial investor base for the Multi-Tech Fund-of-Funds will be drawn from public and private sector leadership in San Antonio and Texas overall. Highly-regarded local leadership is needed to act as “champions” to enlist other corporate investors from Greater San Antonio and Texas. Without an initial commitment of \$40-50 million by those in San Antonio and Texas, it is unlikely that the Multi-Tech Fund-of-Funds can reach its target of \$100 million, since the Fund-of-Funds has been designed to benefit industries geographically located in the City and the State.

Once state investors have committed \$40-50 million, others from the private sector (corporate pension funds, foundations, commercial banks and individuals) will be approached. After commitments have been received from these groups, the State Pension Funds will be approached. The fact that leading national life science, high technology, and green/clean technology managers will participate in the Fund-of-Funds should give the Pension Fund Trustees comfort.

The building of such a fund is contingent upon the ability to raise \$100 million in committed capital from local and national investors. The Multi-Tech Fund-of-Funds is not viable as designed unless \$100 million can be raised. The Fund Development Team and BPEA will examine investor appetite during the third quarter 2009 before proceeding further with the fund effort.

### *Fund Terms*

A term sheet describing the anticipated structure and returns of the Fund is provided in Section 8 of this report.

## **Conclusion & Next Steps**

Based upon the findings detailed in this report, the Fund Development Team and Brooke Private Equity Advisors (BPEA) believe that there is an opportunity to build a \$100 million Multi-Tech Fund-of-Funds that will invest in biomedical, biotechnology, high technology, and green/clean technology funds and companies in San Antonio and Texas.

Over the next three months, the Fund Development Team and BPEA will continue conversations with investors currently active in the Texas market in order to cultivate investments in the Fund. If local investors commit to the Fund, it will proceed as outlined in this report's Section 8.0.

If successful, a Multi-Tech Fund-of-Funds could contribute to long-term, sustainable, economic growth in San Antonio and Texas overall, while also putting San Antonio and Texas more firmly on the “venture capital map” of the U.S.



## 2.0 PROJECT SUMMARY

This report provides an assessment on the viability of the Alamo Multi-Tech Venture Capital Fund-of-Funds (“Multi-Tech Fund-of-Funds”). Such a fund-of-funds will invest in biomedical, biotechnology, high technology, and green/clean technology venture capital funds and firms. The purpose of this fund-of-funds is to bring venture capital dollars to investment-worthy funds and deals in San Antonio and the state of Texas.

This Multi-Tech Fund-of-Funds will also have Double Bottom Line (DBL) characteristics. DBL funds pursue a market rate of financial return (the First Bottom Line) and substantial economic, social, and environmental returns (the Second Bottom Line). In this case, the Fund-of-Funds will bring capital to emerging businesses throughout San Antonio and Texas and help to grow various technological industries within the state.

The San Antonio Mayor’s Office and the City of San Antonio originally contracted Strategic Development Solutions, Economic Innovation International, Inc., and Sustainable Systems (the “Fund Development Team”) in August 2008 to assess whether the current state of the biomedical, biotechnology, high technology, and green/clean technology industries in San Antonio could support a venture capital fund. The Fund Development Team produced a Feasibility Assessment Report in November 2008 indicating the likelihood of an affirmative answer to this question. As a result of this, the Mayor included the creation of a Multi-Tech Fund-of-Funds as one of the aspects of *Mission Verde*, San Antonio’s Sustainability Plan. This Market Assessment Report is the next step in the creation of a Multi-Tech Fund-of-Funds. It provides a more complete assessment of the need for venture capital in San Antonio, as well as the state, overall.

Specifically, in this report, the Fund Development Team has answered the following questions:

- What is the level of biomedical, biotechnology, high technology, and green/clean technology activity in San Antonio, Austin, Dallas, Houston, and Texas overall?
- What level of infrastructure (research institutions, entrepreneurial organizations, incubators, financial institutions, etc.) is currently available for each of these industries in San Antonio, Austin, Dallas, and Houston?
- How do companies in San Antonio and Texas obtain growth capital currently?
- Are companies in these fields in San Antonio and Texas able to access the capital they need to grow?
- What resources could help San Antonio and Texas achieve its goal of cultivating these industries?
- If venture capital is needed, how much capital is needed to support the current level of deal flow in San Antonio, Austin, Dallas, Houston, and Texas overall?
- What is the status of the venture capital market nationally and in San Antonio and Texas?

- What is the perception of San Antonio and Texas by national venture capital firms and venture capital firms located in Texas?

Based on the findings from each of the aforementioned questions, the Fund Development Team makes recommendations about whether and how to proceed with a Alamo Multi-Tech Venture Capital Fund-of-Funds.



## 3.0 FUND DEVELOPMENT TEAM

As a follow-up to the initial Feasibility Assessment, the Mayor's Office and the City of San Antonio contracted with Strategic Development Solutions, Economic Innovation International, Inc., and Sustainable Systems (the "Fund Development Team") to conduct this Market Assessment. Together, these three firms have over 80 years of economic development experience and have created numerous innovative financial vehicles—including more than 30 venture capital funds—across the U.S. and the globe.

The three firms specialize in the organization and operation of Double Bottom Line investment funds. DBL funds, business ventures, and developments pursue a market rate of financial return (the First Bottom Line) and substantial economic, social, and environmental returns (the Second Bottom Line). The three firms co-authored *The Double Bottom Line Handbook: A Practitioner's Guide to Double Bottom Line Investment Initiatives and Funds*, which the Ford Foundation supported as the first comprehensive discussion of the growing \$20 billion national DBL industry. *The Double Bottom Line Handbook* can be accessed at [www.sdsgroup.com](http://www.sdsgroup.com).

The Fund Development Team is also partnering with Brooke Private Equity Advisors (BPEA) on this fund. BPEA has been involved in this feasibility assessment along with the Fund Development Team and will serve as the fund manager for Multi-Tech Fund-of-Funds.



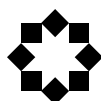
### STRATEGIC DEVELOPMENT SOLUTIONS

Deborah La Franchi is the founder and CEO of Strategic Development Solutions (SDS). SDS has been involved with the development of more than 13 different investment funds across the country and internationally. This work has included the development of the

Genesis Family of Double Bottom Line funds: six funds with more than \$450 million of committed capital under management leveraged to more than \$1.2 billion in development projects.

The different funds designed and built by SDS range from private-equity venture/growth funds to real estate funds targeting specific areas such as commercial, industrial, retail, and workforce housing.

Before forming SDS in 2002, Ms. La Franchi served as the founding President and CEO of Genesis LA. Before her work at Genesis LA, she served as Assistant Deputy Mayor for Economic Development under Mayor Richard Riordan. In this capacity she managed a number of economic policy initiatives, including: tax reform, business incentives, business attraction policies, and development reform.



### ECONOMIC INNOVATION INTERNATIONAL, INC.

Belden Hull Daniels is the founder and CEO of Economic Innovation International, Inc., a firm internationally recognized for building more than \$100 billion of privately capitalized funds designed to accomplish civic and public purposes in 37 states and 21 nations of North America, Europe, and Asia since its founding in 1970. In building new development finance industries over the last 38 years, Economic Innovation has undertaken hundreds of market assessments that identify capital market failures and then implemented instruments targeted to remove those barriers.

Since 1997, Economic Innovation has been a leader, in partnership with Strategic Development Solutions and in association with Sustainable Systems, in creating the Double Bottom Line private equity industry, in which large institutional investors join with community stakeholders to invest nearly \$20 billion of private capital in market-rate funds managed by world-class fund managers to rebuild poor neighborhoods. These Double Bottom Line initiatives and private-equity funds invest in low-income neighborhoods to produce superior market returns for large institutional investors—major banks, insurance companies, pension funds, university endowments, corporations, and high-net-worth individuals—while simultaneously producing jobs, wealth, and community revitalization for low-income residents.

Funds that Economic Innovation has helped to build include the Genesis LA Funds with SDS and the Bay Area Family of Funds with Sustainable Systems. Other DBL funds are found from Boston, Massachusetts to San Diego, California and Puget Sound, Washington to Miami, Florida, as well as in such difficult overseas environments as Northern Ireland, Central Europe, Puerto Rico, and Palestine. Over the past three decades, Economic Innovation International has built more than 30 technology commercialization funds, seed and early stage venture capital funds, as well as later stage venture and mezzanine capital funds in 19 states and four countries overseas. Belden Hull Daniels is an attorney and former international banker in Asia who taught development finance for many years at Harvard and MIT.



SUSTAINABLE SYSTEMS, INC

#### SUSTAINABLE SYSTEMS, INC

Sustainable Systems was co-founded by Joseph Gross, President and CEO, and James Nixon, Chair and CFO, in 1993. Sustainable Systems is a business and economic development corporation, located in Oakland, California, that provides market-based strategies for the achievement

of sustainable development and smart growth. Sustainable Systems manages the Communications Technology Cluster, a Business Acceleration Center in downtown Oakland.

Sustainable Systems is also Lead Consultant to the Bay Area Council for the Bay Area Family of Funds, a \$250 million Double Bottom Line Initiative, including four funds, a fund in formation, and a set of regional economic innovations. Sustainable Systems served as the acting Managing Director for the Strategic Action Council of the Northwest Louisiana, which is undertaking a suite of economic and social innovations, including Northwest Louisiana Community Development Fund I. Now Sustainable Systems is a Development Consultant for different Double Bottom Line developments in Northwest Louisiana.

Sustainable Systems has co-coordinated three international *Building the Sustainable Economy* conferences and authored *Building the Sustainable Economy, an Opportunity for Oakland*, which was adopted unanimously by the Oakland City Council and led to Oakland's Sustainable Development Initiative.

Mr. Gross is a specialist in business and real estate development using private sector capital to accomplish Double Bottom Line objectives and a former President of the Berkeley California School Board. Mr. Nixon has an extensive background in Socially Responsible Investment and is a securities professional with Series 7 and Series 24 securities registrations.





### **BROOKE PRIVATE EQUITY ADVISORS**

Brooke Private Equity Advisors (BPEA) is a private equity management firm that provides investment and advisory services to institutions and high net worth families regarding

all aspects of participating in the complex world of private equity and venture capital investing.

Founded by industry veteran Peter A. Brooke and his son John Brooke, BPEA resides and operates at the very heart of the private equity and venture capital industries. Peter Brooke is well known as an industry pioneer, having founded both TA Associates and Advent International, along with numerous other firms on a global basis. Peter Brooke is the founder and chairman of Advent International. John Brooke has spent the last 20 years involved in all aspects of venture capital and private equity management and investing with Advent International, Park Street Capital and BPEA. Peter Brooke and John Brooke are complemented by a seasoned management team who bring strong analytical and execution skills to the partnership.

In addition to its venture capital and private equity services and investment programs for high net worth individuals and families, BPEA directly invests in growth capital financings, minority and majority recapitalizations and select venture capital opportunities. Typically, BPEA participates in a company's first institutional round of investment regardless of the stage of the company's development. BPEA focuses on the following sectors: Business & Financial Services, Retail/Consumer, Healthcare, Technology/Media/Telecom, and Industrial. BPEA has invested in hundreds of transactions and has extensive relationships with leading private equity and venture capital firms, management teams, entrepreneurs, corporations and financial institutions.

BPEA also acts as the fund manager for fund-of-funds in these industries and has worked closely with members of the Fund Development Team on the creation and fund management of the St. Louis Vectis I and II Funds. The St. Louis Vectis Funds bring venture capital to life science companies in St. Louis, Missouri.

## 4.0 METHODOLOGY

The Fund Development Team conducted extensive primary and secondary research for this study.

First, the Fund Development Team reviewed existing literature, studies, and data sets in order to understand the level of deal flow, venture capital financing, and government support for entrepreneurship in San Antonio and Texas, overall.

Data was collected from many sources, including:

- AeA
- *Austin American-Statesman*
- Biotechnology Industry Organization (BIO)
- Business Facilities
- “Cleantech Venture Capital: How Public Policy Has Stimulated Investment”
- *Dallas Business Journal*
- *Dallas Morning News*
- *Earth News*
- Federal Reserve Bank of Dallas
- *Houston Business Journal*
- *Houston Chronicle*
- Local Tech Wire
- National Institutes of Health (NIH)
- National Venture Capital Association
- PricewaterhouseCoopers
- *Sacramento Business Journal*
- *San Antonio Business Journal*
- Thomson Reuters
- U.S. Patent Office
- VentureXpert

Once this secondary data was collected, the Fund Development Team conducted 62 interviews with entrepreneurs/entrepreneurial associations, research institutions/incubators, attorneys active in closing deals, venture capital firms, and investment bankers throughout San Antonio, Austin, Dallas, and Houston. The Fund Development Team also conducted interviews with 17 national venture capital firms and national venture capital associations located outside of Texas.

The Fund Development Team sought a solid cross-section of interviewees by organization type (entrepreneurs, research institutions/incubators, investment bankers, venture capital firms), industry (life science, high technology, green/clean technology), and location (San Antonio, Austin, Dallas and Houston).

Below is a summary of interviewees by location, organization type, and industry sector:

- **Location:** 30 interviewees in San Antonio, 14 in Austin, eight in Dallas, seven in Houston, two in other areas of Texas, and one in San Francisco. The Fund Development Team also interviewed 17 individuals (with national venture capital firms and associations) located outside of Texas.

- **Organization Type:** 17 entrepreneurs, 17 research institutions/incubators, 17 venture capital firms/investment bankers in Texas, 17 venture capital firms and associations not in Texas, seven investors, and four others including deal attorneys, economists, and reporters.
- **Industry Sector:** 20 interviewees active in biotechnology/life sciences, 16 active in high technology, four in green/clean technology, and 39 active in multiple industries.

Interviewees included leaders from the following organizations:

- **Entrepreneurial Firms:** Asuragen Inc., Biotechnology, Austin; Big in Japan, Inc., High Technology, Dallas; Cinco Solar, Green Technology, San Antonio; Denim Group, Ltd., High Technology, San Antonio; ENTrigue Surgical, Inc., Biotechnology, San Antonio; FaceKey Corporation, High Technology, San Antonio; Frio Pharmaceuticals Inc, Biotechnology, San Antonio; GlobalSCAPE, Biotechnology, San Antonio; Image Trends, Inc., High Technology, Austin; Mystic Pharmaceuticals, Biotechnology, Austin; Neopolitan, High Technology, San Antonio; Seno Medical Instruments, Biotechnology, San Antonio; Sentinel Satellite, Inc., High Technology, Houston; StarVision Technologies, Inc., High Technology, College Station; Terapio, Biotechnology, Austin; Tracer Detection Technology Corp., High Technology, San Antonio; Vidacare, Biotechnology, San Antonio
- **Investors:** Angel investors in Austin and San Antonio
- **Research Institutions/Incubators:** Austin Technology Incubator; BioHouston; Biomed SA; Center for Innovation at Arlington; Central Texas RCIC; Houston Technology Center; SATAI; South Texas Technology Management; Southwest Foundation for Biomedical Research; TECH Fort Worth; TEKSA; Texas Life Science Center; Texas Research and Technology Foundation; University of Texas Health Science Center at San Antonio; University of Texas at San Antonio; University of Texas Southwestern Medical Center
- **Venture Capital Firms, Investment Bankers in Texas:** Access Venture Partners; Aegis Capital Group; ARCH Venture Partners; Austin Ventures; DFJ Mercury; Ehrenberg Chesler; First Capital Group; Helios Capital (Private Equity); HO2 Partners; Hunt Ventures; Murphree Venture Partners; PTV Sciences; Targeted Technology Ventures; Telegraph Hill Partners; Texas Heritage Bank; Triton Ventures; Yellowstone Capital
- **Venture Capital Firms & Associations, National:** National Venture Capital Association, Clean Tech Group, BIO (Biotechnology Industry Organization), and fourteen national venture capital firms who were promised anonymity.
- **Other:** Angelou Economics, Deal Flow Attorneys, *San Antonio Business Journal*

Once data was collected from all interviewees, it was aggregated in order to provide the findings put forth in this report.

## 4.1 Interview Methodology

### Overview

The Fund Development Team conducted 57 phone interviews and 5 in-person interviews with entrepreneurs/entrepreneurial associations, research institutions/incubators, attorneys



active in closing deals, venture capital firms, and investment bankers throughout Texas in order to understand the state of deal flow and venture capital in San Antonio and Texas, overall. The Fund Development Team also conducted 17 phone interviews with national venture capital firms and national venture capital associations outside of Texas

### **Interviewee Selection**

The Fund Development Team sought interviewees who were active in their respective territories and would know about entrepreneurial activity, deal flow, and/or venture capital availability. The Fund Development Team wanted to ensure that it obtained a cross section of perspectives for this study.

Specific questions were prepared for those on the demand side of the study (entrepreneurs, research institutions/incubators, entrepreneurial networks) and the supply side (venture capital firms, investment bankers, and deal flow attorneys). Those questions are provided in Appendix 10.1.

### **Interview Process**

Each interviewee was contacted via phone and/or email to schedule an interview. The Fund Development Team then spent 30–45 minutes on the phone with each interviewee discussing the interview questions. At least five interviews were held in person. The Fund Development Team explicitly told interviewees that their answers would be unattributed (by institution and individual), in order to encourage candid and honest responses. While the Fund Development Team sought to obtain answers to all of the formal interview questions, each person was allowed to deviate from the questions if the information was helpful.



## 5.0 DEMAND ASSESSMENT

Nationally, the biomedical, biotechnology, high technology, and green/clean technology industries have grown significantly over the last decade. This trend is expected to continue into the future. Together these industries provide new engines of economic growth across the U.S. The expansion of these industries is occurring in Texas where they are playing an important and increasing role in economic development in the state.

In this section, the Fund Development Team shares information about the biomedical, biotechnology, high technology, and green/clean technology industries in San Antonio and Texas with regard to:

- 1) Intellectual property and patent generation
- 2) Statewide programs financing entrepreneurial growth
- 3) Resources available to entrepreneurs
- 4) The level of deal flow reported by entrepreneurs, researchers, leading intellectual property (IP) organizations, incubators, venture capital firms, investors, and others

### 5.1 Definition of Industries

Before beginning a discussion of overall findings, it is important to define the industries discussed in this report.

- 1) Life Science/Biomedical/Biotechnology: The biomedical field encompasses a diverse group of industries and activities that span different markets including manufacturing, services, and research. This sector includes the following sub sectors: Agricultural Feedstock and Chemicals, Drugs and Pharmaceuticals, Medical Devices and Equipment, and Research, Testing, and Medical Laboratories. The biomedical field also includes Military Medicine.

Biotechnology refers to the use of living organisms or their products to modify human health and the human environment. Often biomedical and biotechnology are used interchangeably by the public. In this report, we refer to biomedical, biotechnology, and devices interchangeably. We also use “life science” to encompass all three industries.

- 2) High Technology: High technology is technology that is at the cutting edge—the most advanced technology currently available. The industry includes high technology manufacturing, communications services, digital media, nanotechnology, and software and computer-related services.
- 3) Green/Clean Technology: Green technology (or environmental technology) is the use of technology to conserve and protect the environment.

Officially, “clean tech” is defined as “any product, service, or process that delivers value using limited or zero non-renewable resources and/or creates significantly less waste than conventional offerings.” Often green technology and clean technology



are used interchangeably by the public. In this report, they are also referred to interchangeably.

## 5.2 Research and Intellectual Property Creation in Texas

Texas has a number of high profile research institutions which generate a tremendous amount of intellectual property (IP) every year. Because generation of IP can be a leading indicator of entrepreneurial growth, we examined the level of research activity in Texas. We examined the volume of National Institute of Health (NIH) grants as a proxy for volume of overall research. We also examined patent activity at the institutions with notable NIH activity as a proxy for commercialization.

According to NIH data, Texas received 8,647 NIH grants for a total of \$3.2 billion from 2006 to 2008. As detailed in the sections below, all major Texas submarkets have strong research institutions, substantial intellectual property, and a strong and growing level of patent activity. All of this suggests that future deal flow is potentially sizeable and could grow substantially in the state over time.

### Texas Overall

#### *NIH Activity in Texas*

We first began by looking at volume of NIH dollars to various states in order to understand how Texas fares overall in volume of research. In order to determine this, we did a random sampling of states, picking some that we expected to have a high level of NIH activity (California, Massachusetts, New York, Washington) and some that we expect to have low(er) rankings (Missouri, North Dakota). As shown in Table 5.1, we found that Texas is relatively strong compared to other states.

**Table 5.1 NIH Grants by State, 2006-2008**

State	2006		2007		2008	
	#	Amount (\$) Awarded	#	Amount (\$) Awarded	#	Amount (\$) Awarded
CA	7,836	3,366,087,480	7,751	3,163,252,175	7,642	3,150,525,436
MA	5,296	2,286,648,365	5,222	2,236,110,071	5,145	2,252,139,029
NY	5,048	1,961,917,114	4,990	1,935,399,273	4,833	1,875,242,037
TX	2,988	1,117,742,116	2,872	1,083,464,922	2,911	1,074,229,689
WA	1,751	1,034,757,586	1,686	785,736,150	1,621	761,401,047
MO	1,256	495,245,427	1,205	473,057,974	1,999	478,398,379
ND	39	14,645,319	36	16,992,305	37	15,974,512

Source: National Institute of Health. [www.nih.gov](http://www.nih.gov)

When looking at the top NIH recipients from 2000 to 2005, as shown below in Table 5.2, we see that five institutions in Texas are among the Top 175 NIH recipients in the U.S. These institutions are Baylor Research Institute, Biotex, Inc., Cooper Institute Methodist Hospital Research Institute, and Southwest Foundation for Biomedical Research. Of these institutions, one is located in San Antonio, two are in Dallas and two are in Houston.

