STATE OF HOUSTON'S

TECH AND INNOVATION LANDSCAPE

GREATER HOUSTON PARTNERSHIP®

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If you have any questions, please feel free to reach out to the Greater Houston Partnership.

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Houston is a city that solves problems.

The region's core industries are critical to today's society and have been pushing the limits of what's possible for over a century. Houston put a man on the moon. Houston pioneered the artificial heart. Houston enables the US to seek energy independence.

Today, that problem-solving spirit manifests itself as a culture of innovation. From major corporations to startups, and from investors and accelerators to universities, Houston has a unique tapestry of tech and innovation that sees problems and finds solutions.

Not only does Houston solve problems – it solves them at scale. The infrastructure of the region provides the physical ability to grow. The diversity and global nature of the city welcome anyone and help businesses connect to the world. The business environment is friendly to growth. And the institutional knowledge of large-scale solutions allows for companies to succeed.

This report aims to guide the reader through Houston's tech and innovation ecosystem. For the purposes of this report, tech and innovation encompass any high-growth, high-impact solutions to problems – whether in a startup or a corporation, whether software or hardware, whether technical or non-technical.

For those in Houston, whether at a startup or working in tech and innovation at a large company, this report should instill confidence that Houston has what is needed for tech born here to grow here, and for companies looking to expand their innovation work to do it in Houston.

For those outside Houston, this report should serve as an introduction to what Houston's innovation landscape is, and how to best navigate it. It should help companies of any size see themselves moving to Houston, and it should help investors looking to deploy capital see opportunities to do so in Houston.

The lists of startup resources and investors give entrepreneurs and would-be-entrepreneurs guides on what they can tap into for success, while the startup profiles serve as templates and stories of what's possible in Houston. The information on talent and universities shows the workforce companies can utilize to grow. The details of corporate innovation show the problem-solving capabilities of the region.

While there are a lot of positives, this report also points out gaps in the ecosystem and room for potential growth going forward.

Executive Summary

Does Houston have "tech"?

The biggest takeaway from this report should be that the answer to this question is, and for decades has been, yes. Houston's core industries of energy, health and life sciences, and aerospace are rapidly innovating and growing, and Houston is home to that innovation. The region is home to a mix of major tech corporations who have grown here and offices of name brand tech companies. The region's startup ecosystem is expanding.

How can Houston capitalize on the rapid digitization of many industries and the growth of the artificial intelligence market?

Houston is home to the headquarters of 24 Fortune 500 companies, 45 Fortune 1000 companies, 29 Forbes Global 2000 companies, and thousands of other corporations. As these companies grow their technology teams to digitize operations, implement artificial intelligence, and support the back end of their businesses, those teams need to be in Houston.

In tandem with this, the startups which are developing products to help these corporations digitize need to be in Houston. The region has unique industry knowledge and the customer bases these companies are looking to access. When that is paired with the business-friendly atmosphere, no place is better for these startups.

What opportunities for growth exist in Houston's tech landscape?

The greatest opportunity for growth comes from where we are already strongest – innovation in our existing industries. Houston is leading the energy transition, revolutionizing patient care and the life sciences, and bringing the U.S. back to the moon and beyond. Whether it is startups, researchers at universities, or major corporations progressing in these fields, Houston needs to be where those innovations happen.

While the startups and innovation in Houston's core industries are important, it is also critical to foster the companies outside those traditional verticals, where new clusters can form. That includes both opportunities tangential to or at the intersection of existing industries such as synthetic biology, as well as emerging verticals in Houston like PropTech, FinTech, and Logistics Tech.

Houston's third channel for growth is to be where others grow. Houston is where innovation and opportunity meet scale. Houston offers a unique value proposition that makes it well suited for many companies looking to scale. The region has a low cost of doing business driven by affordable office space, industrial space, and talent; the region has experience and expertise in growing operations to commercial scales; the region has the infrastructure and access to help companies reach new markets; and the region has corporations and others working at scale to lean on as customers, suppliers, or partners. If a startup is looking to open manufacturing facilities, access major corporate clients, launch to international markets from the US, access the US market from abroad, or scale in any other way, Houston is the best place to do this.

The final major growth opportunity for Houston is increasing the presence of "Big Tech" - Google, Amazon, Microsoft, and others. While many companies have opened offices in recent years (43% of the tech companies in the Fortune 500 have some level of corporate presence in Houston), there is room for additional companies to enter the market, as well as for those in the region to have a more technical presence. While Houston excels in sales and operations for these companies, bringing in more technical and engineering talent has more potential to spill over to startups & other innovators.

What can be done to accelerate Houston's startup landscape growth?

As is true in any situation, there are countless things that can be done to help grow Houston's startup ecosystem. However, there are 2 key measures that would make substantial change and are achievable in the near future: activating more local capital into angel and venture investing, and creating pathways for more mentorship and knowledge sharing within the startup ecosystem.

Houston suffers from a lack of local venture capital, especially at the earliest stages of investment. Furthermore, the capital that is here underinvests in local startups. The region needs to see more early stage investors based here, and one of the biggest things that will help spur fund formation is if local capital from high-net worth individuals, institutional investors, and corporations is willing to invest in venture.

As a result of Houston's relatively muted startup activity historically, the region has less seasoned tech entrepreneurs who can mentor current founders. However, the city has entrepreneurial individuals from other industries whose knowledge and advice can be helpful to current entrepreneurs. Additionally, the pool of tech founders in Houston is rapidly growing, therefore growing the pool of potential mentors. Channels for this knowledge sharing to occur, whether formally or informally, will help more Houston startups succeed.

A number of growing Houston startups appear poised to exit, which should help solve both of these points. The exits will provide returns to local investors & founders, giving them capital to invest in the next wave of startups. They will also be a positive signal to investors outside the region of success coming from Houston, spurring additional interest. Finally, the exits will help create a larger pool of founders and early employees who have had the "full startup experience" and can help mentor others. However, these exits are not a "silver bullet," and additional work should be done to activate capital and encourage mentorship.

How can someone get involved with Houston's innovation ecosystem?

Anyone has the potential to support and engage with the innovation ecosystem. Those with ideas for startups should feel empowered to become entrepreneurs, knowing Houston has the resources to support new companies. Talent looking for new opportunities should feel comfortable working in startups. While not every startup succeeds, there are Houston companies that find success, such as Compaq, FlightAware, or Cart.com, and there are enough Houston startups that there are always new opportunities to jump into. Corporate decision makers should feel confident to seek opportunities to work with startups in Houston, whether engaging them as customers, suppliers, or partners, in contracts or pilot programs.

Corporate Innovation

The core of Houston's innovation throughout time has been based in the corporate presence of our key industries – energy, healthcare, and space. As a result, this has led to Houston not always being associated with "tech" in the same way that regions like the Bay Area or Boston have been, but these are each industries to which innovation is core.

In addition to the industry-related innovation within these industries, they also provide hubs for digital tech workforce in the region. Regardless of industry, major corporations rely on skilled IT, software, and development teams to keep day-to-day operations running and advance companies' functionality.

Along with the direct innovations corporations provide, they are also a source of potential company founders. Many of Houston's founders start their careers in corporations, learn about the challenges and opportunities facing industries, and then start their own companies.

Innovative corporations also provide opportunities for startups. Corporations can be partners, for deploying and scaling innovations; customers, for B2B technologies; and funders, through CVC, acquisitions, or other financing mechanisms.

Energy

Houston is well known as the Energy Capital of the World, and for good reason. Ever since oil was struck at Spindletop in 1901, Houston has seen massive growth in the energy industry. Paired with this growth has been groundbreaking innovation, every step of the way.

Spindletop and other oil discoveries in the early 20th century led to massive growth in the oil industry and massive growth in Houston. This Texas oil boom quickly led to the U.S. becoming the top producer of petroleum globally, and by 1940 Texas was the top U.S. producer of petroleum. That boom for both the oil industry and the Houston economy continued throughout the second half of the century, driven by a variety of factors including various geo-political crises and changes in oil production levels and prices. By 1980, energy companies had grown to directly employ more than 170,000 individuals.

Houston was one of the main beneficiaries of all this growth. The Port of Houston and the Houston Ship Channel allowed for major industrial development in the area, and the proximity of Houston to the oil discoveries encouraged industry to set up offices and businesses here. The population in the region continued to soar. Greater Houston grew over 45% each decade from 1900 until 1980, bringing the region from around 44,000 in population to nearly three million people, and making Houston the fifth largest city in the country at the time.

Paired with this growth in the energy industry and in Houston was rapid innovation in the industry. To help support safer and more efficient drilling at the advent of oil production, companies came up with inventions such as the rotary drilling bit and blowout preventers. With time, the industry switched from steam-powered drilling rigs to diesel, natural gas, or even electric power. As offshore oil was discovered, underwater wells were developed, and eventually offshore oil rigs were invented to work in the Gulf of Mexico. As all of this was being invented, 2D seismic testing came into practice as a way to locate oil reserves with more accuracy.

Going into the second half of the century, 3D seismic testing and horizontal drilling emerged, allowing for more accurate drilling and more oil to be produced from a single well, which reduced the environmental impact and cost of drilling.

In recent years, digitization of the oil field has taken hold of the industry. Through a vast upturn in the number of sensors and data-collecting devices in the oil field, energy companies are now taking in and processing more information than ever before. This helps them map reservoirs, monitor assets, conduct preventive maintenance, and more throughout the oil field.

The other major innovation of recent years was hydraulic fracturing, or fracking. The process helps companies extract oil and natural gas from shale or other tight rock formations, by injecting a mixture of water, sand, and chemicals into a well to crack the rocks and release the oil and gas.

While fracking was not invented in Houston, nor frequently done in the Houston region, it was energy companies in the area that rapidly scaled the deployment and use of fracking, and have continued to innovate the process to bring more efficiencies.

The ‘U.S. Shale Revolution” that came with fracking was also a major boom for Houston’s economy. The production method has brought the U.S. into a position as a leading oil and gas producer, reducing the need for imports from foreign suppliers. The shale revolution largely helped Houston avoid the worst of the Great Recession, due to the newfound growth in the energy sector.

In a highly correlated field, innovation in the petrochemical production industry has flowed through Houston. The first oil refinery in Houston was built by Sinclair Refining in 1918, and since then, the industry has continued to boom. Today, that refinery is owned and operated by LyondellBasell, and it is joined by 11 other refineries processing 2.8 million barrels of oil per day.

The refining industry is complemented by chemical production, which has grown steadily since the turn of the 20th century.

Today there are over 600 chemical manufacturing establishments in the region, employing over 40,000 individuals. The region accounts for 41.5% of the nation’s overall petrochemicals manufacturing capacity, at 33.9M metric tons per year.

This industry has been defined by innovation – finding new ways to make new compounds from new inputs. Large amounts of this innovation have come through the Houston region – for example, Monsanto had their entire R&D department operating out of their Texas City chemical plant. Manufacturing plants in Houston pioneered the commercial-scale production of synthetic rubber & synthetic ammonia.

The other recent advancements in corporate energy innovation have been in the push toward more sustainable and renewable sources of energy. Existing oil and gas companies have pivoted or expanded to address clean energy sources, either by helping to spur innovation in startups or by increasing their internal focus on renewable innovation.

Additionally, new energy companies have sprung up, with a complete focus on energy. For example, Sunnova Energy was founded in 2012 and quickly grew to become one of the largest residential solar service providers in the country. The company’s initial innovation was to make solar more accessible for residential customers, by reducing upfront costs to homeowners and instead letting them simply purchase the energy produced by the solar system.

Today, the energy and petrochemical industry is continuing to advance innovation. There are over 15 R&D centers run by energy corporations in Houston.

Baker Hughes Center for Technology Innovation has existed for over 15 years and facilitates engineering collaboration and testing. The center has the capacity for High Pressure High Temperature testing, up to 40,000 PSI and 700ºF. It also houses materials development laboratories, where scientists are finding new materials for Baker Hughes solutions.

BP's Center for High Performance Computing houses one of the world's most powerful supercomputers, which supports digital innovation across BP, including in seismic technology, reservoir engineering, applied sciences, and molecular biology. The computer can do 21 quadrillion operations per second, with the storage capacity of over 90,000 iPhones. During the COVID pandemic, the computer was used to advance research to limit the spread of the pandemic.

ExxonMobil's Baytown Technology and Engineering Complex is the company's primary global technology center, with over 740,000 square feet of space for offices, laboratories, product and applications testing, and pilot plant operations. The complex employs over 800 employees and contractors, who are continuously discovering and perfecting new product lines for ExxonMobil.

LyondellBasell's Houston Technology Center serves as a research and development center to advance process technologies and chemical catalysts for LyondellBasell's global intermediates and derivatives businesses. The site uses miniature pilots to simulate new processes, looking to reduce costs, improve efficiency, and improve sustainability.

The Shell Technology Center Houston (STCH) is a 200-acre campus with 44 buildings and around 2,000 personnel working to find solutions for current and future energy challenges. It is home to 6 of Shell's 11 chief scientists. STCH drives innovation across information technology, catalyst development, biotechnology, and more.

SLB's Houston INNOVATION FACTORI, based in The Ion, allows SLB experts to work with customers to accelerate the adoption of digital technologies that can improve workflows. The center's world-class team of domain data and AI experts is dedicated to finding customer-oriented, customized solutions.

The ConocoPhillips Center drives innovation in the company, working to digitize their business, optimize LNG technology, and promote global water sustainability in ConocoPhillips' operations and beyond.

Halliburton's North Belt Campus and TechnipFMC's Gremp Campus house research divisions for each company, helping them push forward innovation internally and in collaboration with partners.

The Dow Texas Innovation Center is a global research and development hub for Dow Chemical Company, advancing the company's innovation across its areas of expertise, including catalysis and synthesis, digitization and computation, formulation science, materials engineering and modeling. The efforts also push forward sustainability at Dow, as 89% of their R&D profile is aligned with one of Dow's sustainability areas of focus.

BASF's Corporate Research Center in Houston houses the company's engineering and technical expertise team, supporting the company's operating divisions to find custom solutions for internal needs. BASF also has a supercomputer, Quriosity, that was built by HPE in Houston.

Sinopec Tech Houston Center is the company's first research center in the U.S. and is focused on innovating in three areas of research – Petroleum Engineering, Exploration & Production, and Petrochemicals.

These hubs represent just a portion of the innovation happening in the energy industry in Houston. While these locations provide dedicated personnel, space, and resources to advancing technology, employees throughout energy companies are constantly innovating as they create solutions to the day-to-day problems they face.

Innovation in the petrochemical industry today also revolves around finding more sustainable ways to produce existing products.

Along the Houston Ship Channel, World Energy is converting its biodiesel facility into a sustainable aviation fuel (SAF) hub, which will have the capacity to produce 250 million gallons of SAF annually by 2025.

ExxonMobil is retrofitting its Baytown Olefins Plant, the largest ethylene plant in the world, to produce and run on hydrogen. The plant will produce over 1 billion cubic feet per day of hydrogen, capture up to 7 million tons of CO2 per year, and reduce site-wide CO2 emissions by up to 30%.

Energy & Chemicals

QUICK STATS

Energy & Industrial Engineering Talent:

40,170

Chemical production capacity:

33.9M metric tons per year, 62.5% of US total

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Corporate Energy R&D Centers

Health & Life Sciences

The Texas Medical Center was established in 1945, and around the same time, a number of healthcare institutions were constructed and opened to join existing facilities in the region. Since then, the center has grown to include 54 medical institutions, including 21 hospitals, eight academic and research institutions, four medical schools, seven nursing schools, and more. The medical center serves over 10 million patients annually, and today is the world's largest medical center. It also leads in several specialty fields, such as heart care and cancer research and care.

This concentration and quantity of medical care and research has led to Houston being a leader in healthcare and life sciences innovation. Historically, the Medical Center has been focused on research, learning, and patient care with MD Anderson Hospital for Cancer Research as one of the first institutions opened on the campus, along with Baylor College of Medicine and the Texas Medical Center Library.

One example of Houston's leadership in healthcare innovation was the progress made in artificial heart technology at the TMC. Houston saw the first clinical application of a mechanical assistive device for the heart and continuous improvement in the space. Then, in 1969, the first clinical implantation of an artificial heart was performed by Domingo Liotta and Denton Cooley in 1969 at the Texas Heart Institute.

Progress on the artificial heart defined the rivalry between Denton Cooley and Michael DeBakey, and this rivalry pushed both men to progress the device and the cardiovascular care able to be provided.

The artificial heart is just an example of the progress made in Houston in healthcare. Since the late 1940s, the city has led in research, scholarly work, and clinical implementations of cutting-edge care, whether that consists of new medical devices, new surgeries and procedures, or new operating practices to improve efficiency and effectiveness of medical institutions.

Texas Children's Hospital is another example of innovation in healthcare in Houston. The institution was opened in 1954 with a focus on innovation from the start, seeking to find the best ways to provide pediatric care. In the early days, Texas Children's focused on device innovation, for example creating one of the first implants for children's open heart surgery and being the first children's hospital to implant an artificial heart.

Texas Children's was also the home to the "Bubble Boy." David Vetter was born in 1971 with Severe Combined Immunodeficiency (SCID), and due to the disease, had to live in a sterile environment until he was able to find a donor for a bone marrow transplant. Unfortunately, no donor was found, and Texas Children's Hospital worked with NASA to create "bubbles" – isolated, sterile containment centers where David lived his whole life. At one point, NASA even built David a sterile "spacesuit," allowing him to go outside his bubble and experience the world. The story represents a drive to push forward innovation, as well as the potential for collaboration across Houston's industries.

In more recent years, the focus has shifted from devices to analytics and digitization, something seen at many medical institutions. Texas Children's was one of the earliest adopters of using digitization and analytics in healthcare, which has led to them having the largest pediatric healthcare data set in the world. This creates opportunities for learning and improvement based on this data.

Six years ago, recognizing the rapid rate of healthcare innovation happening at the institution, Texas Children's established their Innovation Hub. The hub has four core components: a process engineering team, focused on incremental progress to the day-to-day processes of the hospital; an analytics team, focused on data science, analytical insights, and AI/ML applications for the hospital with their data set; a business planning team, focused on innovation within the internal management of the hospital; and an entrepreneurship and innovation team, focused on supporting founders inside and outside the hospital with IP and patents, running pilots and proof of concept trials, navigating working with the hospital as a startup, and more.

For Texas Children's, the definition of innovation is change, not necessarily getting a patent or spinning out a startup, something that is true of innovation at many medical institutions. As a result, many of the big innovations that have happened have not been as public-facing. For example, the Innovation Hub helped Texas Children's pivot to telemedicine during the pandemic, helped launch the hospital's remote patient monitoring program to provide better care based on data from smartphones and smartwatches, and helped launch the hospital's virtual nursing program to overcome staff shortages.