**Table 5.2 NIH Support to Research Institutions in Texas, 2000-2005**

<i>NIH Support to Research Institutes</i>																				
						Total Awards		Research Grants		Training		Fellowships		Other		R&D Contracts				
2005 Rank	2004 Rank	2003 Rank	2002 Rank	2001 Rank	2000 Rank	INST	City	State	#	Amount	#	Amount	#	Amount	#	Amount	#	Amount		
1	1	2	1	2	2	SCRIPPS RESEARCH INSTITUTE	LA JOLLA	CA	452	\$213,208,830	396	\$204,153,484	9	\$2,786,263	46	\$1,898,325	0	\$0	1	\$4,370,758
2	2	1	2	1	1	FRED HUTCHINSON CANCER RESEARCH CENTER	SEATTLE	WA	269	\$208,765,060	251	\$196,301,103	2	\$585,373	13	\$611,827	0	\$0	3	\$11,266,757
3	3	4	4	4	4	SLOAN-KETTERING INSTITUTE FOR CANCER RES	NEW YORK	NY	199	\$92,011,838	181	\$89,023,038	7	\$1,977,072	10	\$440,728	0	\$0	1	\$571,000
24	29	15	11	14	20	SOUTHWEST FOUNDATION FOR BIOMEDICAL RES	SAN ANTONIO	TX	30	\$26,066,277	29	\$24,894,529	0	\$0	0	\$0	0	\$0	1	\$1,171,748
88	80	100	119	113	136	BAYLOR RESEARCH INSTITUTE	DALLAS	TX	8	\$5,118,923	8	\$5,118,923	0	\$0	0	\$0	0	\$0	0	\$0
125	na	na	na	na	na	BIOTEX, INC.	HOUSTON	TX	6	\$2,458,278	6	\$2,458,278	0	\$0	0	\$0	0	\$0	0	\$0
137	87	89	75	132	114	COOPER INSTITUTE	DALLAS	TX	5	\$1,904,978	5	\$1,904,978	0	\$0	0	\$0	0	\$0	0	\$0
165	na	na	na	na	na	METHODIST HOSPITAL RESEARCH INSTITUTE	HOUSTON	TX	4	\$923,058	3	\$734,411	0	\$0	0	\$0	0	\$0	1	\$188,647

Source: National Institute of Health. [www.nih.gov](http://www.nih.gov)

The Fund Development Team also looked at the level of NIH funding for all institutions in Texas. From the extended list, the Fund Development Team identified leading research institutions in San Antonio, Austin, Dallas, Houston, and other areas of the state. From our review of these institutions, we found a significant amount of research activity throughout the state. NIH and patent information for each of those leading institutions is provided below.

*Patent Activity*

After examining NIH activity, the Fund Development Team reviewed patent activity in Texas in order to understand the level of IP commercialization in the state. We found that Texas has a relatively high level of patent activity on a national level. In terms of utility patent (patents for inventions) activity from 1963-2008, Texas is ranked fifth only behind California, New York, New Jersey, Illinois. Texas had 147,826 patents in comparison to 432,404 and 218,041 in New York. Texas has been particularly strong since 2000. It rose to second place from 2006-2008 with 17,753 utility patents, behind only California with 61,056 patents.<sup>1</sup>

According to the U.S. Patent Office, Texas has five universities among the top 200 Research and Development (R&D) universities generating patents in the U.S. These universities are Baylor University, Texas A&M, Texas Tech University, University of Houston, and University of Texas as shown in Table 5.3 below. These institutions are located throughout the state.

<sup>1</sup> U.S. Patent and Trademark Office. [http://www.uspto.gov/go/taf/cst\\_utl.htm](http://www.uspto.gov/go/taf/cst_utl.htm)

**Table 5.3 Top 200 U.S. R&D Universities by Consolidated Patent Count, 1997-2005**

Rank	Institution (State)	PRE-1997	1997	1998	1999	2000	2001	2002	2003	2004	2005	Total
1	University of California	1,677	277	395	437	435	402	431	439	424	390	5,307
2	MA Institute of Technology	1,769	102	138	142	113	125	135	127	132	136	2,919
3	CA Institute of Technology	631	46	93	99	103	124	110	139	135	101	1,581
4	University of Texas	743	81	97	93	90	89	93	97	101	90	1,574
5	Stanford University (CA)	735	64	79	83	103	84	104	85	75	90	1,502
6	University of Wisconsin (WI)	643	62	83	87	64	72	80	84	64	77	1,316
7	Johns Hopkins University (MD)	370	48	79	97	72	80	81	70	94	71	1,062
37	Texas A&M University (TX)	154	14	21	23	19	25	29	19	24	24	352
46	Baylor University (TX)	114	18	27	22	29	15	18	16	16	9	284
96	University of Houston (TX)	36	4	5	5	10	8	6	13	3	5	95
119	Texas Tech University (TX)	8	2	2	1	2	6	13	2	4	5	45

Source: U.S. Patent and Trademark Office. [http://www.uspto.gov/go/taf/cst\\_utl.htm](http://www.uspto.gov/go/taf/cst_utl.htm)

Provided below is a detailed breakdown of NIH and patent activity for each major submarket in Texas.

### San Antonio

There are three main institutions in San Antonio with sizable NIH grant volume, as shown in Table 5.4 below. They are the Southwest Foundation for Biomedical Research, University of Texas Health Science Center San Antonio, and University of Texas San Antonio. From 2006–2008, these institutions cumulatively received 953 NIH grants and a total of over \$378.6 million.

**Table 5.4 NIH Grants to San Antonio Institutions, 2006-2008**

Organization Name	2006		2007		2008		Total 2006-2008	
	#	Amount (\$) Awarded	#	Amount (\$) Awarded	#	Amount (\$) Awarded	Total #	Total \$
Southwest Foundation for Biomedical Research	34	24,810,336	34	23,458,250	39	28,054,335	107	76,322,921
University of Texas Health Science Center San Antonio	228	83,265,269	251	90,822,312	252	90,978,546	731	265,066,127
University of Texas San Antonio	32	13,370,240	42	11,820,826	41	12,045,817	115	37,236,883
<b>Total</b>	<b>294</b>	<b>121,445,845</b>	<b>327</b>	<b>126,101,388</b>	<b>332</b>	<b>131,078,698</b>	<b>953</b>	<b>378,625,931</b>

Source: National Institute of Health, <http://report.nih.gov/award/state/state.cfm>

Historically (from 1975-2005), patent activity in San Antonio has been relatively low compared other major submarkets in Texas, as shown in Table 5.5 below.

**Table 5.5 Texas Patent Activity by Region, 1975-2005**

Region	Number of Patents	Patents Per Capita (per 100,000)
San Antonio	6,793	13
Austin	49,594	145
Dallas	62,331	44
Houston	69,526	54

Source: <http://www.theatlantic.com/floridamap/>

Though at the university-level, it appears that San Antonio has sizable activity, though that must be inferred. Because patent information for the University of Texas system is aggregated (as shown in Table 5.6 below), patent contributions from each institution in San Antonio cannot be determined. However, the information below provides a feeling for the scale of patent activity occurring throughout the state.

**Table 5.6 University of Texas Patent Activity, 2000-2005**

Institution	2000	2001	2002	2003	2004	2005	2000-2005 Total	Pre-1985 to 2005 Total
University of Texas	89	89	91	94	99	89	551	1559

Source: US Patent Office, [http://www.uspto.gov/go/taf/univ/org\\_gr/universities\\_g.htm](http://www.uspto.gov/go/taf/univ/org_gr/universities_g.htm)

Provided in Appendix 10.2 is information on the three San Antonio institutions recognized in our NIH and patent research.

### Austin

There is one main research institution in Austin with sizable NIH grant volume, as shown in Table 5.7 below. That institution is the University of Texas Austin. From 2006–2008, the University of Texas Austin has 587 NIH grants for a total of \$150.1 million.

**Table 5.7 NIH Grants to Austin Institutions, 2006-2008**

Organization Name	2006		2007		2008		Total 2006-2008	
	#	Amount (\$) Awarded	#	Amount (\$) Awarded	#	Amount (\$) Awarded	Total #	Total \$
University of Texas Austin	194	48,473,515	189	47,886,031	204	53,727,941	587	150,087,487

Source: US Patent Office, [http://www.uspto.gov/go/taf/univ/org\\_gr/universities\\_g.htm](http://www.uspto.gov/go/taf/univ/org_gr/universities_g.htm)

Historically, Austin has a relatively high level of patent activity as compared to the other major submarkets of Texas (see Table 5.5.). However, Austin ranks highest in terms of patent activity per capita.

As stated in the previous section and shown in Table 5.6, patent information for the University of Texas system is aggregated. As such, patent contributions from the University of Texas Austin alone cannot be determined. Presumably, a significant portion of this research is done at the University of Texas Austin, however.

Information on the University of Texas Austin is provided in Appendix 10.2.

## Dallas

There are two main institutions in Dallas with sizable NIH grant volume, as shown in Table 5.8 below. These institutions are the University of North Texas Health Science Center and the University of Texas Southwestern Medical Center. Together, they generated 1,493 NIH grants for a total of \$533.6 million from 2006 to 2008.

**Table 5.8 NIH Grants to Dallas Institutions, 2006-2008**

Organization Name	2006		2007		2008		Total 2006-2008	
	#	Amount (\$) Awarded	#	Amount (\$) Awarded	#	Amount (\$) Awarded	Total #	Total \$
University of North Texas Health Science Center (Fort Worth)	41	13,380,345	35	12,156,250	44	12,778,858	120	38,315,453
University of Texas Southwestern Medical Center (Dallas)	452	166,458,367	467	171,750,816	454	157,052,816	1373	495,261,999
<b>Total</b>	<b>493</b>	<b>179,838,712</b>	<b>502</b>	<b>183,907,066</b>	<b>498</b>	<b>169,831,674</b>	<b>1493</b>	<b>533,577,452</b>

Source: National Institute of Health, <http://report.nih.gov/award/state/state.cfm>

Along with its tremendous volume of research, Dallas also has a relatively high level of patent activity as compared to other Texas submarkets as illustrated in Table 5.5. However, there is limited patent activity generated through its major universities, as shown in Table 5.9 below. In our conversations with leaders at these institutions, it was clear that they are working to increase the level of patent and entrepreneurial activity in order to better harness the intellectual property coming from them.

**Table 5.9 Patent Activity in Dallas Institutions, 2000-2005**

Institution	2000	2001	2002	2003	2004	2005	2000-2005 Total	Pre-1985 to 2005 Total
University of North Texas Health Science Center	0	4	1	2	0	0	7	7
UT Southwestern	0	0	2	3	2	0	7	8

Source: US Patent Office, [http://www.uspto.gov/go/taf/univ/org\\_gr/universities\\_g.htm](http://www.uspto.gov/go/taf/univ/org_gr/universities_g.htm)

Appendix 10.2 provides information on the two Dallas institutions recognized in our NIH and patent research.

## Houston

There are five main institutions in Houston with sizable NIH grant volume, as shown in Table 5.10 below. These institutions are Baylor College of Medicine, Rice University, University of Houston, University of Texas Health Science Center Houston, and University of Texas MD Anderson Cancer Center. Together, they generated 3,593 NIH grants for a total of \$1.4 billion from 2006 to 2008.

**Table 5.10 NIH Grants to Houston Institutions, 2006-2008**

Organization Name	#	Amount (\$) Awarded	#	Amount (\$) Awarded	#	Amount (\$) Awarded	Total #	Total \$
Baylor College of Medicine	589	227,168,808	503	211,774,568	496	212,813,159	1588	651,756,535
Rice University	43	10,425,917	44	10,988,770	46	11,708,537	133	33,123,224
University of Houston	42	14,335,655	44	12,942,540	50	14,647,838	136	41,926,033
UT Health Science Center Houston	214	89,210,693	204	83,920,969	212	91,853,659	630	264,985,321
UT MD Anderson Cancer Center	371	154,460,521	369	152,367,991	366	151,085,284	1106	457,913,796
<b>Total</b>	<b>1259</b>	<b>495,601,594</b>	<b>1164</b>	<b>471,994,838</b>	<b>1170</b>	<b>482,108,477</b>	<b>3593</b>	<b>1,449,704,909</b>

Source: National Institute of Health, <http://report.nih.gov/award/state/state.cfm>

Historically, patent activity in Houston overall is high as described in Table 5.5. However, patent activity at its institutions is relatively low, as shown in Table 5.11 below. As with Dallas, we see limited patent activity when compared to NIH activity.

**Table 5.11 Patent Activity in Houston Institutions, 2000-2005**

Institution	2000	2001	2002	2003	2004	2005	2000-2005 Total	Pre-1985 to 2005 Total
Baylor College of Medicine	26	12	17	15	13	7	90	26
Rice University	2	6	9	6	21	20	64	2
University of Houston	9	6	4	12	2	4	37	9
University of Texas Health Science Center Houston	0	0	0	0	0	1	1	0
University of Texas MD Anderson Can Center	1	0	0	0	0	0	1	1

Source: US Patent Office, [http://www.uspto.gov/go/taf/univ/org\\_gr/universities\\_g.htm](http://www.uspto.gov/go/taf/univ/org_gr/universities_g.htm)

Information on the five Houston institutions recognized in our NIH and patent research is provided in Appendix 10.2.

### Other Areas of Texas

There are five institutions located outside of San Antonio, Austin, Dallas, and Houston with sizable NIH grant volume, as shown below in Table 5.12. These institutions include the Texas A&M University Health Science Center, Texas A&M University System, Texas Tech University Health Sciences Center, and University of Texas Medical Branch. Together, they generated 1,265 NIH grants for a total of \$460.6 million from 2006 to 2008.

**Table 5.12 NIH Grants to Other Texas Institutions, 2006-2008**

Organization Name (Location)	#	Amount (\$) Awarded	#	Amount (\$) Awarded	#	Amount (\$) Awarded	Total #	Total \$
Texas A&M University Health Science Center (College Station)	74	20,054,330	60	17,255,079	55	14,941,083	189	52,250,492
Texas A&M University System (College Station)	99	28,759,906	87	26,276,470	84	23,415,508	270	78,451,884
Texas Tech University Health Sciences Center (Lubbock)	30	6,710,664	26	6,446,910	26	6,058,217	82	19,215,791
University of Texas Medical Branch (Galveston)	251	111,589,010	240	99,915,612	233	99,201,902	724	310,706,524
<b>Total</b>	<b>454</b>	<b>167,113,910</b>	<b>413</b>	<b>149,894,071</b>	<b>398</b>	<b>143,616,710</b>	<b>1265</b>	<b>460,624,691</b>

Source: National Institute of Health, <http://report.nih.gov/award/state/state.cfm>

Patent activity at three of these institutions is provided in Table 5.13 below. The data shows that Texas A&M has a significant level of patent activity while the University of Texas Medical Branch in Galveston and the Texas Tech University Health Sciences Center do not.

**Table 5.13 Patent Activity in Other Texas Institutions, 2000-2005**

Institution	2000	2001	2002	2003	2004	2005	2000-2005 Total	Pre-1985 to 2005 Total
Texas A&M University	19	25	29	19	24	24	140	351
Texas Tech University Health Sciences Center	1	1	1	0	0	1	4	13
University of Texas Medical Branch at Galveston	0	0	0	0	0	0	0	2

Source: US Patent Office, [http://www.uspto.gov/taf/univ/org\\_gr/universities\\_g.htm](http://www.uspto.gov/taf/univ/org_gr/universities_g.htm)

Appendix 10.2 contains information on the five other institutions recognized in our NIH and patent research.

## 5.3 State Programs Encouraging Entrepreneurship in Texas

There are a number of entities within the state of Texas (state agencies, universities, nonprofit organizations) that are promoting the growth of biomedical, biotechnology, high technology, and green/clean technology through research, advocacy, policies, technical assistance, and incentives. Leading agencies and programs are listed below. Together, these programs demonstrate the state's support of these industries and its desire to see them grow. Many interviewees cited these programs as indicators/predictors of industry and entrepreneurial growth in Texas. Two of the programs, the Texas Emerging Technology Fund and the Cancer Prevention and Research Institute of Texas were cited most often by

interviewees as central to entrepreneurial growth in the state. Additional information about these two programs is provided in Appendix 10.3

- 1) Texas Emerging Technology Fund (ETF): ETF is a \$200 million initiative created by the Texas legislature that provides funding for the development and commercialization of new technology. This fund surfaced frequently in our research and was noted as a highly used source of funding by entrepreneurs in Texas and San Antonio.
- 2) Proposition 15/CPRIT: Proposition 15, a constitutional amendment that passed in November 2007, authorizes the issuance of \$3 billion in general obligation bonds over ten years to create the Cancer Prevention and Research Institute of Texas (CPRIT) and fund grants for cancer research and prevention. Its goal is to attract, create, and expand research capabilities of public and private entities in Texas that will promote a substantial increase in cancer research and the creation of high quality new jobs in the state.
- 3) Texas State Energy Conservation Office (SECO): SECO administers a variety of energy efficiency and renewable energy programs to reduce energy cost and consumption in the institutional, industrial, transportation, and residential sectors throughout the state. Among its programs is the Texas Energy Partnership with Energy Star which implements new energy efficiency requirements in 38 counties.
- 4) Texas Commission on Environmental Quality (TCEQ): TCEQ is the state's environmental agency. It manages several programs that regulate air quality and support renewable energy solutions.
- 5) Texas Enterprise Fund (TEF): This fund provides the state with the ability to respond quickly to opportunities to bring jobs and employers to Texas. This program has been cited as "the most powerful tool in the state's arsenal for attracting and retaining key projects."<sup>2</sup>
- 6) Texas Biotechnology and Life Science Cluster: This government working group is part of an intensive effort to bolster the state's competitive advantage in six key technology areas, including biotechnology and life science, which have been identified as critical to the future economic growth of Texas.
- 7) Texas Ignition Fund (TIF): In December 2007, the University of Texas (UT) System Board of Regents approved and funded a \$2 million grant program intended to provide early stage funding for inventions discovered at UT institutions. It is designed to stimulate commercialization of research discoveries at the 15 UT institutions by providing early stage grants for the development and maturation of those discoveries into marketable intellectual property. UT faculty may request, through their institution's technology transfer office, up to \$50k to accelerate the commercial development of a UT invention. TIF proposals are solicited semi-annually; typically in the spring and fall (<http://research.uthscsa.edu/sttm/tif.shtml>).
- 8) San Antonio/South Texas Program: For Faculty at UT San Antonio, UT Health Science Center at San Antonio and 2 other UT System campuses in South Texas: South Texas Technology Management (STTM) has an early stage grant program similar to the UT System's TIF program. It is called "POCsparc" an acronym for "proof of concept short proposals to accelerate research commercialization." POCsparc supports short-term,

<sup>2</sup>Tom Stringer, "Biotech Incentives Help Create Winning Locations," Area Development (April/May 2007), <http://www.areadevelopment.com/specialPub/apr07/biotechIncentives.shtml>



objective-driven projects intended to enhance the commercial potential of UT inventions. POCsparc will award \$10,000 or \$25,000 for high-impact, tightly focused projects that can bridge the gap between promising very early stage invention and market-ready innovation. These are typically awarded at an earlier stage than TIF grants and mirror the timing of TIF grants (<http://research.uthscsa.edu/sttm/sparc.shtml>).

## 5.4 Networks and Resources by Industry

The Fund Development Team conducted extensive research on existing resources across the life science, high technology and green/clean technology sectors in Texas. These resources are critical to creating deal flow and a positive entrepreneurial environment throughout Texas. There are a substantial number of networks and resources in each area, though additional resources could be used in each area to grow entrepreneurship and these sectors throughout the state. See Appendix 10.4 for a listing of these resources by industry and geography.

## 5.5 Interview Findings

Based on the extensive interviews conducted, the Fund Development Team found the following with regard to deal flow and venture capital need in San Antonio and Texas.

The reader should note that assessing demand for venture capital is complicated. *At any given moment, demand is infinite in the eyes of demanders.* However, there is a subtle yet fundamental distinction between the *demand* and the *desire* for capital. This reality absolutely affects the ability of any study to quantify the actual need for capital. As we assess the potential market demand for venture capital in Texas, our task is similar to looking into Plato's Cave. Instead of seeing actual demand, we have to content ourselves with seeing the "shadows on the wall" (the projected or professed need of demanders) that Plato saw within his cave. Therefore, readers should compare the information below with that reported in Section 6: Supply.

**Research and intellectual property creation are strong throughout Texas, but commercialization has been an issue.**

A wide range of interviewees touted the quality of research across Texas. Interviewees regardless of location and organization type (entrepreneur, researcher, venture capitalist, etc.) commented on the quality and volume of research. Many also commented on commercialization efforts statewide.

Despite the quality and volume of research activity in Texas, much of the benefits have yet to be realized.

The heads of leading research institutions in San Antonio noted that of the billions in intellectual property in Texas, the state had received returns on only a few tens of million to date. The Fund Development Team heard repeatedly that this disconnect was a result of poor commercialization efforts in the past. One incubator leader in the state noted that "the commercialization function of all institutions is broken. You have to "pry out" IP yourself."



However, many universities across the state are working to fix the problem through incubators, technology transfer centers and the establishment of technology parks that are integrated into the universities. This improved focus was noted by many interviewees. As one venture capital interviewee noted, “It is hard to spin companies out of the universities in San Antonio. Recently that is improving, but it has been very difficult.”

### **There is a large, unmet need for venture capital throughout Texas.**

The vast majority of interviewees cited scarcity of venture capital in Texas as a top unmet need for entrepreneurs and entrepreneurial growth in the state, as shown in Table 5.14 below. The table clearly shows that venture capital is needed throughout the state. Of the interviewees throughout the state, those in San Antonio and Dallas were most likely to say that venture capital is a top unmet need.

**Table 5.14 Venture Capital Need by Geographical Area**

Interviewees Located in:	VC is a Top Unmet Need in Their Area
Texas	N/A
San Antonio	85% (20)
Austin	71.4% (14)
Dallas	87.5% (8)
Houston	71.4% (7)

\* The number in parenthesis denotes the number of interviewees responding to the question.

Interviewees, regardless of organizational type, felt that more venture capital was needed in Texas. The quotations below show the general uniformity of response to the question of venture capital availability.

#### Entrepreneurs:

\*Note: The majority of entrepreneurs interviewed were located in San Antonio. Deal flow in other areas was researched largely through interviews with industry networks and research institutions. As a result, quotations may be skewed to San Antonio. However, the Fund Development Team believes that these sentiments are common entrepreneurs throughout the state.

- Money [VC] would make a big difference here. – *Life Science Entrepreneur, San Antonio*
- Fundraising has “been a terrible thing” – *High Tech Entrepreneur, San Antonio*
- We “definitely need more capital.” – *Green Technology Entrepreneur, San Antonio*
- We are “finding it difficult” to fundraise, though we have received awards and prestigious government grants. – *Life Science Entrepreneur, San Antonio*
- There is “nothing to go to [in terms of funds]” in San Antonio. Given that, some people have asked us “why are you in San Antonio?” – *Life Science Entrepreneur, San Antonio*
- “It’s not easy to start things in Texas.” – *Life Science Entrepreneur, San Antonio*
- One entrepreneur went on to say that she does not want capital alone. Entrepreneurs want “smart money,” not just money. – *Life Science Entrepreneur, San Antonio*

Incubators/Research Institutions:

- “VCs aren’t located near us” and that is problematic. Lack of venture capital is “a major impediment.” We would have more companies start-up in North Texas if we had venture capital. – *Technology Incubator, North Texas*
- It is hard to get money locally. There is not a lot of venture capital in Texas in biotech. – *Research Institution/Technology Incubator, Life Science, Dallas*
- Texas is “very underserved” by venture capital. However there are “pockets of capital around.” – *Research Institution/Technology Incubator, Life Science, Dallas*
- It is “hard to get venture capital firms to spend time on an airplane” to come look at our deals. – *Technology Incubator, All Technology, San Antonio*

Venture Capitalists:

- Texas is exceedingly underserved. – *Venture Capitalist, High Technology, Austin*
- Texas has the initial infrastructure required for a hub like Silicon Valley’s. But why hasn’t Texas done what Silicon Valley has done? Capital has to be part of the problem. – *Venture Capitalist, High Technology, Austin*
- 80% of venture capital comes from outside of Texas. That has to mean Texas is undercapitalized by local venture capital. – *Venture Capitalist, All Technology, Houston*

Investors/Deal Attorneys:

- Venture capital is “one of the missing components in San Antonio” – *Investment Banker, All Technology, San Antonio*
- There are “a lot more opportunities than money.” – *Deal Attorney, All Technology, San Antonio*
- Austin is “head and shoulders ahead of everybody else” in terms of venture capital. – *Financial Institution/Fund Expert, High Technology, Texas*
- There is a “dearth of capital” for deals in Texas that aren’t real estate or later stage. – *Private Equity Firm, All Technology, Dallas*

**The need for seed and early stage capital is great in Texas.**

The Fund Development Team repeatedly heard from all types of interviewees that seed and early stage capital is a critical need in San Antonio and Texas. Table 5.15 below shows interviewee assessment of the need for different types of venture capital. According to the responses, the need for seed and early stage capital is most acute throughout Texas.

**Table 5.15 Need for Different Types of Venture Capital**

Interviewees Located in:	Seed Capital Needed in Their Area/The State	Early Stage Capital Needed in Their Area/The State	Growth Capital Needed in Their Area/The State
Texas	100% (48)	95.7% (47)	71.4% (35)
San Antonio	100% (21)	95.2% (21)	88.2% (17)
Austin	100% (13)	91.7% (12)	0% (6)
Dallas	100% (8)	100% (8)	87.5% (8)
Houston	100% (8)	100% (7)	50% (4)

The quotations below from various types of interviewees demonstrate this.

Entrepreneurs:

- We “definitely need seed money here.” You won’t see as many deals if you don’t invest in seed stage companies. – *High Tech Entrepreneur, San Antonio*
- There is a need for seed capital in Dallas and Houston. – *High Tech Serial Entrepreneur, Dallas*
- VCs don’t want to get in until Phase 2 or 3. But we need money before then. – *Life Science Entrepreneur, San Antonio*

Incubators/Research Institutions:

- We have early stage companies but venture capital available is farther up the chain (later stage). – *Technology Incubator, All Technology, North Texas*
- We see need for seed stage capital in the life science and high technology industries. – *Technology Incubator, All Technology, San Antonio*

Venture Capitalists:

- If you count the state (ETF) and all the seed and early stage funds in Texas that only amounts to about \$400-\$500 million. That is not enough. – *Venture Capitalist, All Technology, Houston*
- “No one is doing early stage deals anymore.” – *Venture Capitalist, All Technology, Houston*
- “We need capital and active mentorship for our startups.” – *Venture Capitalist, All Technology, Houston*
- “Early stage is where the gap is.” – *Venture Capitalist, Life Science, Austin*

Investors/Deal Attorneys:

- There is a “real opportunity for early stage venture” funds in San Antonio and Texas. – *Investment Banker, All Technology, San Antonio*
- Both emerging and growth capital is needed in San Antonio. – *All Technology, Deal Attorney, San Antonio*

**Companies in Texas need to get further down the growth path than comparable companies in venture capital-rich areas in order to get the capital they need to grow.**

Multiple interviewees noted that due to the lack of venture capital (especially seed and early stage capital) in Texas, deals and companies in Texas need to get further down the development path than companies in other areas of the country that do have venture capital. These sentiments were most common among serial entrepreneurs who had a history of venture capital financing, as well as investment bankers. As one entrepreneur in San Antonio noted that “if you have an inkling of a customer in Palo Alto, you get money. But in San Antonio you can have people signed up and you can’t get money.”

Similarly, one investment banker from San Antonio noted that San Antonio has projects that would get “VC far earlier” in other areas. Perhaps another investment banker in San Antonio summed it up best when he said: There is a “quality premium and price discount” for deals in San Antonio.

Though these quotations are San Antonio-specific, the Fund Development Team believes that the reality translates to other areas of Texas as well.

**Most conclude that a Central Texas or Texas Venture Capital Fund is Viable, while a San Antonio-Only Venture Capital Fund is not.**

95% of interviewees who responded to questions on fund viability clearly stated the need for venture capital in Texas. However, feelings about a viable footprint differed by region. The chart below shows that most interviewees felt that a San Antonio-only Fund would not be viable, but that a Central Texas or All Texas Fund would be. Interviewees cited deal flow and investor interest as factors in making their determination.

Entrepreneurs and incubator leaders in San Antonio were more likely to say that San Antonio needed its own fund and that \$100 million was too small given the current level of deal flow. However, four well respected investors currently active in the San Antonio market cited \$30-40 million as a more accurate figure given the fundability of deals in the market. Yet another investor active in San Antonio said that San Antonio does not need a venture capital fund at all. These estimates were provided in four separate interviews. Taken together, these comments from experienced San Antonio investors suggest that San Antonio could not support a \$100 million fund on its own currently, but that San Antonio could use a sizable portion of the funds from a \$100 million fund-of-funds.

**Table 5.16 Viability of Fund Footprints by Interviewee Location**

Interviewees Located in:	Percent Who Think a San Antonio Only Fund is Viable	Percent Who Think a Central Texas Only Fund is Viable	Percent Who Think an All Texas Fund is Viable
Texas Overall	24.3% (37)	74.3% (35)	95% (40)
San Antonio	44.4% (18)	92.9% (14)	100% (15)
Austin	0% (11)	78.6% (14)	93.3% (11)
Dallas	0% (5)	20% (5)	85.7% (7)
Houston	16.7% (6)	80% (5)	100% (6)

\* The number in parenthesis denotes the number of interviewees responding to the question.

Responses on the viability of different fund footprints varied by type of interviewee. As shown in the chart below, entrepreneurs and research institutions throughout the state were more likely to see the more localized funds (San Antonio only and Central Texas only) favorably than venture capital firms and investors. Importantly, investors and venture capital firms favor a broader footprint.

**Table 5.17 Viability of Fund Footprint by Interviewee Type**

Type of Interviewee Regardless of Location	Percent Who Think a San Antonio Only Fund is Viable	Percent Who Think a Central Texas Only Fund is Viable	Percent Who Think an All Texas Fund is Viable
Entrepreneur	25% (8)	80% (10)	100% (10)
Research Institution/Incubator	50% (10)	75% (8)	100% (10)
Venture Capital Firm	7.1% (14)	61.5% (13)	86.7% (15)
Investor	0% (3)	100% (2)	100% (3)

Note: The number in parenthesis denotes the number of interviewees responding to the question.

**Texas has quality deal flow in the life science industry and high technology industries.**

Given the volume of life science research occurring throughout Texas, it is not surprising that there are strong and growing biotechnology, biomedical, and device sectors throughout the state. It is clear from our interviews that life science advances and opportunities are growing in all four major metropolitan areas, though different geographies are likely to underestimate what is going on in the other areas due to lack of regional collaboration.

Table 5.18 below shows interviewee assessments of deal flow in the life science industry in various areas of Texas. All areas appear to have some level of quality life science deal flow.

**Table 5.18 Assessment of Quality Life Science Deal Flow in Each Area of Texas**

Quality Life Science Deal Flow Exists in This Area (as answered by all Texas Interviewees)	
San Antonio	93.5% (31)
Austin	93.8% (16)
Dallas	83.3% (6)
Houston	92.3% (13)

Note: The number in parenthesis denotes the number of interviewees responding to the question.

It appears that San Antonio is recognized throughout the state for its life science deal flow. Table 5.19 below shows interviewee assessments of deal flow in the life science industry in San Antonio. Most interviewees in San Antonio thought that life science was currently the city’s strongest sector in terms of need for venture capital dollars. Many interviewees also mentioned the growth of military medicine and CPRIT as factors favoring life science deal flow in San Antonio.

**Table 5.19 Interviewee Assessment of Quality Life Science Deals in San Antonio**

Interviewees Located In:	Believe Quality Life Science Deals Exist in San Antonio
Texas Overall	93.5% (31)
San Antonio	94.4% (18)
Austin	100% (8)
Dallas	50% (2)
Houston	100% (7)

Note: The number in parenthesis denotes the number of interviewees responding to the question.

Generally, interviewees sang the praises of the life science industry throughout San Antonio and Texas, as shown below.

- “Life Sciences is the biggest opportunity in Texas.” – *Entrepreneur, Biotechnology, Austin*
- “We [San Antonio] have a lot of that [biotech].” – *Incubator, San Antonio*
- Life science could use a lot of capital. We have “a great life science community.” – *Technology Incubator, North Dallas*
- “Capital is what’s really needed to help this industry.” He went on to call out early stage capital specifically. – *Leader of a Research Institution, Life Science, San Antonio*
- There are about 12 serial entrepreneurs in life sciences in San Antonio currently. – *Serial Entrepreneur, Life Science, San Antonio*
- Currently, San Antonio’s life science is a “minor industry.” We are “a developing area” and have “a lot of interesting ideas.” – *Serial Entrepreneur, Life Science, San Antonio*
- Life science is the industry with “the most market opportunity.” There are a lot of great deals and great technologies. – *Leading Deal Flow Attorney, San Antonio*
- Biotech investing has been growing in Austin. There is a biotech spine growing between San Antonio and Austin. – *Life Science Entrepreneur, San Antonio*
- There is “absolutely” a life science pipeline of deals. – *Leader of a Research Institution, San Antonio*
- San Antonio was sold to me as a center for biotech, but there are “very few valid” life science companies San Antonio. – *High Technology Entrepreneur, San Antonio*

### **Texas has quality deal flow in high technology industries.**

As with the life science industry, there is a great amount of high technology activity going on throughout Texas. Different areas of technology thrive throughout the state – nanotechnology, gaming, mobile, agricultural technology, military technology, and cyber security, just to name a few. Though some areas of high technology are slowing down, such as the semiconductor industry, there are innovations in other high technology sectors that are poised for continued growth.

Table 5.20 below shows interviewees’ positive assessments of deal flow in the high tech industry in various areas of Texas.

**Table 5.20 Assessment of Regional Deal Flow in the High Technology Industry**

Percent of all Texas Interviewees Who Believe Quality High Tech Deal Flow Exists in These Areas	
San Antonio	90% (20)
Austin	100% (18)
Dallas	100% (13)
Houston	100% (6)

Table 5.21 below shows interviewee assessments of deal flow in the high technology industry in San Antonio. The Fund Development Team felt that there was minimal recognition of San Antonio’s high technology activity – both from within the city and from other areas of the state. However, information assurance and cyber security were noted by many interviewees as the key drivers and bright spots for high technology growth in San Antonio.

**Table 5.21 Assessment of High Technology Deal Flow in San Antonio**

Interviewees Located in:	Believe Quality High Tech Deals Exist in San Antonio
Texas	90% (20)
San Antonio	92.9% (14)
Austin	66.7% (3)
Dallas	100% (2)
Houston	100% (7)

These statements from interviewees suggest that high technology deal flow in Texas is relatively strong, though not uniformly across the state.

- We have good business models but they are not cutting edge technology. There are “not a lot of new arrivals garnering new attention” currently. –*Leading Deal Flow Attorney, San Antonio*
- There is a “shortage of entrepreneurs” in San Antonio. Currently the number high tech entrepreneurs in San Antonio is “very small” but there is a lot of potential to cultivate more from leading research institutions (especially Southwest Research Institute). – *Entrepreneur/Investor, San Antonio*
- High tech is “pretty strong in certain pockets” – especially cyber security in San Antonio. There are 10-15 high tech (largely cyber security) serial entrepreneurs in San Antonio. – *Serial Entrepreneur, San Antonio*
- “Tech is really strong. Bio gets all the press.” – *High Technology Entrepreneur, San Antonio*
- Currently, many high tech entrepreneurs go to Austin for the infrastructure and financing. – *Entrepreneur/Investor, San Antonio*
- There is a lot going on in Dallas in terms of high tech, especially in the mobile space. – *Serial Entrepreneur, Dallas*

### Texas aspires to green/clean technology deal flow, but does not have it yet.

Unlike life science and high technology, Texas has seen relatively little activity in the green/clean industry in recent years. Certain areas of the state, namely Austin (with the Pecan Street Project) and Houston were noted by some interviewees as being ahead of the green curve relative to other areas within Texas. Though deal flow in San Antonio was noted as near zero, Mission Verde was applauded by several interviewees.

Overall, green/clean technology deal flow in Texas appears to be questionable at present given the newness of the industry. Also, green/clean technology deals, in general, have longer time horizons and need for larger amounts of funding than companies in other industries. Given the minimal deal flow throughout the state currently, it is likely that a fund's green/clean allocation would be minor, at least in a first fund.

The chart below shows interviewee assessments of deal flow in the green/clean technology industry in various areas of Texas. In general, interviewees felt less positive about green/clean technology deal flow than deal flow in life science and high technology.

**Table 5.22 Assessment of Deal Flow in the Green/Clean Technology by Location**

Percent of all Texas Interviewees Who Believe Quality Green/Clean Deal Flow Exists in These Areas	
San Antonio	21.4% (14)
Austin	100% (9)
Dallas	75% (4)
Houston	80% (5)

In general, interviewees did not believe that quality green/clean deal flow existed in San Antonio currently. Table 5.23 below shows that those in San Antonio, as well as those throughout the state, are skeptical about green/clean technology deal flow in San Antonio.

**Table 5.23 Assessment of Green/Clean Technology Deal Flow in San Antonio**

Interviewees Located in:	Believe Quality Green/Clean Deals Exist in San Antonio
Texas	21.4% (14)
San Antonio	30% (10)
Austin	0% (3)
Dallas	N/A (0)
Houston	0% (2)

These quotations from interviewees suggest that deal flow, rather than venture capital availability is the problem with green/clean technology in Texas (and the U.S. overall).

- “The issue is not a lack of venture capital [for green/clean tech deals]. We need new technology, which will lead to more deals.” – *Incubator, Technology, Austin*
- “I am surprised that there are not many deals in Texas. We see deals mainly in the Coasts, Canada, and Europe.” – *Venture Capital Firm, Green/Clean Technology, Houston*
- “We beg for deal flow in energy and green” but there “aren’t many green deals that make sense.” – *Incubator, San Antonio*

- “No one here” that I know would invest in green/clean technology now. – *VC Fund, San Antonio*
- Green deals are “on the cusp” of being feasible. – *Leading Deal Flow Attorney, San Antonio*
- There is “a lot of interest” in solar, but most of the technology is still in the lab. – *Leading Deal Flow Attorney, San Antonio*
- “There is not a high level of activity” in green/clean currently. – *Green/Clean Technology Entrepreneur, San Antonio*
- There is some green/clean activity going on. – *Technology Incubator, North Texas*
- San Antonio is about as green as Austin. – *Entrepreneur, San Antonio*
- Austin and San Antonio are ahead of Houston and Dallas in terms of green. – *Leading Deal Flow Attorney, San Antonio*

### **Even though deals exist in Texas, finding them is hard.**

Many interviewees who spoke of quality deal flow across Texas also mentioned that identifying deals in Texas is difficult. This is for a variety of reasons:

#### *1) Provincialism and regional rivalries*

It appears that regions of Texas are predisposed to look at other regions suspiciously. As a result, information and resource sharing is lacking. This includes information sharing about deals that are in need of capital. Because of this, several interviewees stressed the importance of having people on the ground in each area in order to find quality deals, as shown by the quotations below.

- There are “fairly strong regional rivalries” in Texas. – *Incubator, All Industries, Dallas*
- People outside of San Antonio “have no idea” what’s really going on there (meaning that the city has a lot going on). – *Entrepreneur, High Technology, San Antonio*
- San Antonio is an easy city to get to know, but you can’t “parachute in and parachute out.” It’s hard to get deal flow unless you’re on the ground in San Antonio. – *Leading Deal Flow Attorney, All Industries, San Antonio*
- Having someone on the ground is “essential” in San Antonio. – *Venture Capital Fund, San Antonio*
- “If you want to play in Dallas, you need a person in Dallas. (Preferably 2.) If you want to play in Houston, same thing.” – *Serial Entrepreneur, High Technology, Dallas*
- Deals are hard to find in Dallas because it is “not a culture of sharing.” They are working on that now, but you need someone on the ground to actually find deals there. – *Serial Entrepreneur, High Technology, Dallas*

#### *2) Lack of deal/information sharing infrastructure and inclination*

Several serial entrepreneurs throughout the state spoke of the lack of entrepreneurial networks and entrepreneur-venture capital “elbow rubbing” in Texas. They mentioned that such interactions are common in venture capital-rich areas, such as San Diego and Silicon Valley. These entrepreneurs longed for that type of interaction.

3) *There is a “chicken and the egg” problem with deals and venture capital in Texas*

Because there is a lack of venture capital firms on the ground in Texas, deals in Texas are often unknown to venture capital firms. Because deals are unknown, venture capital doesn't come to Texas. Several interviewees cited this paradox as a key impediment to venture capital availability in Texas. The quotations below show the value of having on-the-ground managers.

- One of the keys to success will be having funds and people on the ground in Texas to find the deals. The funds need to be there for this to work. – *Private Equity Firm, Dallas*
- VCs are “grateful” to learn of deals in Texas when I pass them information about our companies. VCs have trouble finding deals in Texas because they aren't on the ground. – *Incubator, Dallas*

4) *Many deals happen behind closed doors with private investors*

Several interviewees noted that, if the Fund moves forward, relationships with lawyers, family offices and other advisors will be important to finding deals, as these groups are often aware of deals that are not in the open market.

As one investment banker noted, many “transactions don't see the light of day” because they are done in estate planning offices/family office/law offices. So there is deal flow going on that you may not know about.



## 6.0 SUPPLY ASSESSMENT

In assessing the supply side of the Supply-Demand Equation, it is relatively easy to measure the available supply of venture capital because it is finite at any given moment in time. The supply of venture capital is dependent upon the number of suppliers in the market, types of suppliers, and willingness to provide capital.

In order to assess the market demand from the view of financiers, the Fund Development Team evaluated data on existing venture capital activity throughout the state and also spoke with 31 venture capital firms (17 based in Texas, 14 not based in Texas) about their thoughts on venture capital availability in San Antonio and Texas overall.

In this section, the Fund Development Team shares information about the supply of venture capital to the biomedical, biotechnology, high technology, and green/clean technology industries. Specifically, the Fund Development Team examines:

- 1) The overall level of venture capital activity nationwide and in Texas
- 2) The level of venture capital activity in the biomedical, biotechnology, high technology, and green/clean technology industries by region in Texas
- 3) Venture capital firms active in Texas currently
- 4) Observations on deal flow/venture capital supply from venture capitalists, investment bankers and others

### 6.1 Research on Venture Capital Availability

The Fund Development Team analyzed activity in the venture capital industry overall and by geography and industry. In general, the Team found the venture capital market nationally and in Texas to be in flux, with life science, high technology and green/clean technology investments on the rise. Findings are provided below.