The other core function of the innovation hub is helping startups work with Texas Children's Hospital. This can take the function of helping with trials, implementation, and commercialization of medical devices, for which the hospital has received an FDA grant; or it can be codeveloping technologies, such as helping translate algorithms built for adult care to pediatrics. To help facilitate innovation in healthcare, Texas Children's has a dedicated team to help companies navigate working with the hospital.

Houston Methodist has a similar innovation team, the Houston Methodist Center for Innovation. The center was formed in 2018 when it grew out of Methodist's Digital Innovation Obsessed People (DIOP) – a group of cross-disciplinary leaders and executives seeking innovations to make changes towards the future of healthcare.

Both DIOP and the Center for Innovation are constantly striving to provide a higher level of care at Houston Methodist. This can be by finding ways to integrate AI into operating rooms to improve efficiency in their use; by building smarter hospitals that improve patient and staff experiences; or by finding new ways to address the conditions patients are facing, like using music therapy in NICUs to support premature infants.

One way Houston Methodist is working to support innovation is with the Center for Innovation's Technology Hub. The hospital recognized that an important element in designing and building new software or technology is proving it in an actual use case. However, it can be hard to get access to clinical environments when your technology is new.

To address this, the Center for Innovation is developing a wing in one of Houston Methodist's clinical buildings to provide an environment for testing technology, allowing staff, doctors, nurses, and patients to experience and evaluate cutting-edge innovation. Currently, the hub is testing voice and language processing technologies, smartwatches, and VR waiting rooms. In the future, the aim is to allow vendors and researchers to utilize the hub to develop new health technologies.

The Center for Innovation's Technology Hub was also the model for Houston Methodist's innovation hub at The Ion, where they have dedicated space to meet and collaborate with startups, entrepreneurs, and other tenants across a wide range of industries.

Houston Methodist also works to collaborate with other medical institutions, such as through their Innovation Open House series, where they welcome peers from other health systems to share about Houston Methodist's efforts in care redesign of the inpatient environment. Their care redesign work has helped them advance efforts like telehealth in the 2010s and a virtual ICU during the COVID pandemic, finding solutions to address healthcare concerns like staffing issues and supply chain shortages.

For those wanting to follow along with Houston Methodist's work, they publish a biweekly newsletter on LinkedIn from DIOP. Issues covered range from the internal innovation happening in Houston Methodist's operations to advice on how partners can work with Methodist or other hospitals to bring their innovations to clinical environments.

Many of the other institutions in the Medical Center have similar innovation teams, often with senior-level executives dedicated to helping support the adoption and implementation of innovation. Innovation within the hospitals comes from problems that the staff sees, whether at the front line, on the clinical team, or in administration, and then solutions being built for those problems.

The other advantage of the Texas Medical Center is that the density it creates helps facilitate further innovation. From a competitive perspective, none of the institutions within the district want to be outperformed by their neighbors, so they strive for excellence, which is only achieved with innovation. From a collaborative perspective, TMC helps facilitate information sharing between member institutions due to their geographic density, and the organization helps spur and nurture innovation towards commercialization, such as with the TMCi program.

The healthcare industry is one with lots of opportunities and needs for innovation, as digital health takes root, processes can be digitized and optimized, and AI opens possibilities for better diagnoses and patient outcomes.

However, the highly regulated environment of healthcare creates additional hurdles and laws, making it difficult or sometimes impossible to employ the same innovation practices common in other industries. The hospitals of Houston are striving to provide more access, more health equity,better patient experiences, and better patient outcomes. They have the subject matter experts and desire to innovate, and have the patient flow to help facilitate innovation in care.

Outside of patient care, Houston's medical industry is also driving innovation in the life sciences industry. Whether through research at the medical institutions of the TMC, or through innovation at corporations throughout the region, Houston is advancing new treatments and therapies.

Over 4,900 clinical trials are performed at the Texas Medical Center annually, representing over 20% of clinical trials nationally. The plethora of patients seen provides a great pool of people for running trials, allowing companies access to sufficient numbers of individuals with otherwise rare diseases, as well as diverse backgrounds and distinct care needs.

TMC is also home to 21 core CPRIT facilities. CPRIT, the Cancer Prevention and Research Institute of Texas, provides funding to help research cancer prevention and therapies in Texas. Core facilities awards are given to support a wide variety of projects relevant to cancer research at a facility. The funds help ensure that cancer researchers at the facilities have access to the most up-to-date resources to conduct cutting-edge cancer research.

Recently, to support further advancement in the life sciences industry, TMC opened Helix Park. Helix Park is a mixed-use development, where researchers, medical talent, and academic institutions can come together with corporations from the medical industry to advance research.

There is also a surge of life science innovation coming from outside the Texas Medical Center. Developments throughout the region like Levit Green, Generation Park, Pearland's Lower Kirby District, and the Alexandria Center for Advanced Technologies provide locations for life science companies to open facilities in the region.

This growth has already seen a number of companies come to the region, either in these developments or in stand-alone buildings. Sino Biological moved into Levit Green. Neurogene opened a 25,000 square-foot genetic medicine development facility. Cellipont is opening a cell and gene therapy facility.

Lonza has a major presence in Pearland's Lower Kirby district. They have over 850 employees at their facility in Pearland, the largest dedicated cell and gene therapies manufacturing facility in the world when it opened. The facility includes a center for excellence for process development as well as large R&D laboratories for developing future therapies.

Life Sciences

QUICK STATS

63
member institutions of the TMC

300
research laboratories

50
million square feet in TMC

15,400
life sciences and biotech researchers

2023 NIH funding:
$951.9M

Aerospace

The third core industry in Houston's corporate innovation tapestry is aerospace, anchored by NASA's Johnson Space Center.

The Johnson Space Center was originally built in 1962 and 1963, at the time known as the Manned Spacecraft Center. The decision to locate in Houston followed a highly political process and was helped by the region's infrastructure, climate, labor pool, proximity to Rice University, and more. The decision was also helped by the political influence of several Texas congressmen involved in the selection process. Finally, a bit of luck helped Houston out, as the Air Force decided not to close MacDill Air Force Base in Tampa, the top option in the selection process.

As the new center was being constructed, John F. Kennedy gave his famous "We Choose to Go to the Moon" speech, at Rice Stadium on September 12, 1962. This moment drove forward the American space program, and it cemented that this program, and our nation's lofty goals, would go through Houston.

NASA's mission control was built in Houston; the Lunar Receiving Laboratory was at JSC; astronaut training largely happens at Johnson Space Center, including in the Neutral Buoyancy Laboratory; JSC was home to NASA's Space Shuttle Program from 1981 to 2011. These represent a portion of the major research and innovation for the space industry that has come through Houston as a result of the Johnson Space Center.

Today, the Johnson Space Center leads International Space Station missions and operations, the development of the Orion spacecraft and NASA's Gateway outpost program, as well as numerous other advanced human exploration projects.

While the JSC itself has employed thousands of individuals over its history, a large portion of the work done with the Space Center is done through contractors, which has led to a major cluster of private companies working in the aerospace industry in Houston. Historically, these have included names like KBR and Oceaneering. The Johnson Space Center has been a major driver behind the presence of companies like Boeing and Lockheed Martin in Houston. More recently, modern commercial aerospace companies like Intuitive Machines and Axiom Space have sprung up in Houston with major NASA contracts, showing the continued importance of JSC to the aerospace ecosystem.

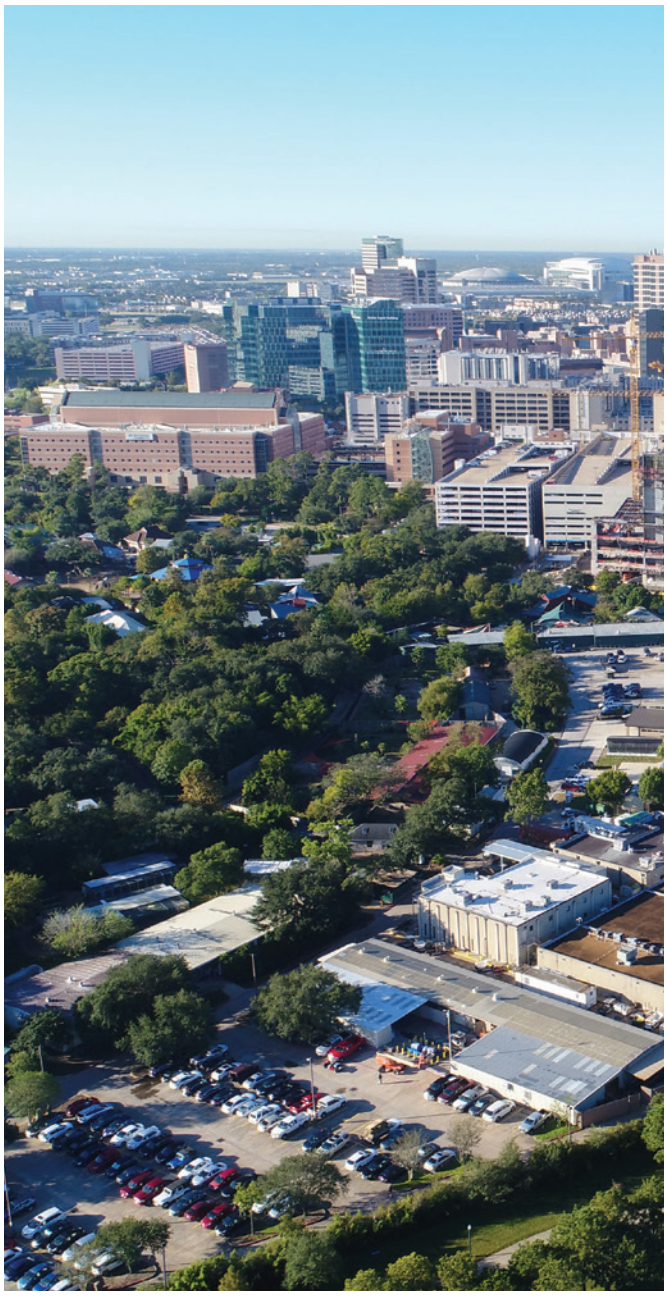
However, many of these companies and others have achieved and are achieving great things independent of NASA.

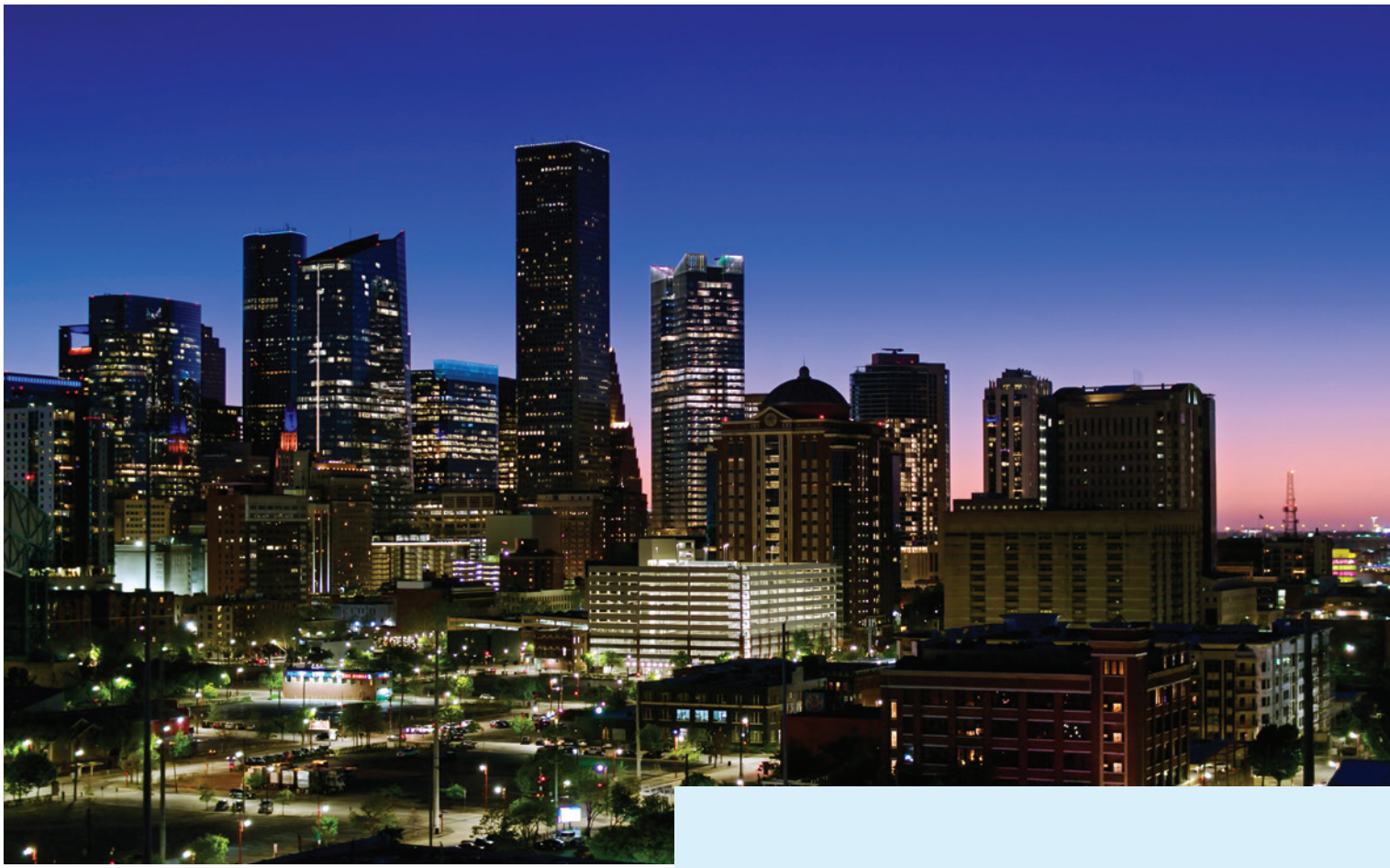
Today, the commercial aerospace business in Houston is rapidly growing. The Houston Spaceport, the world's first urban spaceport, was officially licensed in 2015 for horizontal take-off and landing of space vehicles. Since then, it has had numerous infrastructure improvements and is now home to several companies, including anchor tenants Axiom Space, Intuitive Machines, and Collins Aerospace.

Axiom Space's facilities serve as their headquarters and assembly facility as they seek to launch the first commercial space station into low earth orbit in 2026.

Collins Aerospace opened its facility in 2022, a new footprint in the region allowing the company to expand its operations, manufacturing, and testing. The facility is part of where Collins is developing next-generation technologies that will enable humankind to live, work, and play in space.

Intuitive Machine's facility at the Spaceport includes its headquarters, as well as its manufacturing and assembly facilities. These facilities were where Intuitive assembled the Odysseus spacecraft, which in early 2024 became the first ever successful private moon-landing mission and the first return to the moon by the U.S. since the Apollo missions. The facilities also include the Flame Range, a small engine testing facility.





In addition to the Spaceport, multiple facilities are being created to help spur innovation in the aerospace industry.

Distill is opening a coworking space and incubator for aerospace companies in the region, in proximity to the Houston Spaceport. The space helps give companies access to resources like cleanrooms & testing facilities and helps facilitate collaboration among members.

For larger users, Johnson Space Center's Exploration Park is being developed. JSC is opening up over 200 acres of land for development immediately adjacent to the Space Center, allowing companies to open operations in close proximity and have easier access to utilizing the resources and capabilities of the Johnson Space Center

The anchor facility of Exploration Park will be Texas A&M's Space Institute, a $200 million campus funded by the Texas Space Commission that will open in 2026. The Space Institute will provide a facility to engage universities, commercial entities, and the government in space research.

Highlight features of Texas A&M's Space Institute include the world's largest indoor Moon and Mars "scapes" for research, development and testing, 20 project garages and 400,000 square feet of collaborative space.

Houston Aerospace

QUICK STATS

Aerospace Engineers:

1840

600

acres of development at the Houston Spaceport and NASA JSC's Exploration Park

JSC Employees:

3,200

JSC Contractors:

11,000

Corporate Tech

While our three core industries represent the bulk of Houston's economy, the city has also had a storied past with the tech field itself.

Texas has always been big on tech. Consumers know Texas Instruments from their calculators used in schools nationwide. The company was founded in Texas as Geophysical Service Incorporated in 1930, became Texas Instruments in 1951, and has been producing semiconductors, chips, and electronics for nearly 100 years. Today it is one of the largest semiconductor companies in the world and has an engineering facility in Sugar Land with over 600 employees.

Dell was founded by Michael Dell while he was a student at UT Austin, in 1984. The company has remained in the Austin area since then, and now is one of the largest computer companies in the world, ranking 48th in the Fortune 500. Their office in Houston has around 900 employees, across a range of functions including engineering, sales, and customer support.

Non-home-grown companies in Texas have included semiconductor manufacturers like Samsung and Intel, who entered Texas in 1996 and 1998 respectively. While their foundries are not in Houston, the companies each have offices in the region for engineering, sales, and other operations, with around 400 and 200 employees, respectively.

More recently, Oracle relocated its headquarters from California to Austin in 2020. This followed years of growth in the region, as the company already had around 2,500 employees in Austin at the time of the move. They've also grown in Texas outside of Austin, and today have around 800 employees in Houston.

These examples illustrate how Houston has enjoyed the spillover effects of tech across Texas, but there have also been a number of companies that have been very intentional about being in Houston.

Multiple major tech corporations have been built in Houston, serving a range of the industry – most notably, Compaq (later HP, then HPE & HPI), Crown Castle, and BMC Software.

Compaq & HPE

Compaq was originally founded in Houston in 1982 by Rod Canion, Jim Harris, and Bill Murto. The three were former employees of Texas Instruments who believed that Texas, and more specifically Houston, was the right place to build their company. They believed that Houston and Texas had the talent that they needed, between existing workers in the area, talent coming from Texas universities, and the general growth of Houston that would bring more people to the region. They also believed that with the prominence of data centers in Texas, building servers here was the right choice.

After that initial decision, the founders were proven right. The company was able to grow and thrive in Houston, hiring strong local talent graduating from Texas A&M, UT Austin, TCU, SMU, Baylor, Texas Tech, and more; or bringing in talent from out-of-state universities in the Northeast, or from the University of Illinois Urbana-Champaign. The company was also glad to find that Houston had lots of great non-engineering talent, for product management, marketing, sales, and more.

It wasn't entirely smooth sailing for Compaq. Early on, the company struggled to build out a European sales team. They released some products that just didn't work, like the TeleCOMPAQ which was just too early for the market. At various points, there were disagreements or turnover in leadership that caused trouble. However, they were able to overcome these bumps in the road, and Compaq largely saw success, growing a major tech company here in the Houston region.

This success eventually led to the merger of Compaq and Hewlett-Packard in 2002, for $24.2 billion. The merger came about after the two companies met to discuss potential collaborations that could lead to the growth of one another after recognizing each had capabilities that the other didn't. Initially, an agreement was reached for Compaq to resell HP's storage capacities, but after working closer together, executives at each company realized that there were a lot of complementary skills and synergies between the companies. This harmony made a merger the right decision.