#### **The venture capital market is in flux nationally and in Texas.**

Since the dot com bust in the early 2000s and in the current market environment, venture capital availability across the US and Texas has changed tremendously. Specifically, we see that (1) total venture capital assets under management in the U.S. are decreasing, (2) fewer venture capital firms exist – or are emerging – today than several years ago, and (3) limited partners/investors are more reluctant to invest assets into private equity/venture capital currently.

- 1) *Decreasing total venture capital assets under management in the U.S. and in Texas.*

In 2008, venture capitalists invested \$28.3 billion in 3,808 deals. This represents an 8% decrease in dollars spent and a 4% decrease in deal volume from 2007.<sup>3</sup> Investments in the

<sup>3</sup> [https://www.pwcmoneytree.com/MTPublic/ns/moneytree/filesource/exhibits/08Q4\\_MT\\_Release\\_FINAL.pdf](https://www.pwcmoneytree.com/MTPublic/ns/moneytree/filesource/exhibits/08Q4_MT_Release_FINAL.pdf)



fourth quarter of 2008 totaled \$5.4 billion in 818 deals. This represents the lowest amount of dollars invested since the first quarter of 2005.<sup>4</sup>

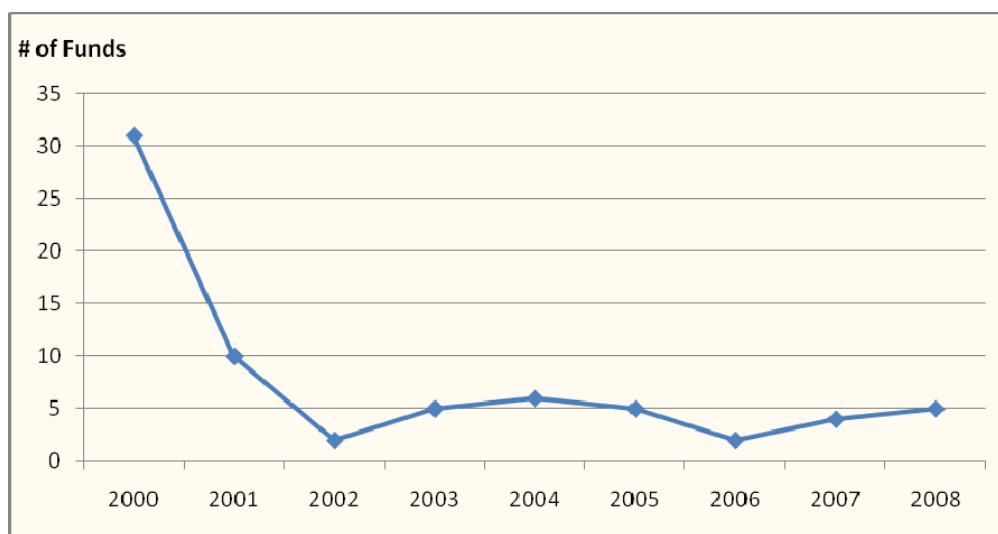
Similar to the overall market within the U.S., Texas venture capital spending is slowing. In 2000, Texas venture capital spending was booming at almost \$6 billion a year. The high technology bust led to a precipitous decline in 2001 and 2002, and venture capital showed little or no growth for the next several years. Venture capital investments in Texas began to rebound in late 2005, and grew 28% in 2006, outstripping the nation's 12% growth rate. Despite venture capital's steady increase from 2002–2007 in Texas, venture capital funding in the state declined in 2008.<sup>5</sup>

2) *Fewer venture capital firms exist – or are emerging – today.*

Due to the increased difficulty in raising capital, fewer venture capital firms exist. The funds that are emerging tend to be smaller and more targeted funds. Nationally, the number of firms dropped from 855 in 2006 to 741, a 13% decrease. At the end of 2007, the 741 existing firms operated 1,549 separate funds.<sup>6</sup> In the current market environment, many smaller/new funds are unable to raise capital. Larger/well-established players are not having as much difficulty due to their long-standing relationships with investors and proven historical track records.

We see this trend at play in Texas. As shown in Figure 6.1 below, new funds in Texas fell off precipitously from 2000 to 2008.

**Figure 6.1 Number of Venture Capital Funds Created in Texas, 2000-2008**



Source: *Venture Economics*

In Figure 6.2 below, we see that of the funds created in Texas from 2000 to 2008, early stage funds had the biggest decline, though the number of early stage funds remained high relative to other stages of venture capital. We also see that seed stage funds fell to virtually zero over

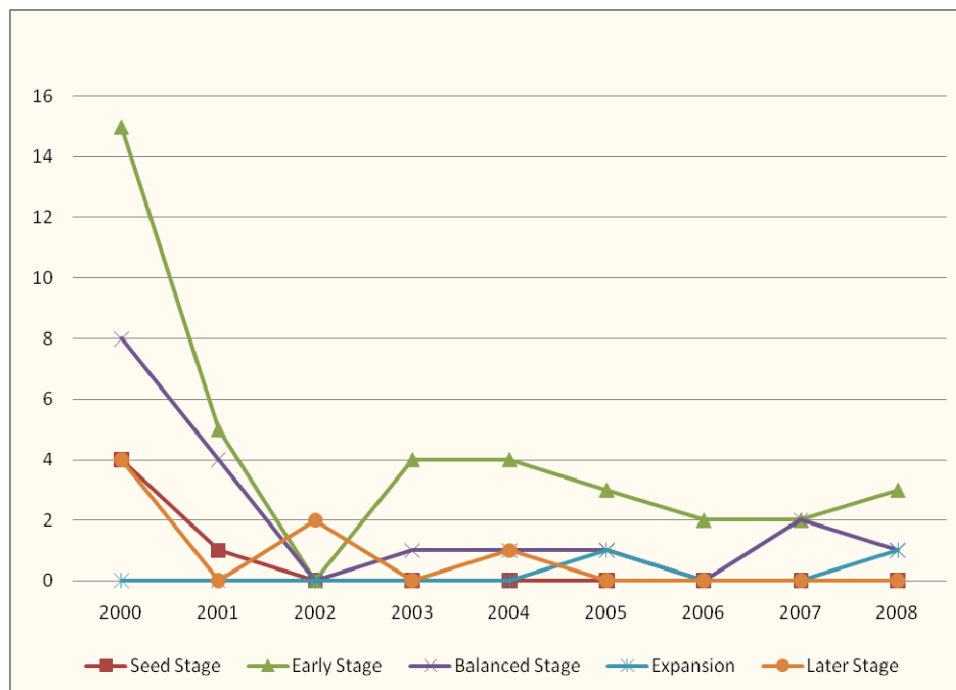
<sup>4</sup> Ibid.

<sup>5</sup> <https://www.pwcmoneytree.com/MTPublic/ns/nav.jsp?page=notice&iden=B>

<sup>6</sup> 2008 National Venture Capital Associate Yearbook, <http://www.nvca.org/pdf/NVCAYearbook2008.pdf>

the period. This trend is problematic given that many of the deals in Texas need seed to early stage capital.

**Figure 6.2 Type of Venture Capital Funds Created in Texas, 2000-2008**



Source: *Venture Economics*

Note: The chart categorizes funds based on what is reported. Though funds may be listed as seed stage funds, the majority of investments made may be in later stage companies.

- 3) *Investors are increasingly more risk averse, thereby impacting the level and type of venture capital investment.*

In the current market, there is less capital available to venture capital firms. Of the larger pension funds and endowments with a venture capital/private equity asset allocation, most concentrate primarily on large, “proven” funds and fund-of-funds. In fact, several large Texas investors do not currently have a venture capital/private equity allocation. In general, these investors are not willing to risk capital on unproven funds. This is problematic because there are relatively few established venture capital firms either within Texas or that have a concentration of venture capital investments in Texas.

Additionally, we see that the venture capital industry in general is moving toward later stage companies rather than seed and early stage investments as a means of reducing risk and accelerating returns.

Nationally, as well as in Texas, venture capital has been moving towards later stage companies and traditional private equity. As market tumult has made investors more risk averse, venture capital firms have made more investments that minimize risk. Later-stage deals are less risky, have shorter time horizons, and are less time intensive. Investing in later-stage companies also allows venture capital firms to invest larger amounts of money into a fewer number of deals, further reducing costs and needed resources.

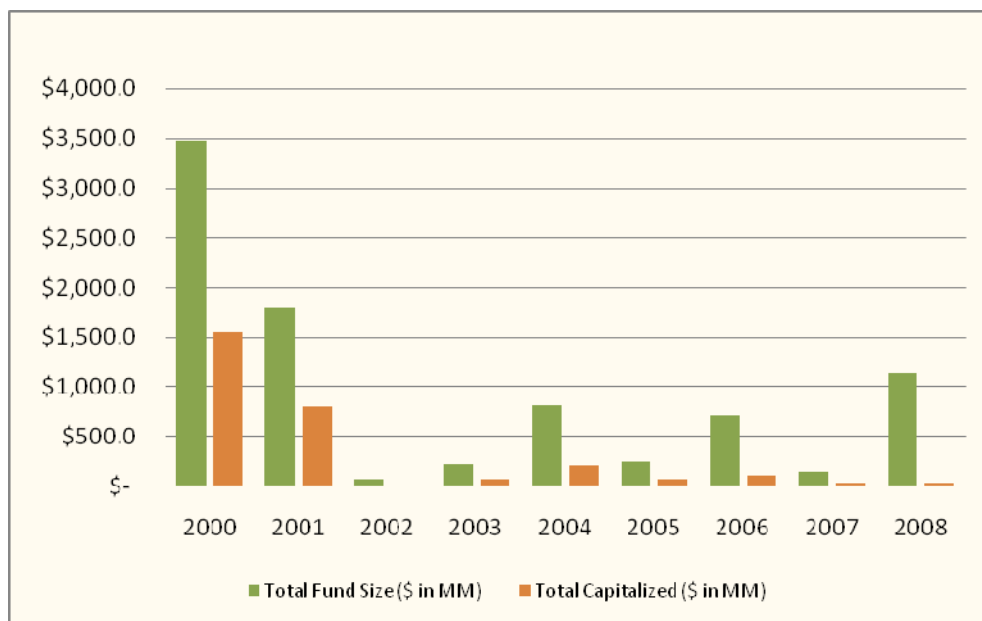
Conversely, earlier stage deals have become less attractive to investors and venture capitalists because they are more risky, require more time, and have longer time horizons. Also, growth and returns of early stage deals have diminished compared to the enormously high returns prior to the bubble burst in the early 2000s.

For these reasons, venture capital in Texas and across the nation has moved towards later stage companies.

**Of funds created in Texas, fund size is falling and funds are often not fully deployed.**

From 2000 to 2008, the size of venture capital funds (in dollars) fell dramatically, as shown in Figure 6.3 below. The spike in 2008 is attributable to a \$900 million fund raised by Austin Ventures. Amongst the other 4 funds capitalized in 2008, only \$237 million was raised.

**Figure 6.3 Size of Funds Raised and Amount of Capital Deployed in Texas, 2000-2008**



Source: Venture Economics

Interestingly, we see a trend in terms of capital raised versus capital deployed. Of the funds developed in Texas from 2000 to 2008, approximately 50% of capital raised was actually deployed into deals. This may indicate lack of quality deal flow in Texas and/or issues with managers of these funds.

**Life science, high technology and green/clean technology industries appear to be areas of venture capital growth, in spite of changes in the venture capital landscape. We see sizable deal flow in the life science and high technology industries in Texas now, and growing deal flow in green/clean technology in the future.**

### Life Science

Venture capital activity in the U.S. for life science is growing, and has been for the last 15+ years. As of 2007, the biotechnology industry was valued at \$33.6 billion nationally. It has quadrupled in size since 1992.<sup>7</sup> Growing at the annual rate of 13.95% from the year 2005, the U.S. biotechnology industry is expected to reach \$131.8 billion by the end of 2010.<sup>8</sup>

The biomedical and biotechnology industries are also growing rapidly in Texas. From 2002-2007, Texas ranked ninth in biomedical venture capital investments. Of the nation's \$51.3 billion, Texas drew \$1.3 billion in investment.<sup>9</sup> Texas is nationally ranked in the top 10 for the number of life and physical scientists employed and the number of traditional biotechnology companies located in-state.<sup>10</sup>

### High Technology

Nationally and across Texas, venture capital to high technology is growing. However, areas of investment within high technology are shifting (e.g., from semi-conductors to mobile, nanotechnology, etc.). Venture capital investments in technology increased by 6% in 2007, adding \$945 million for a total spending of \$16.9 billion and accounting for 58% of all venture investments.

Texas remains the second largest "cyber state" by technology employment, behind California and ahead of New York. In 2007, Texas ranked third in high technology venture capital investments for a total of \$1.42 billion. This represented a slight decrease, down 2% from \$1.45 billion in 2006.<sup>11</sup>

### Green/Clean Technology

The emergence of markets for clean technology over the past 10 years has been driven by a confluence of economic trends, technological advancements, and resource constraints that position clean technologies for sustained growth. As recently as 2004, the clean technology sector accounted for less than 2% of all venture investments.<sup>12</sup> In 2006, clean technology became the third largest North American venture capital investment category (11% of all investments) behind software and biotechnology.<sup>13</sup> The North American clean technology industry is estimated to grow at a 25% annual rate over the next four years.<sup>14</sup> Green/clean technology investments are also expected to grow given the proposed \$54 billion in

<sup>7</sup> Donna Clapp, "Biotechnology: The Economic Growth Engine of the 21st Century," Business Facilities (March 2007), [www.businessfacilities.com/bf\\_07\\_03\\_special1.php](http://www.businessfacilities.com/bf_07_03_special1.php)

<sup>8</sup> RNCOS, "US Biotech Market Analysis Report," (March 2007)

<sup>9</sup> "Bioscience 08," Biotechnology Industry Organization, [http://www.bio.org/local/battelle2008/TX\\_BIO\\_08.pdf](http://www.bio.org/local/battelle2008/TX_BIO_08.pdf)

<sup>10</sup> Office of the Governor, Economic Development & Tourism, "Texas Biotechnology Industry Report," (May 2008), [http://www.texasone.us/site/DocServer/Texas\\_Biotech\\_Industry\\_Report.pdf?docID=2781](http://www.texasone.us/site/DocServer/Texas_Biotech_Industry_Report.pdf?docID=2781)

<sup>11</sup> "Cyberstates 2008: A Complete State-by-State Overview of the High-Technology Industry," AeA, [http://www.aeanet.org/pressroom/prjj\\_cs2008\\_texas.asp](http://www.aeanet.org/pressroom/prjj_cs2008_texas.asp)

<sup>12</sup> Robert Celaschi, "Clean Tech Sector Sees Big Boost in Venture Capital Funding," Sacramento Business Journal (May 16, 2008), <http://sanfrancisco.bizjournals.com/sacramento/stories/2008/05/19/focus2.html>

<sup>13</sup> "CleanTech Venture Capital: How Public Policy Has Stimulated Private Investment"

<sup>14</sup> "CleanTech Venture Capital: How Public Policy Has Stimulated Private Investment"



provisions within the economic growth stimulus plan for development of renewable energy projects and improving the electric grid.<sup>15</sup>

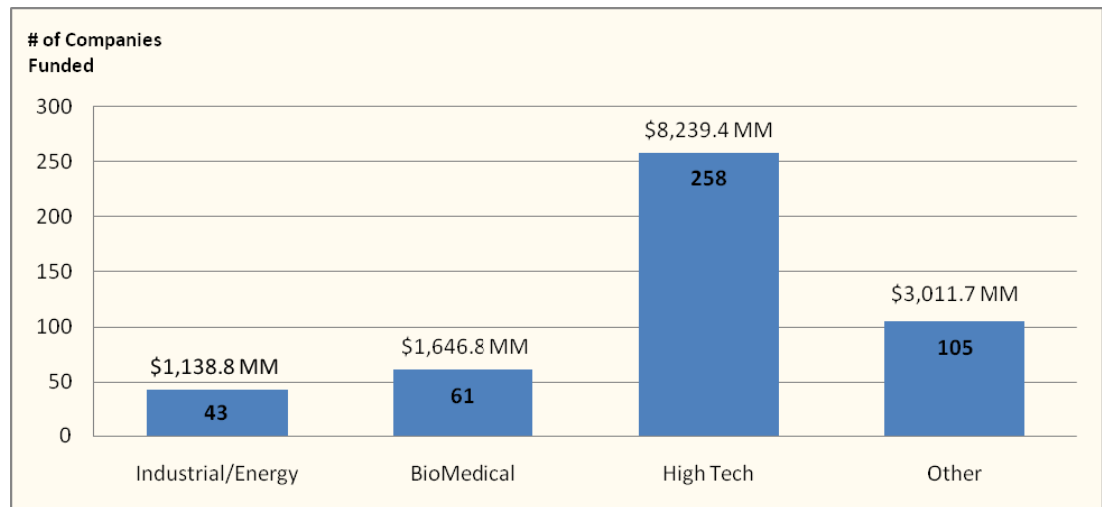
According to the Clean Tech Forum, a leading national green/clean technology association in the U.S. (rather than the Clean Tech Forum in San Antonio), since January 1, 2007, there have been 663 clean technology deals in the U.S.—50% on the West Coast; 21% in the Northeast; 6.2% in the Midwest; 5% in the Northwest; 9% in the Southwest; 5% in the Rockies and plains; and 5% in the South.

Overall in Texas, we see a desire for green/clean technology companies but a general lack of investment-worthy companies at this time. According to the Clean Tech Forum, There have been 36 clean technology deals in Texas since January 1, 2007. In some cases there have been multiple deals with one company (e.g., Heliovolt – three deals, Illuminex – two deals). Austin had 10 deals and San Antonio had none. A total of \$756 million was raised with the average amount raised at \$21 million. There are 62 deals currently looking for capital in Texas—17 in Houston, 10 in Austin, and two in San Antonio.

**Deal Flow**

When we look at companies funded in Texas from 2000 to 2008 in Figure 6.4, we see that there is sizable activity in the life science, high tech, and industrial/energy sectors. As shown below, the high technology market has the highest number of companies funded and receives the largest share of venture capital dollars within Texas.

**Figure 6.4 Number and Value of Investments by Sector, 2003-2009**



Source: *Venture Economics*

Historically, the networking, equipment, and telecommunications sectors received the majority of funding. Today, software and semiconductors account for approximately half of

<sup>15</sup> <http://sacramento.bizjournals.com/sacramento/stories/2009/01/12/daily66.html?surround=1fn>

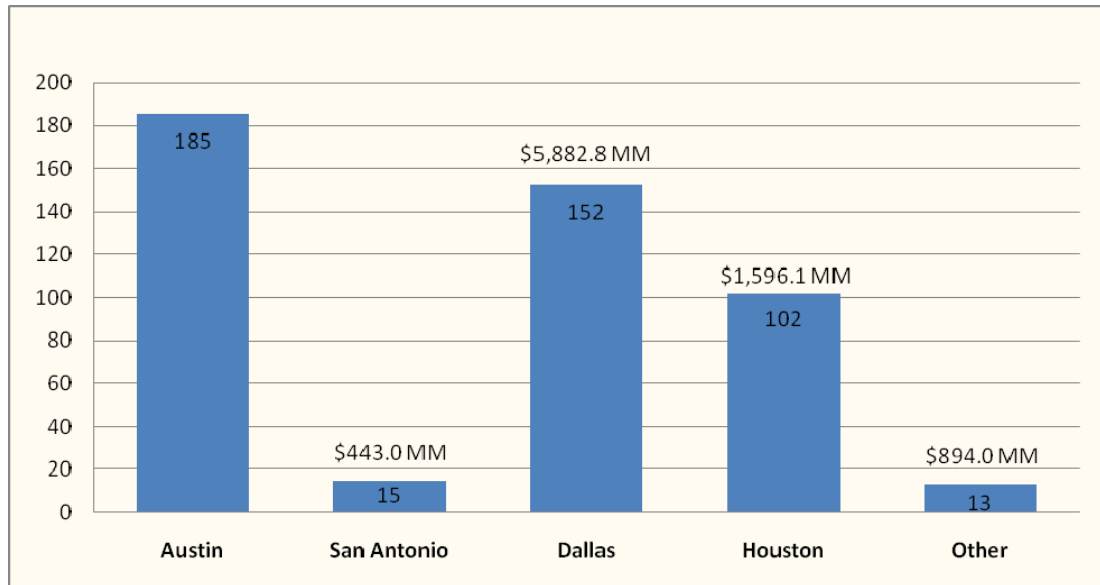
high technology venture capital dollars within Texas.<sup>16</sup> However, there is a concern that semi-conductor activity is waning in the state.

For detailed data on specific venture capital trends in life science, high technology and green/clean technology throughout Texas, see Appendices 10.6, 10.7, and 10.8.

**Different areas of Texas receive different amounts of venture capital.**

Within Texas, we see a disparity between which regions receive venture capital dollars. As shown in Figure 6.5 below, we see that Austin is the state’s leader in terms of the number of deals funded and that Dallas is the leader in the amount of venture capital dollars received. San Antonio is far behind all other regions of Texas in terms of number of deals funded and amount of venture capital dollars received.