After the merger, the new HP had to make some decisions where Compaq and HP had overlapping business units. However, the company made swift decisions, and based on where Compaq had really strong competencies, a number of major business units stayed in the Houston area, including the teams responsible for servers, workstations and high-end desktops, and services. These major business units remaining in Houston meant that HP had a large Houston presence.

Since HP split into HPI and HPE in 2015, HPI has continued to maintain its large presence in Houston. Today, HPI is one of the top tech employers in the region, with over 4,800 employees in the region. The company's campus spans over 370,000 square feet, and they are continuing to maintain a strong connection to Houston.

As for HPE, the split laid the framework for the company to move its headquarters to Houston. Not long after the establishment of HPE, Antonio Neri was named CEO in February of 2018. His background at HP included time in the servers and services businesses, both of which had him located in Houston. Even after becoming CEO, Neri maintained a fondness for Houston.

With time, the company's Houston office emerged as a promising candidate for further investment and growth. Texas' low tax environment, the company's historic Houston roots and large headcount still in Houston, and the strong & diverse talent base, culture, and work ethic of the Houston region were appealing to the company and Neri. HPE officially relocated its headquarters to Houston in 2020 and opened a brand-new campus in 2022.

Since the relocation, HPE has seen success operating in Houston. Even post-COVID, they've been able to maintain a strong company culture. As the company searches for talent, they've found great workers, both for engineering roles and for corporate support roles. They've also seen a strong talent pipeline coming from local colleges and universities, and are working hard to cultivate talent and interest in tech in local middle schools and high schools.

For the company and its employees, Houston offers advantages like a better cost of living and cost of doing business, a high quality of life, and a continuously growing metro area and region to meet the company's growth goals.

Going forward, HPE envisions lots of growth being driven by artificial intelligence – and they see that leading to growth in Houston. To operate the softwares and algorithms core to artificial intelligence, new and stronger computers will be needed, and much of the design and engineering work for those computers is coming out of Houston.

Crown Castle

Crown Castle's Houston story starts as Castle Tower, a cell tower company with 133 Houston-area towers. The company grew rapidly, both domestically and abroad, through acquisitions and consolidation within the cell tower industry. In 1997, Castle Tower merged with Pittsburgh's Crown Communications to become Crown Castle.

At the time of the merger, Crown maintained its name and headquarters in Pittsburgh and managed the combined company's business in the U.S. and Canada. However, Crown Castle International Corp, the new holding company from the merger, was headquartered in Houston and managed the company's international business.

Since that merger, the company has maintained a major presence in both Houston and Pittsburgh. It grew through the acquisition of numerous competitors, expanding its tower network, and eventually achieving coverage of the entire US, as well as operations in the UK, Australia, and other international markets.

As the industry evolved, Crown Castle entered the fiber business through various acquisitions and expansions, continuing to innovate their offerings. Simultaneously, in 2015, the company sold off its international assets and began operating exclusively domestically. This helped facilitate further domestic growth and innovation for the company.

While at its core, Crown Castle is a real estate business, discounting it as non-tech would be like discounting Apple as non-tech because they're a "manufacturer". A strong technical capacity, both for software and hardware, is critical to the success of Crown Castle's business. To support this, the company has maintained a robust technical workforce throughout its history.

Crown Castle's assets facilitate the technical connections of us and the world around us to the internet. The company is constantly growing and evolving to provide the best services and infrastructure for the technologically enabled world of today.

BMC Software

BMC Software was founded in 1980 by Scott Boulette, John Moores, and Dan Cloer. The three had served in technical roles at Shell and saw an opportunity to form their own business writing IT and mainframe management software.

The company initially served energy companies, based on Boulette, Moores, and Cloer's familiarity with the industry. They knew that IBM mainframes were the industry standard currently available for companies. The company employed novel marketing techniques, notably creating products salesmen could sell quickly and unambiguously over the phone. At the behest of investors, BMC also focused strongly on generating revenue and serving customer needs, rather than spreading itself too thin. These business practices led to a strong core business that was growing rapidly.

Throughout the 1980s and 1990s, BMC continued to grow, expanding their headcount from 500 in 1987 to over 7000; and simultaneously growing their sales revenue from $100 million to over $1.7 billion. They were able to grow through several channels – opening international offices; beginning to write software for other operating systems; expanding beyond mainframe services; serving new industries outside of energy; and acquiring a number of companies.

In the 21st century, BMC has continued to see growth, through both acquisitions and natural pathways. The company was taken private in 2013 and has seen continued success as it works to enable enterprises to operate in a digital manner.

Throughout its history, BMC always maintained a strong Houston presence. They consistently added headcount and office space in Houston, even with the additions of new offices in other markets and overseas. Early on, the company paid well to lure top developers and salespeople to work for them, and they maintained a top-tier workplace culture.

One of the other keys to their success was consistently innovating. The company has invested $10 billion in innovation since they were founded, and has stayed on top of trends and movements in the marketplace. They've expanded beyond their initial market segment to provide new offerings and serve new customers, building their own avenues for growth.

Today BMC Software ranks 253rd on the Forbes 2023 list of the Largest Private Companies, with a revenue of over $2 billion, and 6,000 employees. In 2025, the company has plans to split into two entities: BMC, which will include business units focused on hybrid IT and AI-driven software infrastructure; and BMC Helix, which will focus on accelerating innovation, customer success, and the application of AI across the digital service and operations management industry.

Big Tech's Expansion to Houston

In more recent years, tech companies from outside Houston and Texas have seen the need to open offices in the Houston region. These companies are often the ones that fit into the concept of "Big Tech" – exciting, newer companies that have been rapidly growing.

However, the story of Big Tech coming to Houston cannot be told without one story of Big Tech notably not coming to Houston – and really not considering Houston.

AMAZON'S HQ2

In September 2017, Amazon announced that they were looking to open a second headquarters, complementing their main offices in Seattle. They put out a request for proposals on sites and incentives to locate their "HQ2," and outlined what the project would look like and what criteria they were judging based on. HQ2 was expected to create as many as 50,000 jobs, with over $5 billion in capital expenditures.

Obviously, this was an opportunity that Houston could not pass on. As the 4th largest city in the nation and the 5th largest metropolitan area, Houston met many of the criteria set forth. As a region, Houston put together an enticing proposal with three different site options and put our best foot forward to show how Houston was the right location for HQ2.

Houston was not alone in wanting Amazon's HQ2. By their submission deadline, 238 proposals were received by Amazon, and many cities made very public bids to curry Amazon's favor.

In January of 2018, Amazon shortlisted 20 finalists for HQ2. Houston was not on that list. According to Amazon, Houston did not have the labor availability and startup spirit that they were looking for. This was jarring for the region and pushed key parties to put more effort and resources into growing Houston's tech ecosystem, accelerating some efforts that were already underway.

AMAZON HQ2 CRITERIA

- **Metropolitan areas with more than one million people**
- **A stable and business-friendly environment**
- **Urban or suburban locations with the potential to attract and retain strong technical talent**
- **Communities that think big and creatively when considering locations and real estate options**
- **Within 30 miles of a population center**
- **Within 45 minutes of an international airport**
- **Within 1-2 miles of a major highway and arterial roads**
- **Access to mass transit at the site**
- **500,000 square feet of office space, growing to 8 million square feet**

EXPANSIONS

While Amazon decided not to locate HQ2 in Houston, a number of major tech corporations have opened offices in Houston.

One of the first to do so was Microsoft. After having worked with Houston companies for decades, they opened their Microsoft Innovation Hub, formerly called Microsoft Technology Center, in Houston in 2016 (actually prior to Amazon's process & decision). This was then followed by Microsoft opening an engineering office in The Ion in late 2020, one of nine East and Gulf Coast engineering offices Microsoft has.

The decision to expand to Houston was driven by a number of factors. One major element was a desire by Microsoft to access a more diverse workforce, in an effort to have their employee base closer reflect the global population that makes up their customer base. As the most diverse city in the country, Houston offers a talent market that complements Microsoft's headquarters in Seattle.

The other key element was Houston's energy industry. Sustainability is a core pillar at Microsoft, and to achieve their goals, they recognized the need to support the energy transition and utilize new technologies associated with it. Houston, as the energy capital of the world, and striving to be the energy transition capital of the world, was a great place to tap into this.

Since expanding here, Microsoft has found a lot of success growing the office. The talent in Houston has skillsets and knowledge that make them good fits for a company like Microsoft. People who have worked on large capital projects at energy companies are good fits to work on data center projects. Geologists and environmental scientists fit well into sustainability roles at the company. Data scientists and tech workers from the large IT departments of energy companies and medical institutions fit well into Microsoft roles because of their experience and knowledge of the industries.

Today, workers in a variety of roles are employed at Microsoft's Houston offices, ranging from developers, engineers, and project managers to sales, marketing, and customer service roles. The offices here put Microsoft in close proximity to a dynamic tech environment and a community they can be a part of, including customers and talent, but also organizations like Greentown Labs or academic institutions like Rice that they can partner with.

AWS opened a Customer Innovation Lab in Houston in 2019, with space for 150 employees across a range of functions. The office includes a large training facility and an innovation lab for customer collaboration and demonstrating new technologies.

At the time of the opening, AWS cited Houston's leading universities and tech talent, the cultural diversity & international companies, and the quality of life and low cost of living as reasons for choosing Houston. The office gave them proximity to serve their customers in the region and increase their engagement with the energy industry.

Today, AWS employs approximately 800 employees throughout the region, in a mix of in-person and remote roles. The company is also deeply engaged with the community, participating as an Executive Partner at the Greater Houston Partnership, as well as with participation with various other community organizations.

Google Cloud also opened an office in Houston in recent years. Towards the end of the 2010s, they saw that the market in Houston was growing significantly, and they would need a sales team in the area. This need was driven partly by the energy industry, but also by needs in other verticals such as medical and advanced manufacturing.

To best serve customers and to help build the company culture that Google aims for, the company needed an in-person office for the Houston sales team they were creating. This led to Google opening 12,000 square feet in 2021. While the office was originally created just for the new team, once Google opened the office, a number of remote workers in the Houston region already with the company were assigned to the office as well.

Unlike other major tech companies that have expanded in Houston, Google has had more trouble finding talent in the region. One key driver is that Google adjusts salaries based on the local cost of living. As a result, Houston, with a low cost of living, sees lower wage offers from Google than other regions, making it hard to attract talent.

The other difficult aspect for Google is that the talent market in Houston, for both engineering and sales personnel, can be very competitive with the other major corporations in the region. As a result, even though there are highly skilled individuals in the region, it can be hard to get them to switch roles to Google.

As a result of this, Google has made some changes in their hiring process, most notably posting many jobs as Houston/Austin/Dallas based, to tap into a larger labor pool, unless the role is highly specific to Houston.

Despite these troubles, Google has still managed to build a major presence in the area. Today, the staff at their office is still a majority sales-based, but there is also a significant engineering team tied to the Houston office, making up about 40% of the local workforce. Google has around 300 employees tied to the Houston office, either for in-person or hybrid roles. Much of the growth has come from remote workers becoming aligned to the office here, and this has led to the team quickly outgrowing the space they currently have.

With more growth projected as the market and Google Cloud sales in the region continue to grow, it's not unfeasible to see a growth in Google's footprint in Houston in the coming years.

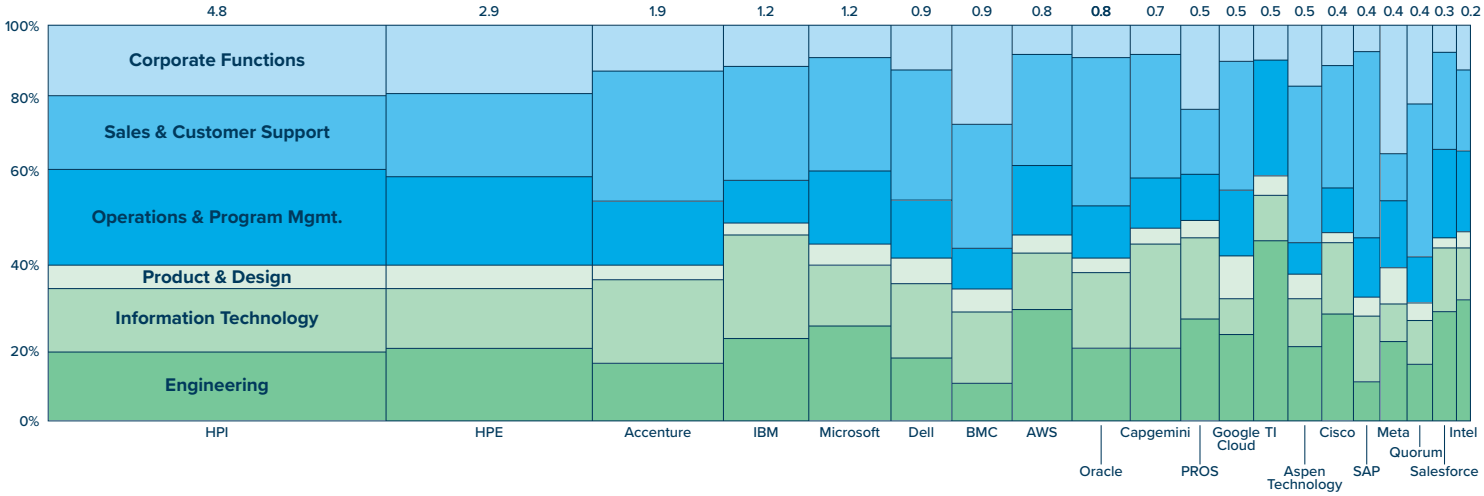
Between the wave of tech companies opening offices in Houston, existing operations from others, and HPE's relocation in 2022, Houston has built a sizable presence from major tech corporations. Today, there are around 20,000 tech- and engineering-focused employees in Houston across 20 big-name tech employers. Many of these jobs are employees as remote workers for companies without a major office in Houston. These individuals are indicative of a desire from tech workers to be in Houston, and potentially signal a need for more of these companies to open an office in Houston to accommodate those workers.

While the numbers behind Houston's tech workforce are promising, one point of concern is the breakdown of roles within this workforce. Compared to the national average, Houston under-indexes on the count of engineering and product/design roles, and over-indexes on sales, IT, and operations roles. There is both a need and an opportunity for Houston to recruit a larger technical presence from tech companies, rather than simply a sales-based presence.

The other measure showing the prominence of corporate tech in Houston is the number of major tech firms with an office here. 43% of the tech companies in the Fortune 500 have some level of corporate presence in Houston. This is a strong showing, but there is room for growth, especially as new tech companies move from being startups to corporations, and as major tech companies grow in the new era of artificial intelligence and digitization.

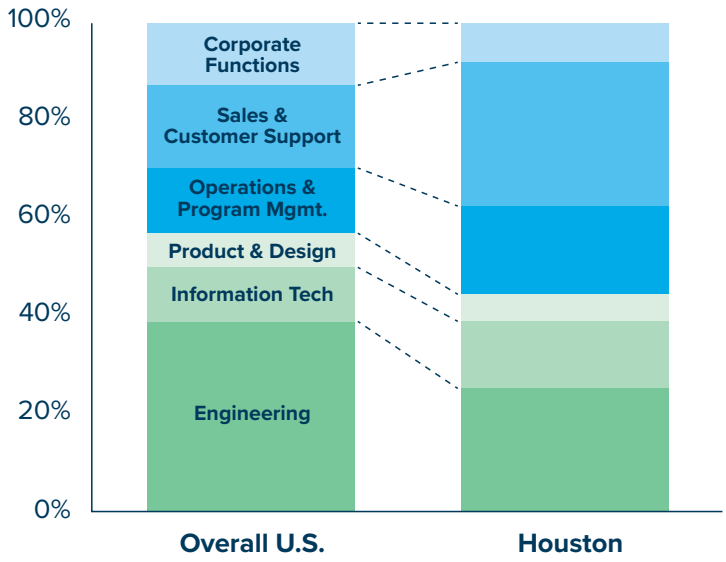
Houston offers companies access to major energy, healthcare, and industrial corporations as customers, proximity to large pools of technical and corporate talent, and a great gateway for international companies looking to enter the US market or US companies looking to expand abroad.

Houston tech company employee count by role type, '24 (in K) **Total + ~20K**



Note: Companies selected based on scale of presence. Graphic is non-exhaustive and is meant primarily to be directional and indicative.

~25% of Houston Big Tech jobs are engineering vs. ~40% nationally



Startups

Houston has seen rapid growth in the quantity and quality of startups in the region over the past decade. Historically, the city has been known for innovation in corporations and university research, while the perception of startups makes people think of companies in the Bay Area, Seattle, or Boston. However, in recent years, Houston has gone from lagging behind other major cities to a notable player in the startup landscape.

In 2017, Accenture did a study, in collaboration with the Mayor's Innovation Taskforce and the Partnership's Innovation Roundtable, benchmarking where the startup ecosystem of Houston was. The results were not promising. By many measures, Houston was around the 20th largest startup ecosystem. At the time, there were an estimated 140 active, high-growth startups. Those companies had only raised a combined total of $1.3 billion in funding.

There were several reasons why the ecosystem may have been lackluster at the time. One of the first big booms in tech and startup activity was the dot com bubble, around the year 2000. Around the same time, the price of oil, which Houston's economy was heavily tied to, had gone through some flux. There was a downturn in price from 1997-1999, driven by a number of external factors. This led to less wealth and capital in the Houston region, and a bit of economic turmoil in Houston. As a result, there was less ability, available capital, and market opportunity to start a tech business in Houston at the time.

For Houston's overall economy, this turned out to be okay, as the region suffered less from the dot com bubble burst than others, but for the tech industry, it meant there wasn't a baseline of experience and talent from entrepreneurs of the late 1990s.

The other major growth time for startups was in the early 2010s, when interest rates were low and capital was cheap. At the same time in Houston, the "Shale Revolution" was occurring. This had two effects – soaking up capital in Houston which saw a good way to make money, and soaking up entrepreneurial-spirited people who saw an enticing opportunity.

Again, the energy industry made it harder for Houston to grow in the tech industry. However, while this was bad for the tech industry at the time, it has potential benefits for Houston today. The shale revolution has created a population of people who are entrepreneurial in nature and have capital. As shale becomes less exciting and less profitable, this population is looking for new opportunities, and tech is an attractive industry to enter.

These two explanations are not alone in explaining why Houston's startup ecosystem puttered in the early 2000s. Houston universities did not put out the same number of entrepreneurs as regions like Boston or the Bay Area. Culturally, the corporate nature of Houston made it less enticing for entrepreneurship, and what did happen was rarely tech-focused. All these factors, and more, muted startup activity in Houston.

Despite the lackluster overall performance of the tech market, there are a few success stories of Houston startups from this era. From 2000-2015, 80 venture-backed companies successfully exited, with 11 being bought out, 9 IPOing, 2 going public via a reverse merger, and the remainder either merging or being acquired by another company. This was a drop in the bucket of the 10,308 venture-backed exits that happened nationwide in that same period, but still a success story for those companies.