**Figure 6.5 Number and Value of Investments by Region, 2003-2009**

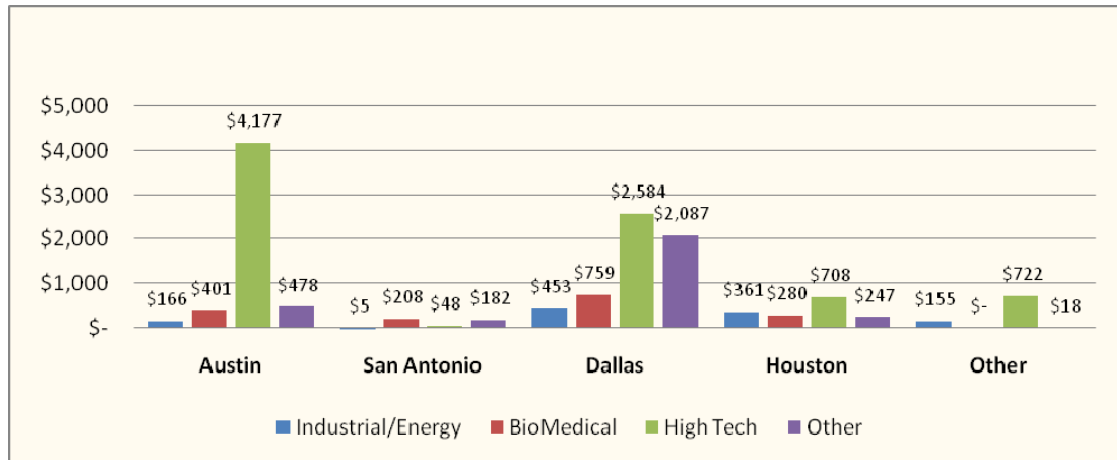


Source: *Venture Economics*

The Fund Development Team also looked at which industries in each region receive venture capital dollars. From 2003-2009, we see that most regions of Texas received the bulk of their venture capital funds for high technology. San Antonio, however, received the majority for biomedical/life science. This is in line with the deal flow assessment reported in Section 5.

<sup>16</sup> <http://www.dallasfed.org/research/swe/2007/swe0701d.cfm>

**Figure 6.6 Industry Investments by Region, 2003-2009 (\$ in millions)**



Source: Venture Economics

Taken together, this data suggests that there are a variety of venture fundable deals in the life science, high technology, and green/clean technology industries throughout Texas.

**There are venture capital firms in Texas serving life science, high tech, and clean/green technology companies**

A sample listing of venture capital firms in Texas active in these industries is provided below. Many of these firms were interviewed for this study.

Life Science

Cogene Ventures, DFJ Mercury, Emergent Technologies, First Capital Group Management, PTV Sciences, S3 Ventures, Sante Ventures, Sevin Rosen, Texas Intrepid Ventures

High Technology

Access Venture Partners, Aegis Capital Group, ARCH Venture Partners, Austin Ventures, CenterPoint Ventures, DFJ Mercury, First Capital Group Management, G-51 Capital, Hunt Ventures, HO2 Partners, Incyte Venture Partners, S3 Ventures, Sevin Rosen, Silver Creek Ventures, Startech early ventures, Triton Ventures

Green/Clean Technology

DFJ Mercury, Sevin Rosen, Yellowstone Capital

**6.2 Interviews Findings – Venture Capital Firms and Investment Bankers in Texas**

In this section, the Fund Development Team reports its findings from the 16 venture capital firms active in Texas currently.

**As reported in the Demand Assessment (see Section 5.0), venture capital firms conclude that San Antonio and Texas are underserved by venture capital.**

There is general consensus among interviewees that San Antonio and Texas are underserved by venture capital relative to other markets. Of the venture capital firms interviewed, at least 70% thought that venture capital was a top unmet need in all major Texas submarkets (San Antonio, Austin, Dallas, and Houston).

The venture capitalists interviewed cited multiple reasons for the dearth of venture capital and venture capital firms in Texas. Below is a summary of the reasons identified by venture capital interviewees.

1) *Many venture capital firms disappeared after the venture capital and technology “bubble” burst in the early 2000s.*

Many of the venture capital firms in Texas affected by the bust were young, leaving them with a short and blemished track record. This made it hard for these firms to reemerge with new funds. The prospect of the affected firms eventually growing and attracting additional capital from investors to create larger follow-on funds disappeared. The current market turmoil has compounded this problem as less capital is currently being invested into venture capital firms. With the early failure of venture capital firms in Texas, there was a loss of venture capital fund management talent that is required to attract capital. This in turn affected the overall venture capital landscape in Texas. As one venture capitalist in Austin noted, “There were about 30 firms active in Texas three or four years ago. Now we have 16. [Further], the physical number of funds in Central Texas decreased exponentially since 2000.”

2) *The loss of Texas-based venture funds had a multiplier effect.*

As one venture capitalist in Austin noted, “with many of the smaller funds disappearing, Texas experienced an exponential loss. It lost VC capital, VC talent, the potential of these funds to bring management expertise to entrepreneurs, and the prospect of follow-on funds. This phenomenon should be true for most of the country, but Texas didn’t have many funds in the first place.”

3) *Larger venture capital firms in Texas are known to be territorial.*

As smaller funds fell off, larger firms were able to monopolize markets within Texas. Several interviewees noted that these larger funds are averse to other venture capital firms entering the market. Some noted that larger firms may also have a different perception of deal flow in their region and may not see a need for more venture capital in their markets. The protectionism and perception of limited deal flow in Texas has been cited as a reason for insufficient supply of venture capital in Texas.

4) *Venture capital firms outside of Texas have sufficient deal flow in their respective regions.*

Most large venture capital firms are not located in Texas. Those firms tend to have adequate deal flow in close proximity, and therefore have not flocked to or explored opportunities in Texas to a large degree. To date, venture capital flow in Texas has been limited. As a result, out-of-town venture capital firms have not been able to get a critical mass of deals which

would make trips to Texas more efficient and attractive. This discourages venture capital investing in Texas by out-of-state firms.

**Though most venture capital firms see venture capital as a need in Texas, not all do.**

It should be noted that some of the venture capitalists interviewed did not believe venture capital was a top unmet need for entrepreneurs in Texas. These venture capitalists believed the supply of venture capital in Texas met the demand given the quality and quantity of deal flow in Texas. These venture capitalists cited lack of management talent and entrepreneurial infrastructure as reasons for lack of venture capital funding in Texas.

**Venture capitalists note deal flow in Texas and San Antonio, but cite structural issues as impediments to investing on a broad scale currently. They also see improvements in these areas, however.**

Venture capitalists note structural issues with companies in Texas as compared to companies on the East and West Coasts. Some of these issues were more pronounced in San Antonio than other areas of Texas.

Specific issues include:

1) *Venture capitalists note a lack of entrepreneurship and serial entrepreneurs in Texas.*

Several venture capitalists noted that there isn't yet a critical mass of entrepreneurs in Texas. As one Austin life science venture capitalist noted, "It all starts with people on the ground. We don't have many entrepreneurs in Texas, so there's not much VC capital." Another Austin venture capital firm specializing in high tech commented that "until you get critical mass, it will be tough" to get venture capital to Texas.

2) *Venture capitalists are concerned about the lack of senior management depth across Texas.*

Venture capitalists interviewed cited the lack of executive level management talent as a significant issue impacting investments across Texas. Of the venture capitalists commenting on management depth as an issue, 100% believe that San Antonio and Houston need more management talent, 80% believe that Dallas needs more management talent, and 66.7% believe that Austin needs more management talent. This sentiment was summed up by an Austin venture capital firm focusing on life science: "There is a limited pool of qualified management in Austin, Houston, San Antonio, and Dallas."

Though venture capitalists cited management issues as more acute in San Antonio, they also saw improvement in the city in terms of attracting and gaining entrepreneurial and management talent. Venture capitalists are also seeing more "success stories" and start-up companies emerging in San Antonio, which they noted as crucial to attracting talent and building a solid infrastructure and critical mass that is necessary to attract venture capital to the region.

3) *Venture capitalists cited lack of infrastructure as an impediment to investments in Texas.*

During interviews, infrastructure was commonly mentioned as a problem for entrepreneurs and venture capital availability in Texas. Infrastructure includes: professional networks, venture capital forums, angel investor networks, incubators, and other

resources/organizations helpful in facilitating entrepreneurial growth. All regions were cited by venture capital firms as lacking the necessary infrastructure to support significant investment currently. Venture capitalists pointed out San Antonio especially when discussing infrastructure. Entrepreneurs were likely to agree with this assessment, with many mentioning the desire for more entrepreneur-focused resources to help them grow their businesses.

4) *Most deals in San Antonio are at the early stages of development and are not yet ready for venture capital.*

Many venture capitalists interviewed noted that San Antonio is not yet ready for a concentration of venture capital. Rather, San Antonio needs more pre-seed capital to support nascent companies and generate more venture capital-fundable deal flow in the future.

5) *Much of the entrepreneurial growth in San Antonio is not appropriate for venture capital.*

Several venture capital interviewees noted that deal flow that many people cite in San Antonio and elsewhere includes non-venture fundable companies such as service-based health companies, dry cleaners, restaurants and other similar establishments. As one San Antonio incubator leader noted, “Biomedical is our largest industry, but it is mostly service-based.” An entrepreneur in San Antonio noted that although much of the previous entrepreneurial growth has been in traditional businesses, “there is a growing entrepreneurship in San Antonio from a venture standpoint.” This suggests that San Antonio’s venture capital need is growing.

### **Generally venture capitalists have no bias against San Antonio and Texas and are not averse to investing in the city and state.**

The Fund Development Team did not notice any wholesale bias against financing deals in San Antonio or other areas of Texas. Generally, entrepreneurs in Texas and each of the regions were viewed positively by interviewees. Additionally, of the Texas-based venture capital firms who commented on their activity and interest in San Antonio, 85.7% said that they were currently active or interested in becoming active in San Antonio.

Though the majority of respondents had a positive perception of San Antonio firms, not all did. The quotes below highlight the mixture of responses with regard to investing in San Antonio:

- “I don’t think there is a bias against San Antonio. I haven’t heard anything bad about San Antonio.” – *Venture Capitalist, High Technology, Dallas*
- “There has been a lot of success in San Antonio. We will go back if there are more deals.” – *Venture Capitalist, Life Science, Austin*
- “There is nothing different [about entrepreneurs] within each city” in Texas. – *Venture Capitalist, Life Science, Austin*
- “We would be interested in opening a new office in San Antonio if we saw more deals there.” – *Venture Capitalist, High Technology, Houston*

- “San Antonio has a pretty good group of entrepreneurs and innovators there. It just needs a more organized effort in terms of infrastructure, business development, etc.” – *Venture Capitalist, High Technology, Dallas*
- “There is nothing in San Antonio.” – *Entrepreneur and Investor, Multiple Technologies, Austin*
- “Other areas of Texas think San Antonio is less educated.” – *Incubator/Research Institution, Life Science, San Antonio*

**Most venture capitalists in Texas conclude that a fund-of-funds is needed to help the venture capital landscape in Texas, however some have concerns.**

Most venture capitalists in Texas who were interviewed believe that a fund-of-funds would have the following impacts on Texas venture capital and entrepreneurial landscape:

- 1) Help fill the unmet need of venture capital in Texas;
- 2) Provide an additional source of capital for venture funds in Texas that are having difficulty fundraising in the current market;
- 3) Help grow nascent, early stage, and emerging manager funds in Texas, fill the gap of seed and early stage capital, and create more potential for top-tier venture capital firms in Texas;
- 4) Provide additional management expertise to entrepreneurs and start up businesses, address the need for hands-on management and mentorship for entrepreneurs in Texas;
- 5) Attract more top tier fund managers and entrepreneurial talent to Texas; and
- 6) Create more staying power for companies in Texas, keeping ideas, technology, companies, and talent in the state.

While the majority of venture capital interviewees were positive about the idea of a fund-of-funds, some had concerns, which are provided below.

- 1) *A fund-of-funds may not be the most immediate vehicle needed, specifically for San Antonio. Rather, a fund that provides pre-seed and seed funding may be more valuable for San Antonio now.*

Some venture capitalists noted that the problem in San Antonio is not a shortage of venture capital in Texas. Instead, it is getting more companies past the pre-seed and seed stages such that they are viable for venture capital funding. As one incubator in Austin noted, “San Antonio does have a problem. It’s pre-seed capital before companies are VC viable. The issue may not be venture capital.” Generally, the interviewees expressing this concern believed that a pre-seed and seed stage fund would be more valuable than a fund-of-funds.

- 2) *There may be a short supply of quality venture funds active in Texas in which to invest.*

Some venture capitalists believe that there may not be enough funds active in Texas that are investment-worthy. Thus, a Fund-of-Funds may have trouble deploying capital into other funds active in Texas.

- 3) *Investors, particularly those in Texas, may not support such a Fund.*

This concern is further discussed the next section on investor appetite.

## 6.3 Interview Findings – National Venture Capital Firms and Associations

The Fund Development Team conducted 14 interviews with national venture capital funds (five high technology funds, four biotechnology funds, and five green/clean technology funds) and three interviews with national venture capital associations. In this section, the Fund Development Team recounts the findings from these interviews.

### Overview

Based on these interviews, the Fund Development Team found that Texas was viewed quite positively by the venture industry as compared to other areas of the country. However, San Antonio was virtually unknown by the industry. Those surveyed thought that small and mid-size funds would be interested in capital or side-by-side investments from a Multi-Tech Fund-of-Funds and that these small and mid-side funds would consider locating companies in San Antonio. Everyone surveyed was clear that all funds, regardless of size, would be happy to consider good deals coming out of San Antonio.

### State of venture investments nationally and in Texas

It should be noted that the venture industry as a whole was in a bad mood during the time these interviews were completed. In the first quarter of 2009, venture investments as a whole were down 47% in dollars and 37% in deals. This was the case across all categories. In dollars:

- Software down 42%.
- Internet down 31%.
- Telecommunications down 72%.
- Life Sciences down 40%.
- Clean Tech down 84%.

However, industry representatives surveyed were confident that the venture industry would bounce back strongly.

According to the National Venture Capital Association, Texas is well regarded by the venture industry, with a large number of success stories. The primary reasons include:

- The strong deals emerging in Texas.
- Texas's relatively business- and investment-friendly climate.

- The fact that it is relatively easy for California, Mid-West, and East Coast venture firms to get to Texas.

Texas consistently receives between 4% and 5% of the total venture funding in the nation as shown in Table 6.1 below.

**Table 6.1 Venture Funding Nationally and in Texas, 2007-2009 (Q1)**

Year	National	Texas
2007	3,952 Deals \$30.8 Billion	172 Deals \$1.4 Billion
2008	3,808 Deals \$28.3 Billion	146 Deals \$1.2 Billion
1 <sup>st</sup> Q 2009	549 Deals \$3 Billion	24 Deals \$156 Million

The story for green/clean technology reflects this pattern. Between January 1, 2007 and January 1, 2009, according to the Clean Tech Group, there have been 663 clean technology deals done:

- 50% on the West Coast.
- 21% in the Northeast.
- 9% in the Southwest
- 6.2% in the Midwest.
- 5% in the Northwest.
- 5% in the Rockies and plains.
- 5% in the South.

Texas had 5% of the deals done over the last two years – the majority of the deals were done in the Southwest. During this period, there were 36 clean technology deals done in Texas, but this does not mean that 36 companies have received investments, since some companies received multiple investments. There are 62 clean technology deals currently looking for capital in Texas – 17 in Houston, 10 in Austin, and two in San Antonio. The distribution of high technology and biotechnology venture investments is similar.

The venture capital funds and associations surveyed all indicated that they invested where ever they found good deals with strong management. The reason for the predominance of the West and East Coasts is that the largest numbers of strong deals are coming from those areas.

### **The industry is moving to a “Multi-Tech” approach**

It was interesting to discover that a number of venture funds are moving to a “multi-tech” orientation, meaning that a single fund may invest in multiple types of technology. This was particularly true for the intersection between high technology and clean technology. Smart grid investments are one very clear example of this trend. “The smart grid, defined as the ability to move electricity and data at the same time, is the key infrastructure of the future and serves as a precursor to sustainability.” This trend shows the confluence of technology and also the ability of venture funds to evaluate and be comfortable with multiple types of deals simultaneously.

### **The cluster phenomenon is important for venture capital growth in an area**

Strong deals tend to come from where other strong deals have come from. Silicon Valley in California is the best known example of this cluster phenomenon. In the mid 1990s, a number of successful computer related companies emerged in Silicon Valley, which led entrepreneurs interested in starting up new high technology companies to do so in Silicon Valley. This led to many venture capital firms relocating to or expanding their offices in Silicon Valley, thereby encouraging more entrepreneurs to locate their startups there.

The cluster effect in the business and capital markets also leads to a cluster effect in the labor market, because programmers, engineers, and other technologists realized that they would find greater job opportunities by moving to Silicon Valley. At the same time, Stanford University business and technology graduates tended to stay in Silicon Valley, finding work or starting a business, often utilizing the technology transfer of intellectual property developed at Stanford.

High technology companies and startups around the country knew they could find capital and workforce with the proper skill sets in Silicon Valley, which provided incentives for them to move there, in turn leading to more high technology workers locating there. At the same time, business (legal, accounting, marketing, PR, etc) and financial services firms have been attracted to move to Silicon Valley by the markets created by high technology businesses located there. Silicon Valley is now leveraging its high technology business cluster to generate the leading clean technology business cluster in the country.

Cost of doing business is a factor in the emergence of a business cluster and Silicon Valley is concerned because it is losing companies to other regions because of high rents, the high cost of housing, and the relatively high tax environment. The optimal situation is the combination of a vibrant business cluster within a low cost region.

To date, much of Texas has lacked such a cluster. Though Austin and Dallas are cited as the hotbeds of venture capital in Texas, neither have the same cache as the Silicon Valley, Boston, or San Diego.

### **Texas has a strong reputation within the venture industry nationally**

Texas has a good reputation within the venture industry, as surveyed by the Fund Development Team. Representative comments include:



- “We’ve had very positive results in Texas. The attitude toward business is great. The ‘wildcatter’ spirit is great. People will try things.”
- “One of our best deals is in Texas.”
- “We have many Texas deals.”
- “Typically we receive 1200 opportunities a year and 50 to 100 of those are Texas based.”
- “Texas is a particularly fertile area for high-tech, bio-tech, and clean-tech.”
- “We are pretty impressed with Texas.”

No one that the Fund Development Team talked to disliked Texas or was less inclined to make an investment because it was located in Texas.

### **San Antonio has a non-existent reputation within the venture industry**

San Antonio, on the other hand, is virtually unknown within the venture industry, as surveyed by the Fund Development Team. Representative comments include:

- “We’re not aware of any deals in San Antonio.”
- “We have no data on San Antonio.”
- “We don’t know about San Antonio.”
- “I don’t recall being approached by any deal or entrepreneur from San Antonio.”
- “We haven’t received any referrals from San Antonio.”
- “San Antonio needs to get its economic development agency involved in pursuing venture fundable businesses. We are seeing more and more economic development agencies undertaking venture attraction strategies.”

No one that the Fund Development Team talked to was prejudiced against San Antonio. San Antonio was a blank slate for them. They just had no information about deals coming out of San Antonio or about San Antonio’s venture infrastructure.

### **Venture capital firms are receptive to a San Antonio-Based Multi-Tech Venture Fund-of-Funds**

All of those surveyed by the Fund Development Team thought that small- to mid-size national venture funds would be interested in receiving capital or side-by-side investments from a San Antonio-based Multi-Tech Venture Fund-of-Funds. Larger venture funds would not have an interest in receiving capital or a side-by-side investment, though they were interested in learning of new deal flow from within Texas.

There was a lot of interest from small- to mid-size funds in receiving capital and/or side-by-side investments from a San Antonio Fund-of-Funds. Representative comments include:



- “Virtually all venture funds are looking for capital, especially now, so, if a fund-of-funds comes to them with the possibility of funding they will be interested.”
- “We would be interested in receiving investment from a San Antonio fund-of-funds.”
- “We would be open to the opportunity of receiving investment from a fund-of-funds.”
- “We are looking for capital, so we would be delighted to talk to a San Antonio fund-of-funds.”

Those surveyed also indicated that venture funds receiving capital or side-by-side investments would be very willing to look at San Antonio deals. Representative comments include:

- “We are always looking for outstanding deals with strong managements. We don’t care where they come from. We would be happy to look at deals from San Antonio.”
- “Yes, we would be willing to look at deals brought by a fund-of-funds.”
- “First access to deals would be a benefit, yes.”

Though many surveyed were interested in receiving investments from a fund-of-funds, they also expressed the need for a clear value-add relationship with any fund-of-funds from which they would receive capital or a side-by-side investment. The comments below demonstrate this sentiment:

- “How active a roll a fund-of-funds will play in their fund will be relevant. Venture funds like assistance they but don’t like meddling or attempts at control of their investment decisions.”
- “We love fund of fund players that actively contribute to our fund’s success. Invest with us. Send us deals. Help us with due diligence.”

### **National venture capital firms are willing to consider relocating their companies to San Antonio**

Those surveyed also indicated a willingness to locate companies in San Antonio and thought that San Antonio’s low-cost, business friendly environment would be a strong plus. Any assistance that a San Antonio Fund-of-Funds could provide them in understanding the virtues of San Antonio and in finding actual locations for companies would be appreciated. Representative comments include:

- “Venture, private equity, and fund-of-funds investors will locate their companies wherever there is an opportunity to grow their companies. They will be interested in any proposals that will help their companies financially, with markets, incentives, etc.”
- “Venture funds would definitely consider encouraging their companies to move to San Antonio.”