Two of the more notable success stories from that era that have since exited are Blinds.com and FlightAware, both companies that were built in Houston from founding to exit.

BLINDS.COM

Blinds.com was one of the early pioneers of online retail. Jay Steinfeld founded the company in 1993, and in 1996, they debuted as NoBrainerBlinds. The company was the first e-commerce platform to sell custom blinds. The company experienced rapid growth throughout the late 90s and early 2000s, driven by creative marketing strategies and an easy customer experience, as well as acquisitions of customers.

The company's blinds required no specialty tools or adhesives to install, and the ordering process could be done entirely by the customer, with no consultation needed. The company built proprietary technology and sales platforms to better serve customers.

The continuous innovation and growth led Blinds.com, under the banner Global Customer Commerce (GCC), as well as founder and CEO Jay Steinfeld, to receive many accolades. The innovation and customer-focused strategy also helped the company to survive the dot com bubble as it was growing.

This all led to 2014, when Home Depot acquired Blinds.com for an undisclosed amount. Home Depot had been on a run of acquisitions and was interested in Blinds.com. They saw the window coverings business as a growing market, and the online segment as the fastest-growing part of the market.

Blinds.com wasn't looking to be acquired, but the deal made sense and helped propel the company forward in its growth journey, backed by the might of Home Depot. Home Depot also utilized this acquisition to integrate Blinds.com's technology base with its existing online presence.

FLIGHTAWARE

FlightAware was founded in 2005 by Daniel Baker. At the time, he was traveling frequently and wanted a way for his family to track his flights. He couldn't find any existing solutions that worked for his needs, so instead, he built his own. The product quickly gained popularity after launching, with over 1,000 users in the first week of public beta testing, and over a million dollars in revenue in the first 18 months.

FlightAware continued to grow its offerings and customer base, releasing new features serving both pilots and commercial users. Even while rapidly growing, the team stayed lean, and only reached 15 employees in 2008, with a main office in Houston and a sales office in New York.

New features for consumers throughout the years include international tracking, weather maps, altitude and speed tracking, delay tracking, and a mobile app, among numerous others. For commercial users, FlightAware added a flight tracking API, fleet tracking abilities, and integrations with other devices and softwares.

The continuous growth and addition of features led to FlightAware's eventual exit. In 2021, FlightAware was acquired by Collins Aerospace for an undisclosed amount. Collins added FlightAware to their newly formed Connected Aviation Solutions business unit. Collins was seeking to help their customers turn data into value, and the data collection and analytics abilities that FlightAware provided were perfect.

FlightAware has continued as an operating subsidiary of Collins. Today, the company has its headquarters and office in Houston, with additional sales offices in New York, Austin, Singapore, and London.

Today's Startups

Since the Accenture study in 2017, Houston's startup ecosystem has grown substantially. There are a number of external measures that showcase this, namely the growth in startup resources, and the growth in venture capital raised. Those statistics are discussed elsewhere in this paper.

The most significant indicator of growth is the increased number of startups. According to Pitchbook, there are approximately 1300 operating, privately-held startups in Houston, of which 985 are either venture-backed, accelerator-backed, or angel-backed. This is an 825% increase from the estimated 140 startups in 2017. Those companies have collectively raised nearly $12 billion in funds.

VERTICALS	COMPANY COUNT
SaaS	195
TMT	180
Artificial Intelligence & Machine Learning	129
CleanTech	126
HealthTech	113
Manufacturing	112
Mobile	100
Industrials	92
Life Sciences	92
Oil & Gas	86

Houston's startups are driving innovation across a number of industries & verticals, innovating in both hardware and software for each.

In the energy industry, there are startups helping digitize and improve existing energy assets, as well as driving forward the energy transition. This includes companies that are developing new, low-carbon ways to produce and store energy; companies that are using software to track and abate carbon emissions; companies that are helping improve energy and operational efficiency; and more. These represent just a slice of the energy innovation occurring in Houston startups, which has led to CleanTech being Houston's fourth most represented vertical, and oil and gas innovation the tenth most.

In the health and life sciences, companies are improving patient care and experience. Digital health startups are improving hospital operations or creating telehealth and remote patient care opportunities. Life science companies are developing new therapeutics and medicines. Medical device companies are finding ways to create new products to solve medicine's most pressing issues. These innovations and more bring HealthTech and the Life Sciences into Houston's top ten verticals for startups.

Industrial tech startups are using AI, machine learning, and other software to monitor and optimize assets; developing new advanced manufacturing techniques; building devices to facilitate IoT-enabled factories and facilities; or creating software to increase efficiency in logistics and warehousing, among other innovations.

This is reflected in the number of startups in the Manufacturing and Industrials verticals in Houston.

While innovation within each of these industries is interesting, the other unique thing about Houston is what is happening at the intersection of industries. Many companies cross into multiple industries, such as Cemvita Factory with industrial biotech, or Kayrros using satellites to monitor/reduce environmental impact.

Houston's core verticals are also represented in the breakdown of capital allocation in Houston, as well as the types of accelerators, incubators, and other startup resources that exist.

All of these industries are underpinned by a mix of both hardtech and digital innovation. The digital side of what is happening (as well as companies in other sectors) leads to verticals like AI & ML, SaaS, Mobile, and TMT (Technology, Media, and Telecommunications) all being within Houston's top 10 verticals.

Interestingly, the city is also starting to see micro-clusters around other key industries, with some highly successful companies anchoring the space. PropTech (27 companies) is headlined by companies such as Entera and Lodgeur. The FinTech space in Houston (65 companies) is anchored by unicorn HighRadius, but also includes names like MAJORITY, Clutch, and Data Gumbo. Houston's Supply Chain Tech vertical (22 companies) features Voyager and Innovapptive, among others. These verticals represent only a few of the countless industries in which Houston startups are innovating.

Going forward, there are many ways Houston's startup base can continue to expand. In the core sectors where Houston already has a strong foothold, more companies can continue to form. In the growing micro-clusters, as successful startups create experienced talent and returns on capital, new startups can be established continuing to grow these verticals.

The other space for Houston to grow is capturing emerging technologies where the city's assets make it a good location for these companies. One example of this is FoodTech. Houston's strengths in biotechnology, combined with our robust logistics & infrastructure network for supply chains and distribution, and the presence of major food corporations such as Sysco, make Houston a potential center of FoodTech. The sustainability goals of these companies also fit in well with the CleanTech and ClimateTech hub already forming in Houston.

Similarly, synthetic biology, which is projected to be a major industry, has the potential to grow from Houston. The industry sits at the intersection of biology and chemical manufacturing and has the potential to advance sustainability and decarbonization goals for the world. Houston is already the home to a number of organizations in the synthetic biology space, including successful startups like Solugen and investors like First Bight Ventures.

There are an additional 815 startups headquartered outside the region with offices in Houston. Of these, around 35% are international companies, representing 49 countries. The nations with the largest numbers of companies coming from them are Canada (52) and the United Kingdom (51).

For companies founded abroad looking for a place to enter the US market, Houston offers a lot of unique value propositions. Houston's diversity makes it a welcoming community to all, helping people find their place in the city. The region's infrastructure, especially its two international airports and 4 deepwater ports, makes it easy to connect internationally, either for personal travel or connecting supply chains. Houston's location and prominence in the US and the Americas give it broad connections for companies to access the market.

Houston's core industries also lend themselves to connecting with international markets. The energy industry is global by nature and has been a driver of bringing international companies and employees to the region for years. The Texas Medical Center brings in a global audience of patients, making it also interesting to a global audience of companies. Aerospace quite literally goes beyond international. Advanced manufacturing and logistics connect customers and suppliers internationally.

As these global industries evolve, innovation will come from across the globe, and Houston will be a place where it can all land. International startups can utilize Houston as the ideal place to tap into the US market.

Another 20% of the external companies are Texas companies where Houston is a second location for them. From the remainder, the top states companies have come from are California (94), New York (45), and Florida (21). This largely makes sense, as those are many of the largest startup hubs.

One major factor in companies choosing Houston as an additional office location is that Houston provides a great place for startups to scale. Coastal research institutions & innovators are able to discover incredible new technologies, but when the time comes to bring them to a commercial scale, coastal cities present a harder environment for growth.

Houston's baseline of corporate innovation means the region can help companies expand. The regulatory environment of Houston and Texas is friendly to testing and experimenting with new technologies. The costs of operating at a commercial scale are more friendly in Houston, whether for talent, real estate, taxes, or otherwise. Most importantly, the knowledge and expertise that exists in the region on how to do things at scale helps companies overcome obstacles to growth.

In addition to seeing more companies in the region, Houston has seen more success from the companies. There were 101 exits from Houston-based startups from 2017-2023, with a total value of $3.6 billion across the 22 deals with reported values. The exits came from a mix of sources – 23 buyouts, 7 IPOs, 60 mergers and acquisitions, and 7 SPACs.

Examples of recent exits show success across industries. Even in the depressed exit market of recent years, there are a number of stories of companies returning value to investors, via a variety of exit methods.

In 2020, equity crowdfunding platform NextSeed was acquired by Republic for an undisclosed amount. 2nd.MD, a platform for

virtual health consultations, was acquired for $420 million in 2021 by Accolade.