- “The cost of doing business in an area is a huge factor. It is essential to find and attract the right rank and file skills in addition to strong management.”
- “Yes. We would be willing to consider moving companies to San Antonio, based on low costs. We have done that with other locations in the past.”
- “Once north of 100 people, we will relocate companies to a metropolitan area to obtain the critical talent to grow the company. Access to sufficient critical talent is the driver. Up to 100 people, talent can typically be found in the area of origination.”
- “Yes, we would move a business - provided that San Antonio had the particular expertise that the venture required.”



## 7.0 ENTREPRENEUR BARRIER ASSESSMENT

This section describes the challenges faced by entrepreneurs in San Antonio and throughout Texas.

### 7.1 Purpose

The purpose of the Entrepreneurial Barrier Assessment is to provide the Fund Development Team with an understanding of the specific challenges entrepreneurs in San Antonio and Texas face. The assessment seeks to provide information on whether the needs of entrepreneurs in San Antonio and Texas are purely capital based or if there are other issues affecting the entrepreneurial landscape. By understanding this, the Fund Development Team can anticipate additional resources needed should a fund be launched.

### 7.2 Methodology

In order to understand the challenges that entrepreneurs in San Antonio and Texas face, the Fund Development Team asked all interviewees to describe the entrepreneurial landscape in their area and discuss the top three challenges entrepreneurs in the state face. Based on the responses obtained, the Fund Development found the results below.

### 7.3 Findings

Interviewees cited three main challenges for entrepreneurs in Texas: capital, management talent, and infrastructure.

#### **1) Capital, including venture capital, is a top need for entrepreneurs.**

As stated in Section 5.0, virtually all interviewees believe that venture capital is a top unmet need for entrepreneurs throughout the state.

#### **2) Texas currently lacks the executive level talent needed to attract venture capital on a broad scale.**

Interviewees from across the state felt that Texas lacked the management depth needed to grow companies and venture capital investing. As management is crucial to firm and investment success, the lack of management depth is a critical barrier to venture capital financing.

Based on interviewee responses, all areas of Texas could use more executive level of entrepreneurial talent, though the problem appears to be most acute in San Antonio.



**Table 7.1 Areas with Difficulty Attracting Management Talent by Area**

Interviewees Located In	Percent Who Think Their Area Has a Hard Time Attracting Management Talent
San Antonio	88.9% (18)
Austin	70% (10)
Dallas	50% (4)
Houston	75% (4)

Note: The numbers in parenthesis denote the number of all interviewees located in the corresponding region who responded to the question.

When we look at responses by organization type (entrepreneurs, venture capital firms, etc.) in Table 7.2 below, we see that all types of respondents see the need for more management. In the interviews, entrepreneurs wanted better managers in order to get up the learning curve faster and venture capitalists wanted more managers in order to get comfortable with investors. A number of interviewees noted that it is easier to compel management talent to Texas now given the current economic situation nationally. It is clear that doing so is a necessary part of growing venture capital investing in Texas.

**Table 7.2 Perception of Management Talent by Region and Organization Type**

Interviewees By Organization Type:	Percent Who Think These Areas of Texas Need More Management Talent			
	San Antonio	Austin	Dallas	Houston
Entrepreneurs	81.8% (11)	100% (2)	100% (2)	66.7% (3)
Venture Capital Firms	100% (9)	66.7% (6)	80% (5)	100% (4)
Investors	100% (2)	NA (0)	NA (0)	NA% (0)
Incubators/Research Institutions	100% (7)	80% (5)	80% (5)	100% (4)

Note: The numbers in parenthesis denote the number of all interviewees who responded to the question.

**3) Entrepreneurs would benefit from additional entrepreneurial infrastructure.**

Interviewees believe that Texas needs to further develop its entrepreneurial infrastructure in order to better equip its entrepreneurs and launch successful companies. Interviewees cited the following when discussing infrastructure: entrepreneurial networks, incubators, entrepreneur-venture capitalist collaboration, angel investor networks, and other resources. Often infrastructure in San Diego and the Silicon Valley were cited as models with strong infrastructure. As Table 7.3 below shows, interviewees believed that all areas of Texas needed stronger entrepreneurial infrastructure. San Antonio and Dallas were cited as the cities with the biggest infrastructure need.



**Table 7.3 Need for Stronger Entrepreneurial Infrastructure by Area**

Interviewees Located In	Percent Who Think Their Area Needs Stronger Entrepreneurial Infrastructure
San Antonio	90% (10)
Austin	60% (5)
Dallas	100% (4)
Houston	0% (1)

Note: The numbers in parenthesis denote the number of all interviewees located in the corresponding region who responded to the question.

When we look at the responses by organization type, we see that interviewees across all types of organizations believe that different areas of Texas could use increased entrepreneurial infrastructure. Among the major submarkets, San Antonio appears to have the greatest need, as shown in Table 7.4 below.

**Table 7.4 Perception of Entrepreneurial Infrastructure by Region and Organization Type**

Interviewees By Organization Type:	Percent Who Think These Areas of Texas Need Stronger Entrepreneurial Infrastructure			
	San Antonio	Austin	Dallas	Houston
Entrepreneurs	100% (5)	50% (2)	100% (1)	0% (1)
Venture Capital Firms	100% (4)	100% (1)	100% (1)	100% (1)
Investors	100% (3)	0% (2)	NA (0)	NA (0)
Incubators/Research Institutions	83.3% (6)	66.7% (3)	100% (3)	50% (2)

Note: The numbers in parenthesis denote the number of all interviewees who responded to the question.

Specifically, interviewees thought these additional resources would be helpful in San Antonio and Texas overall:

- Greater collaboration between existing networks, resources, incubators, investor groups
- Business mentorship for entrepreneurs
- Training entrepreneurs in venture capital
- Creation of incubator space
- Creation of entrepreneurial networks that foster collaboration among new and serial entrepreneurs

**4) Interviewees cited many factors that are helping and strengthening entrepreneurship in San Antonio and Texas.**

Universities, lower costs of doing business, and quality of life were among the factors that were credited with helping strengthen entrepreneurship in San Antonio and Texas overall.



- 1) Universities are producing many ideas and concepts that can be commercialized. These ideas create great potential for entrepreneurs in Texas.
- 2) The lower costs associated with doing business in Texas attracts businesses and talent to Texas and San Antonio. This is crucial in building a stronger entrepreneurial environment over time. Though not specifically mentioned by interviewees, the Fund Development Team presumes that lower tax burden, energy costs, rents, and wages in Texas will also be helpful to wooing growing companies into the state and keeping new companies local.
- 3) Quality of life was also mentioned as another characteristic that keeps businesses in Texas and attracts businesses and workforce talent to Texas.



## 8.0 FUND BUSINESS MODEL AND TERM SHEET

As there appears to be sufficient deal flow to support a \$100 million Alamo Multi-Tech Venture Capital Fund-of-Funds (“Multi-Tech Fund-of-Funds”), this section outlines the Fund Development Strategy going forward.

### 8.1 Investment Strategy

The Multi-Tech Fund-of-Funds will be a fund-of-funds with direct investment capabilities. Funds in which the Multi-Tech Fund-of-Funds will invest are detailed below.

#### Local Managers

The Multi-Tech Fund-of-Funds will invest in three to four venture capital funds currently located in Texas and investing in life science, high technology and green/clean technology throughout Texas. As shown in Section 6.0 of this report, there are multiple funds throughout Texas currently investing in these industries. Brooke Private Equity Advisors (BPEA), the manager of the Multi-Tech Fund-of-Funds, will conduct further research into the funds mentioned in this report, as well as others not mentioned. In selecting local fund managers for investment, BPEA will evaluate the following:

- 1) How many prior funds has the team managed and what are returns on those funds?
- 2) What deals/strategies are driving the prior funds returns?
- 3) Will the new fund have the same strategy as the prior funds?
- 4) How long has the team worked together? Any recent departures?
- 5) What is the history of the firm?
- 6) Can the fund raise enough capital to successfully implement its strategy?
- 7) What does the fund limited partner (investor) base look like?

#### National Managers

The Multi-Tech Fund-of-Funds will invest in four to five venture capital funds currently located outside of Texas and minimally involved in Texas investments currently, if at all. If invested in by the Multi-Tech Fund-of-Funds, these funds will invest in life science, high technology and green/clean technology throughout Texas. As shown in Section 6.0 of this report, there are multiple national funds that are active in these industries but have limited involvement in funds throughout Texas currently investing in these industries. BPEA will conduct research into such funds. In selecting national fund managers for investment, BPEA will use the evaluation criteria above in “Local Managers.”



### Direct Investment

A small portion of the Multi-Tech Fund-of-Funds will be used for direct investment into companies in Texas. This allows the Multi-Tech Fund-of-Funds to go into deals side-by-side with the other funds in which it invests. During the feasibility process, the Multi-Tech Fund-of-Funds Development Team has spoken with many entrepreneurs, research/incubator leaders, and other deal flow experts. It is expected that BPEA will work with these individuals and organizations to identify deals for investment. In selecting specific deals for investment, BPEA will use the evaluation criteria below.

- 1) What is the purchase price and valuation methodology?
- 2) Will the company need additional capital going forward and how will the capital be used?
- 3) Who are the co-investors and board members?
- 4) Who are the key competitors?
- 5) Who are the suppliers and customers?
- 6) What are the growth assumptions and what are the growth drivers?
- 7) What are the exit strategy and return assumptions?

## 8.2 Fund Management

The Multi-Tech Fund-of-Funds will have experienced management with a proven track record. This will provide investors with confidence and entrepreneurs with the resources they need to grow once investment is received.

### Multi-Tech Fund-of-Funds Manager

The Fund Manager will be a partnership of BPEA and SDS (a member of the Fund Development Team). Economic Innovation International and Sustainable Systems, also members of the Fund Development Team, will be consultants to the Multi-Tech Fund-of-Funds. Together, all entities are referred to as the “principals.”

Within the Fund Manager structure, BPEA will be the Investment Manager and SDS will be the Double Bottom Line Manager.

BPEA and its founders, Peter Brooke and John Brooke have established world leading venture capital and private equity investment programs for institutional investors for over 40 years.

Peter Brooke was the Founder of TA Associates and Advent International, organizations that have produced industry-leading returns throughout their history. In addition to TA Associates and Advent International, Mr. Brooke has established strategically focused venture management firms in the U.S., Europe, Asia, and Latin America.

John Brooke played an integral role in the building of Advent International and the building of Park Street Capital into one of the leading fund-of-funds managers in the United States.



The Fund Development Team, including Economic Innovation's founder Belden Daniels, has been a leader in designing and launching economically targeted private equity investment funds across the country since the early 1970s.

The combined experience of the principals in the private equity industry covers 90 years. The depth and breadth of the skills of the principals are unparalleled in the industry. The managers will bring together their collective resources to ensure that the program will be successful.

The Fund-of-Funds Investment Manager will play a pro-active role in the development of the local managers in Texas and will play a coordinating role in the efforts to source, syndicate, and execute transactions with the participating managers. The Fund-of-Funds Investment Manager has a deep relationship base on both coasts and will bring these relationships to bear in all aspects of the program. These relationships span the venture, academic, legal, finance and corporate communities.

The Fund-of-Funds Investment Manager will play both an integrating role, ensuring that each participant is utilized most effectively and will play an active role in applying its own resources for the benefit of all of the participants.

The Double Bottom Line Manager will work with the Investment Manager to ensure that the Fund's social and economic missions are being achieved in addition to the financial returns.

### **Local Office**

It is clear from the statewide interviews conducted throughout this study that an on-the-ground presence in San Antonio and Texas is critical to identifying deal flow and building relationships that will facilitate the Multi-Tech Fund-of-Funds' success. As one interviewee noted, San Antonio is an easy city to get to know, but you cannot just "parachute in and parachute out." Similar sentiments were shared by deal flow experts in other areas of the state, with regard to their specific regions. Not surprisingly, Dallas thought that there should be a Dallas local office and that Houston would need one also.

The Multi-Tech Fund-of-Funds anticipates having a single local office in San Antonio with at least one person. The local office will be responsible for deal sourcing, relationship building, initial deal intake, and providing on-the-ground management expertise to companies receiving investment. Such a local office is possible only if the Multi-Tech Fund-of-Funds reaches a minimum capitalization of \$100 million.

### **Regional Advisory Network**

The Multi-Tech Fund-of-Funds anticipates having a Statewide Advisory Committee, made up of experts in the industry sectors that a Multi-Tech Fund-of-Funds is investing in. It is expected that many on the Advisory Committee will be from San Antonio, however, not all members will be. Instead, the Fund-of-Funds Manager will seek input from people throughout the state in order to find the best deals and advice possible.

Such an Advisory Committee has no governance function for the Multi-Tech Fund-of-Funds, but rather provides advice on deal flow and the technological and market viability of



a particular investment opportunity. Such an Advisory Committee may also provide advice on the direction of an industry as a whole or on some aspect of the industry.

### 8.3 Investor Strategy

The initial investor base for the Multi-Tech Fund-of-Funds will be drawn from public and private sector leadership in San Antonio and Texas overall. It is important for key, highly-regarded local leadership to act as “champions” to enlist other corporate investors from Greater San Antonio and Texas. Without an initial commitment of \$40-50 million by those in Texas, it is unlikely that the Multi-Tech Fund-of-Funds can reach its target of \$100 million, since the program has been designed to benefit industries geographically located in the State and the City.

Once state investors have committed \$40-50 million, others from the private sector (corporate pension funds, foundations, commercial banks and individuals) will be approached. After commitments have been received from these groups, the State Pension Funds will be approached. The fact that leading national life science, high technology, and green/clean technology managers will participate in the Multi-Tech Fund-of-Funds should give the Pension Fund Trustees comfort.



## 8.4 Multi-Tech Fund-of-Funds Terms

Below are the fund terms anticipated by the Fund Development Team and Brooke Private Equity Advisors as of the date of this report. The terms of the Multi-Tech Fund-of-Funds may change as the Multi-Tech Fund-of-Funds is brought to market given changing market realities and terms.

ALAMO MULTI-TECH VENTURE CAPITAL FUND-OF-FUNDS TERM SHEET – AS OF 5/15/09	
<b>Description</b>	<p>A multi-tech venture capital fund-of-funds with direct investment capability that invests in high growth potential biomedical/biotechnology, green/clean technology, and high technology venture capital funds and entrepreneurial firms. The Multi-Tech Fund-of-Funds is intended to bring much needed venture capital to San Antonio and other areas of Texas.</p> <p>The Multi-Tech Fund-of-Funds will invest in venture capital funds that are currently active in San Antonio and Texas, as well as national funds not currently active in Texas. By investing in national funds, the Multi-Tech Fund-of-funds will help draw money from outside of Texas in to San Antonio and the state overall.</p>
<b>Location</b>	<p>San Antonio, Texas</p> <p>Multi-Tech Fund-of-Funds footprint will include the whole state of Texas. The Multi-Tech Fund-of-Funds will have a special focus on bringing venture capital to San Antonio.</p>
<b>Industries Targeted by the Multi-Tech Fund-of-Funds</b>	Biomedical, biotechnology, medical devices, high technology, green/clean technology
<b>Target Fund Size</b>	\$100 million
<b>Investment Targets</b>	<p>The Multi-Tech Fund-of-Funds will consider investments in Funds that are providing – and companies that are in need of – early stage, emerging growth companies, as well as growth companies.</p> <p>The Multi-Tech Fund-of-Funds will have a balanced portfolio including seed capital, early stage capital, growth capital, and buyout capital.</p>
<b>Typical Size of Investments into Funds &amp; Direct Investments</b>	<p>\$3 to \$7 million to funds invested in by the Multi-Tech Fund-of-Funds</p> <p>\$250,000 to \$2 million to companies receiving direct investment from the Multi-Tech Fund-of-Funds</p>
<b>Target Investors</b>	<p>Institutional Investors (banks, pension funds, insurance companies, endowments); Local high-net-worth individuals throughout Texas; Angel or VC networks throughout Texas.</p> <p>Texas-based institutional and individual investors will be central to this fund-building effort. It is expected that at least 50% of capital for the Multi-Tech Fund-of-Funds will come from Texas-based investors.</p>
<b>Investor Investment Size</b>	Minimum investment of \$1 million
<b>Fund Management</b>	<i>Investment Manager:</i> Brooke Private Equity Advisors Management, LLC



<b>Team</b>	<i>Double Bottom Line (DBL) Manager:</i> Strategic Development Solutions, LLC <i>Consultants/Advisors to Fund:</i> Economic Innovation International, Inc.; Sustainable Systems, Inc.
<b>Fund Structure</b>	At least 2/3 Fund-of-Funds Up to 1/3 for Direct Investment or Co-Investment in Entrepreneurial Firms
<b>Proposed Fund Allocation</b>	At least 2/3 of the Multi-Tech Fund-of-Funds will invest in venture capital funds that are currently serving San Antonio/Texas or are willing to consider doing so. <ul style="list-style-type: none"> <li>▪ <i>Targets for Multi-Tech Fund-of-Funds Investment:</i> A minimum of 10 to 12 portfolio funds balanced between funds active in Texas and national portfolio funds based on East and West Coasts.</li> </ul> A maximum of 1/3 of the Multi-Tech Fund-of-Funds will make direct investments or co-investments into entrepreneurial firms located in San Antonio and other areas of Texas.
<b>Fees</b>	1.25% on Committed Capital, with management fee falling after Investment Period. Anticipated fee over life of fund: 1%. Actual fee may change depending upon portfolio composition (percentage funds vs. percentage direct investments).
<b>Carried Interest</b>	10% Carried Interest after 8% Preferred Return
<b>Term of Fund</b>	Twelve Years, Plus Two One-year Extensions
<b>Investment Period</b>	Commitments to invest in funds will be made over a 3-4 year period (Fund-of-Funds); commitments to invest in companies through direct investments will be made over 4-5 year period (Direct Investments).
<b>Local Office</b>	The Multi-Tech Fund-of-Funds anticipates having a local office in San Antonio with at least one person. Such a local office is possible only if the Multi-Tech Fund-of-Funds reaches a minimum capitalization of \$100 million. The local office will be responsible for deal sourcing, relationship building, initial deal intake, and providing on-the-ground management expertise to companies receiving investment.
<b>Investment Goal</b>	Top Quartile, Industry and Sector Returns



## 9.0 CONCLUSION AND NEXT STEPS

The Fund Development Team found that Texas has strong research institutions, growing commercialization efforts, sizable deal flow, and limited venture capital availability. All of this points to the need for a venture capital fund-of-funds in the state.

Specifically, the Fund Development Team found the following:

- *The venture capital market is in flux nationally and in Texas.* Given the current market turmoil, the number of venture capital firms and funds is falling. However, venture capital investments in the life science, high technology and green/clean technology industries continue to grow.
- *There is a need for venture capital in Texas.* There are venture capital funds in the state focused on the life science, high technology and green/clean industries. However, there is a large unmet need for venture capital – particularly seed and early stage capital – throughout Texas.
- *Venture capital firms are open to a Texas fund-of-funds.* Most venture capitalists interviewed conclude that a fund-of-funds is needed to help the venture capital landscape in Texas.
- *Venture capital firms believe that Texas can support a \$100 million fund-of-funds.* Venture capital and investment banking firms also concluded that Texas can support a \$100 million fund-of-funds and favored a state-wide footprint rather than a region-specific footprint. Though San Antonio has a need for venture capital, most venture capital firms are quite clear that the San Antonio region cannot support its own \$100 million Fund-of-Funds at this time.
- *Venture capitalists are interested in investing in Texas and San Antonio.* There is no wholesale bias against investing in San Antonio or, more broadly, Texas by venture capital firms in the state or at the national level. In fact, the Fund Development Team found that Texas has a strong reputation within the venture industry nationally.
- *Texas and San Antonio are recognized for quality research and intellectual property.* Research and intellectual property creation, two harbingers of deal flow, are strong throughout Texas. Commercialization of research and intellectual property in Texas has been lacking in the past, though that is changing.
- *Quality deal flow in life science and high technology exists in Texas currently. Green/clean technology deals are minimal at this time.* Texas has quality deal flow in the life science and high technology industries currently. It aspires to have substantial deal flow in the green/clean technology field, but does not yet.
- *Though quality deals exist in Texas, finding them can be difficult.* Though deals exist throughout the state, it is difficult for outsiders – whether they be in other cities or other states – to find them. This is due to regional rivalries, a disinclination to share information, and limited entrepreneurial networks within the state.
- *There are structural issues which have impeded large scale venture capital investments to date.* Venture capital firms are aware of deal flow in Texas and San Antonio but cite structural issues – such as lack of management depth and minimal entrepreneurial infrastructure – as impediments to large scale venture capital investing in the state and city.



Though the fund-of-funds discussed in this study is broader than San Antonio alone, it is anticipated that a sizable portion of the capital for the fund will be directed to the city.

Based upon the findings detailed in this report, the Fund Development Team and Brooke Private Equity Advisors (BPEA) believe that there is an opportunity to build a \$100 million Alamo Multi-Tech Venture Fund-of-Funds that will invest in biomedical, biotechnology, high technology, and green/clean technology funds and companies in Texas.

Over the next three months, the Fund Development Team and BPEA will begin conversations with investors currently active in the Texas market in order to cultivate investments in the Multi-Tech Fund-of-Funds. If local investors commit to the Multi-Tech Fund-of-Funds, it will proceed as outlined in this report's Section 8.0.

If successful, a Multi-Tech Fund-of-Funds could contribute to long-term, sustainable, economic growth in San Antonio and Texas overall, while also putting Texas more firmly on the "venture capital map" of the U.S.



## 10.0 APPENDICES

### 10.1 Interview Questions

#### Questions for Demand Side Interviewees (Entrepreneurs, Incubators, Research Institutions)

- 1) How would you characterize the VC market in Texas? San Antonio/your area?
- 2) How available is Venture Capital funding within Texas? In San Antonio/your market?
- 3) How available are these other sources of financing in Texas/your area?
- 4) How does the level of entrepreneurial capital vary across Texas (San Antonio vs. Austin vs. Dallas vs. Houston)?
- 5) Who are the main investors/sources of financing in San Antonio/your market?
- 6) What are the barriers that firms in Texas face to obtaining venture capital funding?
- 7) Would increased access or availability of venture capital help grow businesses in Texas? San Antonio? Why has/hasn't that happened to date?
- 8) Give us a snapshot of entrepreneurship in Texas overall and your area (e.g. strong vs. weak, etc.)?
- 9) Does the perception of entrepreneurs differ in each area of Texas (San Antonio vs. Austin vs. Dallas vs. Houston)? How so? Is that changing?
- 10) What are the top 3 challenges your member face? How are they overcoming them?
- 11) Would a fund like this serve their needs? Why or why not?
- 12) Can you approximate the percentage of your members that would make use of a fund like this?
- 13) How much investment per deal could your members use per deal from a fund like this?
- 14) What else do you think someone considering the creation of a venture capital fund or fund-of-funds for Texas should know?

#### Questions for Supply Side Interviewees (Venture Capital Firms, Investment Bankers, Deal Flow Attorneys)

- 1) Are there any current and future trends that you have noticed in terms of venture capital investing within each of these geographic areas: Texas, Austin, Dallas, Houston, and San Antonio?
- 2) Is your fund a Texas-focused or Texas-only fund? If so, why? If your firm is not investing in Texas, why aren't you? Are you interested in investing in Texas based companies? If so, which particular region?



- 3) If you are already investing in San Antonio, what attracted you to the San Antonio market? Would you invest in firms there again?
- 4) If your fund was a Texas focused fund, what type of reception did you get from investors in Texas? Outside of Texas? What percent of your fund(s) is capitalized from Texas investors?
- 5) What types of investors are most active in investing in venture capital funds such as yours?
- 6) What barriers did you face in creating and capitalizing your fund(s), if any? How did you overcome these barriers?
- 7) Would a fund-of-funds like this be of interest to your firm?
- 8) What is your impression of San Antonio as a venture capital market, overall? What is your view of Texas, overall?
- 9) What do you see as strengths and weaknesses of entrepreneurs in Texas? Are there differences in entrepreneurs by geographic areas and sectors within Texas? What is the impression of entrepreneurs from San Antonio and other markets in Texas? Please explain.
- 10) What do you see in terms of deal flow in Texas? Are certain markets different than others (San Antonio vs. Austin vs. Dallas vs. Houston) in terms of quantity of deals, quality of deals, deal size, sector focus?
- 11) How many deals have you seen out of Texas, San Antonio, Austin, etc. in the last year, 2 years? What is average deal size?
- 12) Is there enough deal flow in San Antonio-Austin to support a \$100 million venture fund? What about San Antonio-Austin-Houston? If not, what is a supportable footprint?



## 10.2 Institutions Recognized in NIH and Patent Research

Below is information on the institutions recognized in Section 5.0 for their NIH and patent research.

### San Antonio

#### Southwest Research Foundation

- Southwest Research Foundation is one of the world's leading nonprofit independent biomedical research institutions. Each year, its scientists publish well over 100 articles in the international scientific literature.
- It operates on an annual budget of nearly \$55 million. Approximately two-thirds of SFBR's budget is funded by competitive, peer-reviewed grants from the National Institutes of Health and other funding agencies, while another 11% comes from contracts with biotechnology and pharmaceutical firms.
- Major research programs include studying cardiovascular disease and its associated risk factors; cancer; infectious diseases such as AIDS, hepatitis and herpes; new and emerging disease threats such as dengue, SARS and avian flu, and possible bio-terror agents like anthrax and Ebola; the role of genetics in human diseases such as heart disease, diabetes, osteoporosis, epilepsy, mental illness, and the pregnancy disorder preeclampsia; fetal growth and development; hormonal research; and behavioral medicine.

#### University of Texas Health Science Center San Antonio

- The University of Texas Health Science Center in San Antonio is considered the chief catalyst for the \$16.3 billion biosciences and health care industry in San Antonio.
- It has contributed nearly \$1.3 billion per year to the south Texas economy.
- It also accounts for approximately 12,000 jobs both on and off campus.

#### University of Texas San Antonio (UTSA)

- The University of Texas San Antonio has a variety of research programs, including seed funds for pilot projects, minority research grants, initiatives for commercialization of intellectual property, and assistance in local and state economic development through interactions with public and private parties, the military community, and industry.
- Research expenditures at UTSA increased to more than \$51.8 million in 2008, a 7.6% increase over the previous year.
- Expanding research funding goes hand in hand with UTSA's overall goal to become a doctoral/research intensive institution (at least 20 doctoral degrees a year in at least three disciplines) by 2007 and a doctoral/research extensive institution (at least 50 doctoral degrees a year in at least 15 disciplines) by 2015.
- UTSA also seeks to become one of the top 100 universities in the nation in federal research dollars by the end of the decade.



## Austin

### University of Texas Austin (UT Austin)

- The University of Texas at Austin is a major research university home to more than 50,000 students, 2,900 faculty, and 21,000 staff members.
- UT Austin is one of the nation's leading public research universities with more than 3,500 research projects, 90 research units, and annual research funding exceeding \$400 million. Some of these projects include making detailed measurements of the Earth's gravity field, developing nanospheres to deliver drugs more effectively inside the human body, documenting global warming and creating devices to quickly and effectively test AIDS patients.
- More than 400 patents have been awarded to the university since its inception.
- Licensing deals generate more than \$5 million annually for the university.

## Dallas

### University of North Texas Health Center

- The University of North Texas Health Center's (UNT) internationally-known faculty researchers are exploring new approaches to the treatment of disease, including Alzheimer's disease, cancer, women's health problems, musculoskeletal issues and health disparities. They employ advanced technologies such as nanotechnology, proteomics, and mass spectrometry.
- The Health Science Center is home to the national Osteopathic Research Center. It also holds a leadership role in technology transfer and commercialization, with partnerships such as TECH Fort Worth, Fort Worth's medical and technology business incubator.
- The UNT Center for Human Identification's DNA database is housed at the Health Science Center and it is one of the three DNA labs in the U.S. dedicated to identifying the remains of missing persons.

### University of Texas Southwestern Medical Center

- The University of Texas Southwestern Medical Center (UT Southwestern) has more than 3,500 research projects under way with more than \$360 million in annual funding. It also has more than 582,000 square feet of research space with more under construction. UT Southwestern has been protecting and licensing intellectual property for over 25 years.
- UT Southwestern has four active Nobel laureates, more than any other medical school in the world, 18 members of the National Academy of Sciences, and 21 members of its Institute of Medicine.
- UT Southwestern is raising \$500 million for medical research and clinical advances in a campaign, *Innovations in Medicine*, that will help it attract more of the world's leading scientists and clinicians and secure UT Southwestern's position at the pinnacle of international biomedical science.



- In 1999, UT Southwestern's Office for Technology Development developed a biotechnology incubator in Dallas to develop UT Southwestern's technologies and to encourage start-up companies to locate in Dallas. Since 1999, the Office for Technology Development has increased its annual revenues from \$3.5 million to over \$10 million and has helped create four UT Southwestern start-up companies that have collectively raised over \$100 million in financing from a total of 17 different biotechnology venture firms.

## Houston

### Baylor College of Medicine

- Located in the Texas Medical Center, Baylor College of Medicine (BCM) has affiliations with eight teaching hospitals, each known for medical excellence. Currently, BCM trains more than 3,000 medical, graduate, nurse anesthesia, and physician assistant students, as well as residents and post-doctoral fellows. Baylor College of Medicine has 25 departments and more than 90 research and patient-care centers.
- BCM is ranked 13<sup>th</sup> overall among the nation's top medical schools for research and 7<sup>th</sup> for primary care in U.S. News & World Report's America's Best Graduate Schools 2009. It is also ranked 13<sup>th</sup> among U.S. medical schools for research funding from the National Institutes of Health.
- Further, BCM is ranked first among all Texas colleges, universities, and medical schools in federal funding for research and development and ranked second in the nation in federal funding for research and development in the biological sciences at universities and colleges.
- During fiscal year 2008, Baylor Licensing Group executed 43 license and option agreements with companies to commercialize Baylor technologies and its activities brought in over \$8.8 million in income to Baylor.
- Areas of research interest include: Animal models of thrombosis; Antiphospholipid antibodies; Clinical Trials in Thrombosis/Hemostasis; Endothelial cell biology; Genetic epidemiology; Hemophilia; Hormonal effects on platelets; Hypercoagulability; Leukocyte biology; Platelet adhesion; Platelet aggregation; Platelet biochemistry; Platelet integrins; Platelet polymorphisms; Platelet signaling; Rheology; Thrombotic thrombocytopenic purpura (TTP); Von Willebrand factor; Coagulation factors; Diagnostics.
- Total research support equates to \$302 million, with \$241 million from federal sources.

### Rice University

- Rice University attracted more than \$100 million in fiscal 2008 for sponsored research and educational initiatives, a milestone in its 96-year history. Rice University has more than doubled the funds flowing into the university's research, education, and outreach initiatives since 2000.
- The Patent Board, a Chicago firm that ranks companies for the prowess of their properties, raised Rice University to No. 1 in the "Industry Impact" category on its first public ranking of research universities.



- On the National Science Foundation's awards list, Rice University tied for second place among private American universities in the number of CAREER Awards given out last year, with funding coming to seven professors who are just beginning to make their marks in the scientific community.
- Rice University is noted for its pioneer applied science programs in the fields of nanotechnology, artificial heart research, structural chemical analysis, and space science.
- According to the Patent Board, Rice University rose from 17th in 2007 to fifth place in 2008 in the primary category of "Technology Strength," defined as "an aggregate assessment of patents and innovation."

#### University of Houston

- At the University of Houston, faculty and students conduct world-class research at 40 research centers, laboratories and institutes and in every academic department. These include Arts & Human Enrichment, Bio-Med Sciences & Engineering, Community Advancement & Education, Complex Systems/Space Exploration, Energy & Natural Resources, Nano-Materials.
- Interdisciplinary research conducted at the University of Houston includes superconductivity, space commercialization, biomedical engineering, economics, education, petroleum exploration, and virtual technology.
- The University of Houston's Center for Industrial Partnerships fosters joint initiatives between companies and the university's research and educational resources to help solve technological challenges involved in the commercialization process.

#### University of Texas Health Science Center

- The University of Texas Health Science Center is the leading life science research institution with \$191.7 million in annual research expenditures.
- It is ranked 60<sup>th</sup> out of 535 in NIH funding of Domestic Institutions of Higher Education.
- Its core laboratories include Microarray; Proteomics; Quantitative Genomics; Developmental Biology; Genetics; Fluorescence Microscopy, Imaging; DNA Sequencing; Biobanking.

#### University of Texas MD Anderson Cancer Center

- The University of Texas MD Anderson Cancer Center's (MD Anderson) ranking as the top cancer hospital in the U.S. reflects the extraordinary research-based contributions that have been made throughout the institution's history. During the first year of the 21st century, \$185.4 million was spent for studies that span the research spectrum. The cumulative progress against cancer made at MD Anderson in the last six decades represents a research investment of approximately \$2 billion.
- MD Anderson ranks first in the number of grants awarded in recent years by both the National Cancer Institute and the American Cancer Society. There has been a 135% increase in Cancer Center Support Grant funds from the National Cancer Institute (\$27.1 million for 1998-2002 compared to \$11.5 million for the previous five-year



period) to expand shared research resources and help expedite application of emerging technologies to improve patient care.

- During the last decade, MD Anderson broadened technology development initiatives and formed new partnerships with industry. The cumulative licensing income produced by institutional inventions and discoveries increased more than six-fold from \$2 million in 1996 to \$13.5 million in 2000. Eighteen companies created as spin-offs from faculty research projects were providing an equity portfolio in excess of \$22 million at the start of the new century.

## Other Areas of Texas

### Texas A&M University

- Texas A&M University has an Office of Technology Commercialization provides services to assist entrepreneurial ventures and has processed more than 2,400 inventions created by faculty and staff.
- It has filed more than 2,700 patent applications and closed more than 1,700 License Agreements and Material Transfer Agreements.
- The university has generated revenues exceeding \$60 million related to intellectual property rights.
- It is the youngest technology transfer office in the top 25 in North America in revenues and is in the top ten in the number of license agreements producing income.
- Two-thirds of its license agreements are with small businesses. More than 50 startup companies have been formed around A&M technologies.

### Texas A&M University Health Sciences

- In 2007, Texas A&M University Health Sciences' College of Medicine saw more than \$26.5 million in research expenditures. Its current research strengths continue to expand in the areas of neuroscience, cell biology, cardiovascular and integrative biology, cancer, and infectious disease.
- From Fiscal Year (FY) 2001 to FY 2006, total research expenditures have grown more than 93.7%, the biggest occurring in private expenditures, causing the current total to be more than \$72.3 million. Research expenditures for academic units have increased 83.5% from FY 2001 to FY 2006, while the numbers of research proposals and awards have grown to be more than a combined \$184 million.

### Texas Tech University Health Science Center Lubbock

- The Texas Tech University Health Sciences Center (TTUHSC) has as its major objectives the provision of quality education and the development of academic, research, patient care and community service programs to meet the health care needs of West Texas. The service area for TTUHSC includes 108 counties or 131,000 square miles with a population of 2.6 million.
- Texas Tech University is the home of the oldest Speech-Language Pathology and Audiology program in Texas.



University of Texas Medical Branch Galveston

- The 85-acre main campus of the University of Texas Medical Branch (UTMB) at Galveston includes a complex of six hospitals, four academic schools, numerous research centers and institutes, and one of the largest medical libraries in the Southwest.
- More than 8,000 faculty and staff work at UTMB's main campus and its network of community-based clinics.
- Last year, there were more than 37,000 admissions to UTMB hospitals, nearly 764,000 outpatient visits, and almost 71,000 emergency room visits.



## 10.3 State Programs of Note

Two of the programs, Texas Emerging Technology Fund (ETF) and Proposition 15/CPRII, are described in more detail given their prominence in the state.

### Texas Emerging Technology Fund (ETF)

*Program Information:* The Texas Emerging Technology Fund (ETF) was created by the Texas Legislature at the urging of Governor Rick Perry. The \$200 million fund is designed to help create jobs and to develop the Texas economy over the long-term by expediting the development and commercialization of new technologies and attracting and creating jobs in technology fields. It couples matching and commercialization funds with federal and outside investments to support new technology in Texas. ETF focuses on three main investment areas:

- Increasing research collaboration through new Regional Centers of Innovation and Commercialization (RCIC)—The South Texas RCIC is located at the University of Texas San Antonio and is headed by James Poage of SATAI;
- Matching research grants funds; and,
- Attracting more top-notch research talent.

. The ETF Research Superiority Acquisition goal is to bring the best and brightest researchers in the world to Texas. This enables Texas academic institutions to continue to build expertise in key research areas, attract and encourage students to pursue advanced degrees in math, sciences, and engineering, and provide an invaluable resource to the community, especially fostering innovation and commercialization in our companies.

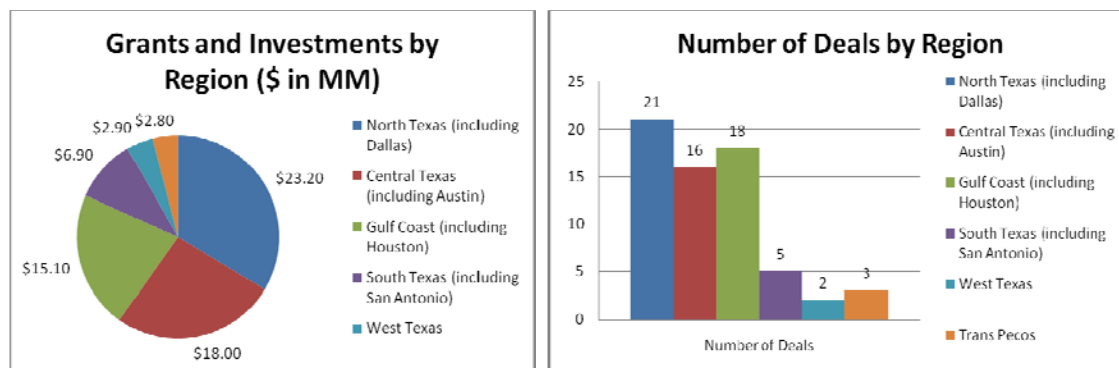
Priority for ETF Research Superiority Acquisition is given to proposals that involve scientific or technical fields that have a reasonable probability of enhancing this state's national and global economic competitiveness, may result in a medical or scientific breakthrough, are interdisciplinary, have or may attract federal and other outside funding for research superiority, and are likely to create a nationally or internationally recognized locus of research superiority.

*Founded:* The Texas Emerging Technology Fund was created by legislation in 2005 and made its first awards in 2006.

*Statistics on Projects Funded to Date:* Through March 2009, the ETF has funded approximately \$165.7 in grants and investments. Of this \$165.7 million, \$68.8 million has been invested in 65 deals, the remaining as grants. The majority of these deals (in terms of dollar and dollar volume) have been located in North Texas, Central Texas, and the Gulf Coast. The distribution of this \$68.8 million by region and industry is provided in Tables 10.1 and 10.2 below.

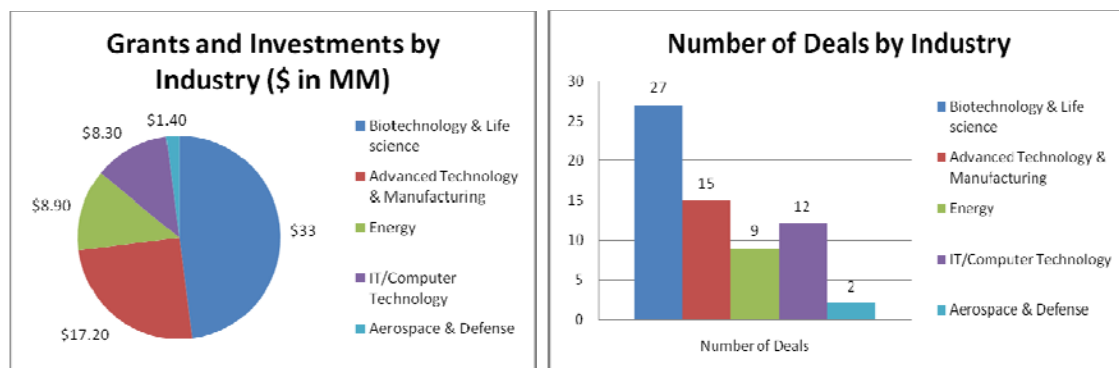


**Table 10.1 ETF Investments by Region, 2006-2009**



Of the 65 deals invested in, the majority have been in the biotechnology and life science industries. Biotechnology and life science have also taken the bulk of ETF dollars to date. The distribution by industry is provided in Table 10.2 below.

**Table 10.2 ETF Investments by Industry, 2006-2009**



Proposition 15/ Cancer Prevention and Research Institute of Texas (CPRIT)

*Program Information:* Proposition 15 is a constitutional amendment that creates the Cancer Prevention and Research Institute of Texas (CPRIT). The amendment authorizes the issuance of \$3 billion in general obligation bonds over ten years to fund grants for cancer research and prevention. CPRIT may invest the grants strategically in cancer research, clinical trials, and laboratory facility construction in Texas.

More specifically, Proposition 15 provides:

- Grants for cancer research, research facilities, and research opportunities in Texas to develop therapies, protocols, medical pharmaceuticals, or procedures for the cure or substantial mitigation of all types of cancer in humans;
- Grants for cancer prevention and control programs in Texas to mitigate the incidence of cancer; and,
- The purchase of laboratory facilities by or on behalf of a state agency or grant recipient.

*Founded:* Proposition 15 appeared on the statewide November 2007 ballot in Texas along with fifteen other statewide propositions. All of them passed.

*Projects Funded to Date:* According to the Cancer Prevention and Research Institute of Texas grants have not yet been disbursed. CRPIT anticipates distributing the first grants of the Cancer Research Initiative in mid to late 2009.



## 10.4 Networks and Resources by Industry and Area

The Fund Development Team researched incubators, research institutions, networks, and other resources available to entrepreneurs throughout Texas. Below is a breakdown of resources first by industry and then by location. The list, though extensive, is not conclusive.

### Life Science

#### San Antonio

- *Incubators/Research Institutions:* BioMed SA, Cancer Therapy and Research Center, San Antonio Technology Accelerator Initiative, South Texas Technology Management, Southwest Foundation for Biomedical Research, TEKSA, Texas Research & Technology Foundation, UT Health Science Center at San Antonio
  - *Networks:* San Antonio Austin Life Sciences Association

#### Austin

- *Incubators/Research Institutions:* BioAustin, Central Texas RCIC
- *Networks:* Austin Technology Council

#### Dallas/Fort Worth

- *Incubators/Research Institutions:* BioDFW, North Texas Enterprise Center for Medical Technology, North Texas RCIC, TECH Fort Worth, University of Arlington, University of North Texas Health Science Center at Fort Worth, University of Texas Southwestern Medical Center in Dallas
- *Networks:* Dallas Forum for Biomedical Technology
- *Other:* BioCenter Business Park at the University of Texas Southwestern Medical Center

#### Houston

- *Incubators/Research Institutions:* Alliance for Nanohealth, Baylor University, BioHouston, Gulf Coast RCIC, Houston Technology Center, Rice Alliance for Technology and Entrepreneurship

#### Texas

- *Incubators/Research Institutions:* Texas Healthcare and Bioscience Institute, Texas Life Science Foundation, Texas Life Science Center for Innovation and Commercialization

### High Technology

#### San Antonio

- *Incubators/Research Institutions:* San Antonio Technology Accelerator Initiative, Southwest Research Institute, UTSA Institute for Cyber Security/Center for Infrastructure Assurance and Security (CIAS)



Austin

- *Incubators/Research Institutions:* Austin Technology Incubator, Central Texas RCIC, Technology Innovation Group
- *Networks:* Austin Technology Council

Dallas

- *Incubators/Research Institutions:* Arlington Technology Incubator/Center for Innovation, North Texas RCIC, Tech Fort Worth, University of Texas Arlington
- *Networks:* North Texas Technology Council, Tech Alliance of Dallas

Houston

- *Incubators/Research Institutions:* Gulf Coast RCIC, Houston Technology Center, Rice Alliance for Technology and Entrepreneurship, Rice University - Richard E. Smalley Institute

Texas

- *Incubators/Research Institutions:* STARTech Foundation
- *Networks:* AeA Texas Council, Innotech, Technology Entrepreneur Exchange

**Green/Clean Technology**Austin

- *Incubators/Research Institutions:* Austin Technology Incubator, Clean Energy Incubator

Texas

- *Networks:* Biodiesel Coalition of Texas, Clean Coal Technology Foundation of Texas, The CleanTX Foundation, Texas Renewable Energies Association

**Other Non-Industry Specific Resources**San Antonio

Greater San Antonio Chamber of Commerce, South Texas Angel Network, UTSA Small Business Development Center

Austin

Austin Chamber of Commerce, Central Texas Angel Network

Dallas

Dallas Regional Chamber, North Dallas Investment Group, North Texas Angel Network

Houston

Greater Houston Partnership, Houston Angel Network



## 10.5 General Trends/Future Projections for Venture Capital in Various Regions of Texas

### San Antonio

There is a relatively small venture capital market in San Antonio compared to other Texas cities and the national landscape in general.

- San Antonio had limited deal flow compared to other cities in Texas, having only captured \$22.5 million in investments in 2007.<sup>17</sup>
- The majority of investments within San Antonio are within the life science and high technology sectors,<sup>18</sup> with the biomedical industry as the largest sector (relative to high technology and green/clean technology).
- Historically, investment into San Antonio has been dominated by Angel investors and high net-worth investors. This in combination with investments from the Emerging Technology Fund and support by industry groups such as SATAI is generating broader VC investment interested within the region.<sup>19</sup>
- The venture capital market within San Antonio may be growing. Within the third quarter of 2008, San Antonio received \$10.2 million in investments across three deals compared to \$1.9 million across two deals in the third quarter of 2007.<sup>20</sup>
- Although the number of deals within San Antonio has remained stable, the average deal size has increased.<sup>21</sup>
- While the level of overall venture capital is small but growing in San Antonio, the venture capital environment seems to be healthier in other markets across the state. The other three major Texas cities as a whole attracted about \$361.3 million in venture capital funding for roughly 37 deals in the first quarter of 2008.<sup>22</sup>

### Austin

Although Austin is the largest venture capital market within Texas, it is also seeing an overall slowdown in terms of venture capital investments.

- In 2007, Austin had more venture capital investing activity than Dallas, Houston, and San Antonio combined.
- In the fourth quarter 2008, venture capital investing in Austin hit a 10-year low.<sup>23</sup> A total of 13 companies raised \$57.1 million in the fourth quarter, according to a survey by PricewaterhouseCoopers and the National Venture Capital Association. That

<sup>17</sup> [http://www.usatoday.com/money/smallbusiness/2008-03-10-venture-capital\\_N.htm#chart](http://www.usatoday.com/money/smallbusiness/2008-03-10-venture-capital_N.htm#chart)

<sup>18</sup> Federal Reserve Bank of Dallas, "Texas Venture Capital Revived Spending Ends Prolonged Lull," Issue 1 (January/February 2007), <http://www.dallasfed.org/research/swe/2007/swe0701d.cfm>

<sup>19</sup> <http://sanantonio.bizjournals.com/sanantonio/stories/2007/12/17/story2.html>

<sup>20</sup> <http://sanantonio.bizjournals.com/sanantonio/stories/2008/11/03/story6.html>

<sup>21</sup> [http://www.usatoday.com/money/smallbusiness/2008-03-10-venture-capital\\_N.htm](http://www.usatoday.com/money/smallbusiness/2008-03-10-venture-capital_N.htm)

<sup>22</sup> Tamarind Phinisee, "Venture Capital Picture in San Antonio Shrinking, Survey Shows," San Antonio Business Journal (June 13, 2008), <http://sanantonio.bizjournals.com/sanantonio/stories/2008/06/16/story4.html?page=2>

<sup>23</sup> Lori Hawkins, "Austin Venture Investing Hits a 10-year Low," Austin American Statesman (January 26, 2009), <http://www.statesman.com/business/content/business/stories/technology/01/26//0126vc.html>



represented a 31% drop from the \$83 million raised in the third quarter and a 78% drop from the \$255.9 million raised in the same quarter the previous year.<sup>24</sup>

- For all of 2008, venture investment in Austin companies fell 48% to \$340.2 million, which was invested in 64 deals. That compares with \$658.8 million put into 79 deals in 2007. These figures represent the lowest dollar amount and the fewest deals in Austin since 1998.<sup>25</sup>
- Green/clean technology (utilizing expertise in semiconductors and energy to help drive success) is a rapidly growing sector in Austin.

## Dallas

Venture capital deal flow into Dallas is growing tremendously. Companies in Dallas received \$45.3 million in capital in the third quarter of 2007 compared to \$18.0 million the previous year.<sup>26</sup>

- Dallas has a robust venture capital community. In 2006, \$340 million in capital was raised by funds based in Dallas. This represents 34% of all capital raised in Texas.<sup>27</sup>

## Houston

Historically, venture capital into Houston severely lagged behind venture capital into Austin and Dallas. However, the funding gap has been narrowing as the total dollars flowing into Houston rises.

- Eight Houston companies raised \$74.8 million in the third quarter of 2008, while Austin companies raised \$84 million in 17 deals and Dallas raised \$107 million in nine deals.<sup>28</sup>
- Despite the general decrease in venture capital investment dollars in 2008, Houston saw an increase in investment inflow. Houston-based companies raised \$307 million across 31 deals compared with \$245 million in 28 deals in 2007.<sup>29</sup>
- In general, larger investments are occurring in fewer Houston companies. In 1997, \$247.4 million was invested in 35 Houston-area companies. In 2007, \$242.6 million was invested in 27 companies.<sup>30</sup>
- Historically, the industrial/energy and software industries have been the dominant sectors in Houston. The majority of the \$124.5 million invested in the first quarter of 2008 was directed to industrial/energy companies (54.3%) and software companies (25.9%).<sup>31</sup>

<sup>24</sup> Lori Hawkins, "Austin Venture Investing Hits a 10-year Low," Austin American Statesman (January 26, 2009), <http://www.statesman.com/business/content/business/stories/technology/01/26//0126vc.html>

<sup>25</sup> Lori Hawkins, "Austin Venture Investing Hits a 10-year Low," Austin American Statesman (January 26, 2009), <http://www.statesman.com/business/content/business/stories/technology/01/26//0126vc.html>

<sup>26</sup> <http://www.dallasnews.com/sharedcontent/dws/bus/industries/techtelecom/stories/102007dnbusventurecapitalbrf.3364ffc.html>

<sup>27</sup> [http://www.dallasnews.com/sharedcontent/dws/bus/smallbiz/stories/DN-p2VC\\_17bus.ART.State.Edition1.2af77d8.html](http://www.dallasnews.com/sharedcontent/dws/bus/smallbiz/stories/DN-p2VC_17bus.ART.State.Edition1.2af77d8.html)

<sup>28</sup> <http://houston.bizjournals.com/houston/stories/2008/11/10/story4.html>

<sup>29</sup> <http://sanantonio.bizjournals.com/houston/stories/2009/02/16/story1.html?q=san%20antonio%20venture%20capital>

<sup>30</sup> <http://houston.bizjournals.com/houston/stories/2008/03/17/daily22.html>

<sup>31</sup> <http://www.startuphouston.com/2008/05/15/venture-capital-investment-in-houston-off-to-a-strong-start-in-2008/>



## 10.6 Trends/Projections for Life Science Venture Capital by Region of Texas

### San Antonio

San Antonio is the second largest biomedical employer within Texas (behind Austin). The bioscience healthcare industry is San Antonio's top sector in terms of annual economic impact and is expected to continue its growth.<sup>32</sup>

- In 2005, this sector had sales of \$13 billion. BioMed SA, a San Antonio nonprofit, works to bring attention to such successes in order to put San Antonio on the life science map and attract venture capital to the city.<sup>33</sup>
- In 2008, this sector generated more than \$15 billion annually and consisted of 113,000 employees.<sup>34</sup>
- The San Antonio biomedical industry is further strengthened via the presence of leading research institutions (e.g., Cancer Therapy & Research Center, Southwest Foundation for Biomedical Research, University of Texas Health Science Center at San Antonio). In fact, San Antonio hosts the world's largest Phase I clinical trials program for new anti-cancer drugs, the world's largest genomics computing cluster, and the Southwest Research Institute.<sup>35</sup>
- While San Antonio is not a large national biotechnology center, it does attract some level of venture capital funds and industry attention. However, more local funding may be needed to support further growth in this industry.
  - According to the Federal Reserve Bank of Dallas, "By several measures, San Antonio has a significant amount of biotech research and development. After adjusting for size, San Antonio leads the Texas biotech metros in biotech patents classified by inventor residence. Measures of venture capital and NIH funding going into biotech in San Antonio are relatively strong."<sup>36</sup>
  - In the biotechnology industry San Antonio is considered a median metropolitan area, according to the Brookings report. "San Antonio's share was small, but it was larger than that of other Texas metros and significant given the area's size. At 0.9%, San Antonio's share of U.S. biotech venture capital was larger than Houston's (0.7%), Austin–San Marcos' (0.6%) and Dallas–Fort Worth's (0%). San Antonio received \$90.4 million; Houston, \$72.6 million; and Austin–San Marcos, \$58.4 million."<sup>37</sup>

<sup>32</sup> [http://www.businessfacilities.com/bf\\_08\\_03\\_special1.php](http://www.businessfacilities.com/bf_08_03_special1.php)

<sup>33</sup> [http://www.redorbit.com/news/health/293510/nonprofit\\_biomedical\\_promoters\\_pick\\_leader\\_from\\_san\\_antonio/](http://www.redorbit.com/news/health/293510/nonprofit_biomedical_promoters_pick_leader_from_san_antonio/)

<sup>34</sup> [http://www.businessfacilities.com/bf\\_08\\_03\\_special1.php](http://www.businessfacilities.com/bf_08_03_special1.php)

<sup>35</sup> [http://www.businessfacilities.com/bf\\_08\\_03\\_special1.php](http://www.businessfacilities.com/bf_08_03_special1.php)

<sup>36</sup> "Biotech and the San Antonio Economy," Federal Reserve Bank of Dallas, San Antonio Branch (Spring 2003), <http://www.dallasfed.org/research/vista/vista0301.pdf>

<sup>37</sup> "Biotech and the San Antonio Economy," Federal Reserve Bank of Dallas, San Antonio Branch (Spring 2003), <http://www.dallasfed.org/research/vista/vista0301.pdf>



## Austin

Austin has a growing biotechnology industry, with the City actively pushing to further develop this sector.<sup>38</sup>

- In Austin, the medical device and equipment sector received the most money in the fourth quarter of 2008, with three companies (LDR Spine USA, Spinal Restoration Inc., and BioStable Science and Engineering Inc.) raising a total of \$23.5 million. The software industry came in a close second, with six deals bringing in \$21.7 million.<sup>39</sup>

## Dallas

Dallas currently has a nascent biotechnology presence relative to Houston, Austin, and San Antonio. Dallas is home to major biotechnology research centers, such as The University of Texas Southwestern Medical Center, but is limited in terms of biotechnology entrepreneurs and local venture capitalists specializing in biotechnology.

## Houston

Houston is aiming to become a major biotechnology center on a national scale, but is not currently.

- Currently, over 140 life science companies exist within the greater-Houston area.<sup>40</sup>
- The biotechnology industry within Houston has been growing at 19% a year.<sup>41</sup>

<sup>38</sup> <http://www.otc.utexas.edu/News/New27MillionFund.jsp>

<sup>39</sup> Lori Hawkins, "Austin Venture Investing Hits a 10-year Low," Austin American Statesman (January 26, 2009), <http://www.statesman.com/business/content/business/stories/technology/01/26//0126vc.html>

<sup>40</sup> <http://houstonstrategies.blogspot.com/2008/06/can-houston-become-major-biotech-center.html>

<sup>41</sup> [http://www.chron.com/CDA/archives/archive.mpl?id=2005\\_3841516](http://www.chron.com/CDA/archives/archive.mpl?id=2005_3841516)



## 10.7 High Technology Venture Capital by Region of Texas

### San Antonio

San Antonio's technology industry is having difficulty finding venture capitalists to invest in their ideas and initiatives. Of the \$30 billion in venture capital funds that will be committed nationwide, San Antonio will see about \$40 million of those funds.

- In 2006, San Antonio had 1,306 high technology employers.<sup>42</sup>
- Within the high technology industry, San Antonio has an emphasis on the information security sector. The city has the largest concentration of information security experts outside of Washington D.C.<sup>43</sup>
- One of the largest investments in 2008 was \$100 million invested in Pocket Communications NorthEast which is located in San Antonio.<sup>44</sup>

### Austin

Austin is considered one of the country's high technology centers, though it still trails other leading technology centers in volume and technology diversity.

- Though Austin is considered one of the country's high technology venture capital centers, it trails San Jose, Boston, and San Francisco by a significant amount.<sup>45</sup> In 2005, San Jose had 26% of total U.S. venture capital. Boston came in second with 9.5%, San Francisco had 8.5%, and Austin had only 1.9%.
- While Austin has proven it can grow with a much smaller supply of venture capital (only \$403 million in 2005), it remains a challenge if the city is to become a high technology superpower.<sup>46</sup>
- Austin is more susceptible to fluctuations in the economy than other high technology cities because its high technology sector has historically focused on semiconductors and computer manufacturing. This specialization has both helped and hurt Austin. In the first half of the 1990s, employment growth rates in Austin's semiconductor industry were substantially higher than in overall high technology. However, in the second half of the decade, semiconductor growth rates fell below those of overall high technology growth. In 1997 and 1998, computer manufacturing soared above overall high technology and semiconductor growth rates, reaching 19.7%.<sup>47</sup>

### Dallas

Dallas is a dominant player in the high technology industry and a major player among its Texas counterparts. According to the City of Dallas Office of Economic Development,

<sup>42</sup> [http://www.mysanantonio.com/business/MYSA062508\\_1D\\_SATech\\_2103682\\_html.html](http://www.mysanantonio.com/business/MYSA062508_1D_SATech_2103682_html.html)

<sup>43</sup> <http://www.expansionmanagement.com/cmd/articleDetail/articleid/15722/default.asp>

<sup>44</sup> <http://techblog.dallasnews.com/archives/2009/01/solar-energy-startup-companies.html>

<sup>45</sup> Federal Reserve Bank of Dallas, <http://www.dallasfed.org/research/vista/vista0601.html>

<sup>46</sup> Federal Reserve Bank of Dallas, <http://www.dallasfed.org/research/vista/vista0601.html>

<sup>47</sup> Federal Reserve Bank of Dallas, <http://www.dallasfed.org/research/vista/vista0601.html>



over half of Texas' high technology talent is located in the Dallas Metropolitan area, creating the state's deepest technology labor pool.<sup>48</sup>

- Historically, Dallas has been a strong player in telecommunications. Dallas-based telecommunication companies received \$62.7 million in investments in the first quarter of 2007, compared to \$10.3 million the previous year.<sup>49</sup>
- Dallas is focusing on becoming a major player in the nanotechnology space. Backed by the Texas Nanotechnology Initiative, key researches in the field, and an inflow of venture capital money, venture capitalists expected that \$1 billion was invested in developing and applying nanotech Dallas-based companies between 2002 and 2007.<sup>50</sup>

## Houston

Houston's high technology sector is slowly growing, but is fairly strong in niche technology industries such as nanotechnology, information technology, and space science.<sup>51</sup>

- In 2004, over 300 software development companies were based in Houston. These firms generated over \$4.2 billion in annual revenue and employed approximately 50,000 individuals.<sup>52</sup>
- During the first quarter of 2008, approximately \$32.3 million in funding was provided to software companies.<sup>53</sup>

<sup>48</sup> [http://www.dallas-ecodev.org/images/dallas\\_data/strategic/economic\\_profile/2008\\_profile\\_trends.pdf](http://www.dallas-ecodev.org/images/dallas_data/strategic/economic_profile/2008_profile_trends.pdf)

<sup>49</sup> [http://www.dallasnews.com/sharedcontent/dws/bus/stories/DN-venture\\_24bus.ART.State.Edition1.3664fa8.html](http://www.dallasnews.com/sharedcontent/dws/bus/stories/DN-venture_24bus.ART.State.Edition1.3664fa8.html)

<sup>50</sup> <http://www.thedeal.com/servlet/ContentServer?pagename=TheDeal/TDDArticle/TDStandardArticle&bn=NULL&c=TDDArticle&cid=1019496837625>

<sup>51</sup> <http://career-resources.dice.com/it-job-market/Q1-2006/houston.shtml>

<sup>52</sup> <http://www.houstontech.org/en/art/?74>

<sup>53</sup> <http://www.startuphouston.com/2008/05/15/venture-capital-investment-in-houston-off-to-a-strong-start-in-2008/>



## 10.8 Green/Clean Technology Venture Capital by Region of Texas

Nationally and across Texas, green/clean technology sectors are growing tremendously. However, this sector is relatively new and its technology can tend toward the unproven and/or not yet financially viable.

### San Antonio

There is not much information on venture capital in the green/clean technology industry in San Antonio, though there is evidence of growing activity and interest in green/clean technology companies in the region.

### Austin

Austin is considered to be the number one incubator for green/clean technologies in Texas as a result of strong government support, deep academic and federal research ties, and access to venture capital dollars.

- Austin's Clean Energy Incubator at the University of Texas-Austin was formed in 2001 to speed the development of clean technology solutions.<sup>54</sup> It holds a Clean Energy Venture Summit annually to help showcase Austin's emerging clean technology companies and drive national recognition of Austin as a hub of the clean technology industry.<sup>55</sup>
- In December 2008, Austin announced the launch of the Pecan Street Project which will focus on designing and developing a new clean energy infrastructure. Although many other cities throughout the nation have introduced similar efforts, Austin provides a unique atmosphere for success as a result of the existing city council support and independent power grid infrastructure that enables changes without federal approval.<sup>56</sup>
- Despite the promising environment for green/clean technologies, Austin has seen limited venture capital flow. Austin-based companies received \$71 million in venture capital funding in 2006 and \$101 million in funding in 2007.<sup>57 58</sup>
- Currently, two clean-technology focused venture capital firms (Quercus Trust and 21Ventures) are seeking to invest primarily in University of Texas-Austin developed clean technology solutions.<sup>59</sup>

### Dallas

Dallas appears to have a low volume of green/clean activity to date.

<sup>54</sup> <http://www.sustainlane.us/articles/cleantech.jsp>

<sup>55</sup> <http://www.anthonymbarnum.com/documents/Buzz.pdf>

<sup>56</sup> [http://www.enewsbuilder.net/techbytes/e\\_article001301359.cfm?x=b11,0,w](http://www.enewsbuilder.net/techbytes/e_article001301359.cfm?x=b11,0,w)

<sup>57</sup> <http://www.anthonymbarnum.com/documents/Buzz.pdf>

<sup>58</sup> <http://www.statesman.com/business/content/business/stories/other/02/04/0204cleantech.html>

<sup>59</sup> [http://www.statesman.com/blogs/content/shared-gen/blogs/austin/startups/entries/2009/01/11/it\\_turns\\_out\\_quercus\\_trust.html](http://www.statesman.com/blogs/content/shared-gen/blogs/austin/startups/entries/2009/01/11/it_turns_out_quercus_trust.html)



- The Dallas City Council is attempting to foster the development of clean technology solutions. In 2004, the City of Dallas approved a \$9 million contract to TAC Americas Inc., a major supplier of building automation equipment, for the design and building of energy conservation related projects.
- Limited clean technology company presence seems to exist within Dallas. One major company, BroadStar, focuses on the development of wind energy solutions.<sup>60</sup>

## Houston

Houston has a small but growing level of green/clean technology.

- Houston saw limited clean technology deal flow in the third quarter of 2008. However, technology investments into this sector were still substantial due to corporate research and development investments. For instance, in 2007, ConocoPhillips doubled its technology budget from \$250 million to \$500 million.<sup>61</sup>
- According to the Rice Alliance for Technology and Entrepreneurship, three of the 10 most promising energy and clean technology companies are based in Houston.<sup>62</sup>

<sup>60</sup> <http://cleantech.com/news/2919/race-for-affordable-wind>

<sup>61</sup> <http://houston.bizjournals.com/houston/stories/2008/11/10/story4.html>

<sup>62</sup> [http://houston.dbusinessnews.com/shownews.php?newsid=135765&type\\_news=latest](http://houston.dbusinessnews.com/shownews.php?newsid=135765&type_news=latest)