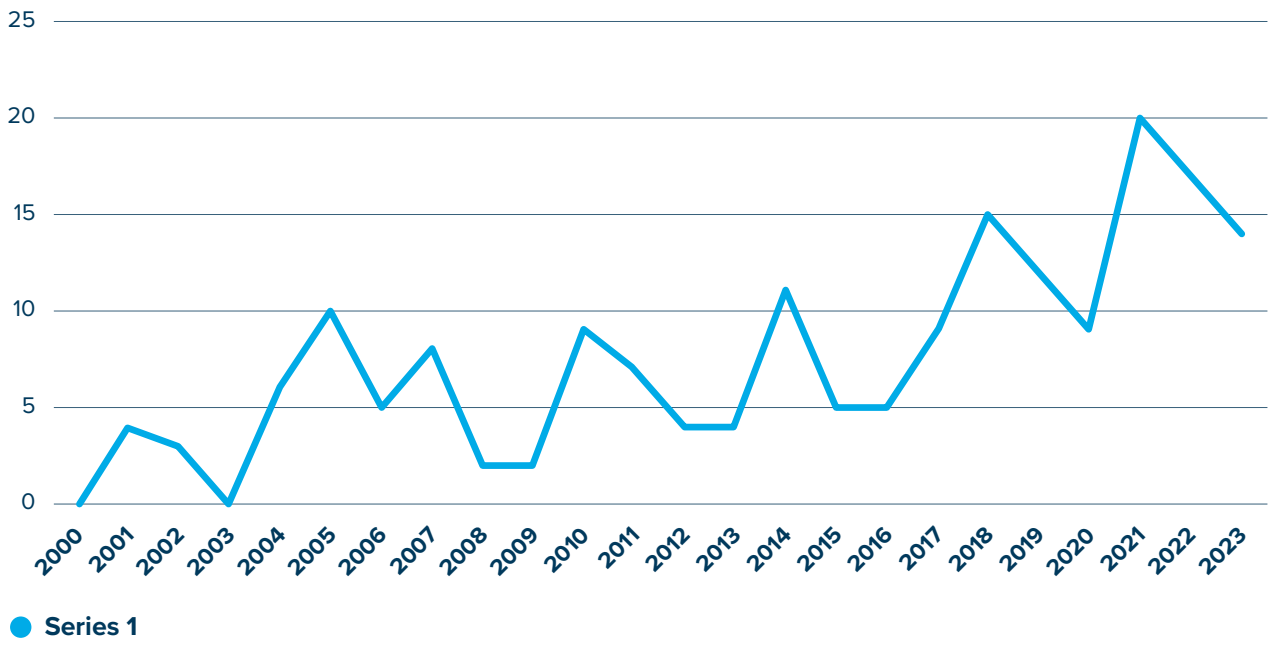
In 2022, Coya Therapeutics, a biotech company developing therapies for neurodegenerative, autoimmune, and metabolic diseases, exited via IPO. Joining the public markets in late 2022 with a $48.4 million post-valuation, they doubled in valuation from their 2022 Series A, which likely offered earlier investors greater returns.

Nauticus Robotics (formerly Houston Mechatronics), a developer of undersea robots, also exited in 2022, via a merger with CleanTech Acquisition Corporation. The SPAC deal represented 43x growth for the company, with a $561 million valuation compared to $13M in their 2015 Series A round.

Intuitive Machines also recently exited via SPAC, in 2023, with a $1 billion valuation. This likely represented a significant step up in valuation from the company's 2022 Series A and 2013 Seed rounds.

In April of 2023, Allotrope Medical was acquired by Northgate Technologies. The company's journey, from idea to execution to exit, traveled mainly through the Texas Medical Center. Founder Dr. Albert Huang worked at Houston Methodist originally, then took his company through TMCi's medical device accelerator, before eventually exiting.

VC Backed Exits in Houston



One positive consequence of this success is an increase in mentorship resources for current startup founders. Historically, the lack of experienced founders and startup employees in Houston made it difficult to find someone to turn to for support. SCORE has existed, but their expertise is in the basics of running a business, not necessarily in operating a high-growth software or tech startup.

However, recently, new resources have sprung up. Some of these are more formal, such as accelerator and incubator programs. However, some are more grassroots. For example, Wade Pinder, who formerly worked at Blinds.com and then Mainline, has been running the Houston Product Community for multiple years, having monthly meetings to help product managers and owners improve at their profession, and helping connect talent and companies to one another.

Another grassroots example has been Cup of Joe-y. Started in 2021, the coffee meetup brings together people working in and adjacent to startups for the opportunity to have natural collisions and meet impactful individuals. Today, the event happens monthly at numerous different locations across the Houston region and is continuing to grow.

Despite these new resources, there is still an opportunity for more robust and formalized ways for individuals with experience running and working at startups to mentor those new to the segment in Houston.

Select Houston Startups

Placements are approximate, not intended to represent direct comparisons between companies, and subject to change

Venture Capital Raised in Houston

Houston's venture capital landscape has admittedly been lackluster historically. Throughout the 1990s and 2000s, Houston companies' venture funding was muted. During the dot com bubble, Houston saw $622 million raised over a three-year period (1998-2000). This compares to over $81 billion raised nationally, meaning Houston only accounted for just 0.7% of venture capital raised in this period.

Houston remained a minor market for venture capital investment, averaging just $200 million raised per year in the 2000s, and just $570 million per year in the 2010s. Trends in total funding largely followed national trends, such as peaking in the dot com bubble, or rising again when capital was cheap in the early 2010s. From 1993 to 2020, Houston accounted for just 0.65% of venture capital raised in the US and just 1.08% of deal count.

However, in the recent funding landscape (from 2021 to 2023), Houston has seen a notable uptick in venture capital raised. In each of those three years, startups in the region raised over $1 billion, with 2021 and 2022 crossing the $2 billion threshold. No prior year had crossed the billion-dollar mark prior. This did coincide with an uptick in overall venture capital investment nationally, but Houston did see its percentage of U.S. totals rise around 30% in both capital and deal count, to 0.87% and 1.41%, respectively. These are still not massive numbers, and Houston still has room to grow relative to the US, but they are marked improvements over the 1993-2020 numbers.

This growth can be quantified in a number of ways. The number of companies raising funds in Houston is up 83% from 2014 to 2023 (compared to 34% nationally). The funds raised are up 243% over the same period (compared to 116% nationally). Seed, early, and late-stage deals are up from 74 to 112, showing that the growth is not solely from accelerator programs.

One key driver in Houston's jump in capital is the jump in major rounds. The region has only seen nine rounds of over $150M raised by a company ever – of those, eight came from 2021-2023. Collectively, those eight rounds account for $2.5 billion in capital raised in the last three years.

The other metric showing the increase in capital in Houston is the number of unicorns. Prior to 2020, there were no unicorns in Houston's history. However, from 2020 to 2023, four unicorns were each formed in Houston, driven partly by their ability to bring in capital from outside the region and raise large rounds of capital.

Looking at the recent funding landscape, it exemplifies how innovation is tied to Houston's core industries (energy, health & life sciences, and aerospace). Of the verticals that fall into either the top ten of deal count or funds raised (14 verticals total), eight tie back to core industries.

The top funded verticals also show us where Houston's strengths in fundable companies lie. Those in the top deal count list show verticals where Houston has a broad base of companies; those in the top dollars raised show verticals with mature companies raising large rounds.

HOUSTON'S TOP FUNDED VERTICALS

Top Verticals by Total Deal Count

SaaS	215
AI/ML	177
CleanTech	152
HealthTech	146
Mobile	112
Climate Tech	103
Life Sciences	96
LOHAS & Wellness	91
Manufacturing	83
Technology, Media, and Telecom	83

Top Verticals by Total Dollars Raised

Climate Tech	$1,471M
SaaS	$1,403M
AI/ML	$1,107M
Life Sciences	$922M
CleanTech	$915M
Technology, Media, and Telecom	$804M
Oncology	$752M
FinTech	$698M
Space Technology	$652M
E-Commerce	$556M

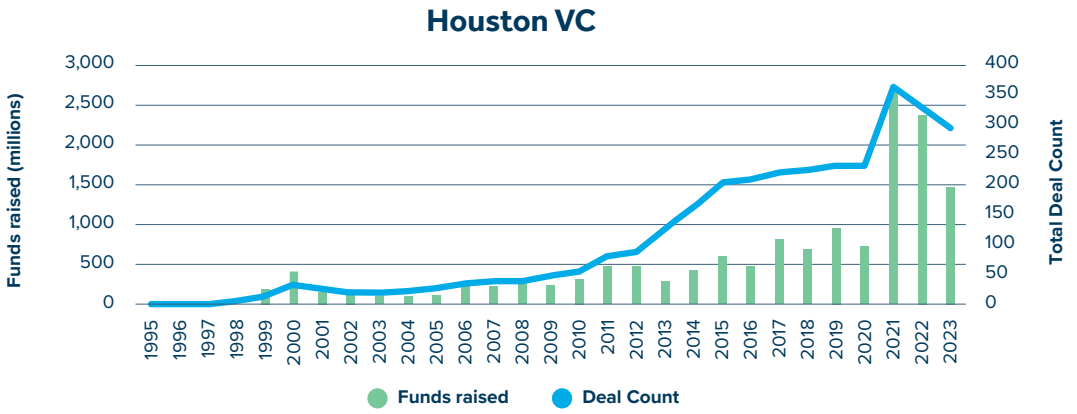
Another interesting story has been the ability of Houston startups to bring in capital from outside the region. In 2023, only 37 deals saw a Houston investor participate, and of the 378 different investors who participated in a round in Houston, only 24 were based in Houston. Historically, it was lamented that Houston companies struggled because there wasn't enough capital in town, and capital outside of Houston only invested on the coasts. The bump in funding in recent years shows otherwise.

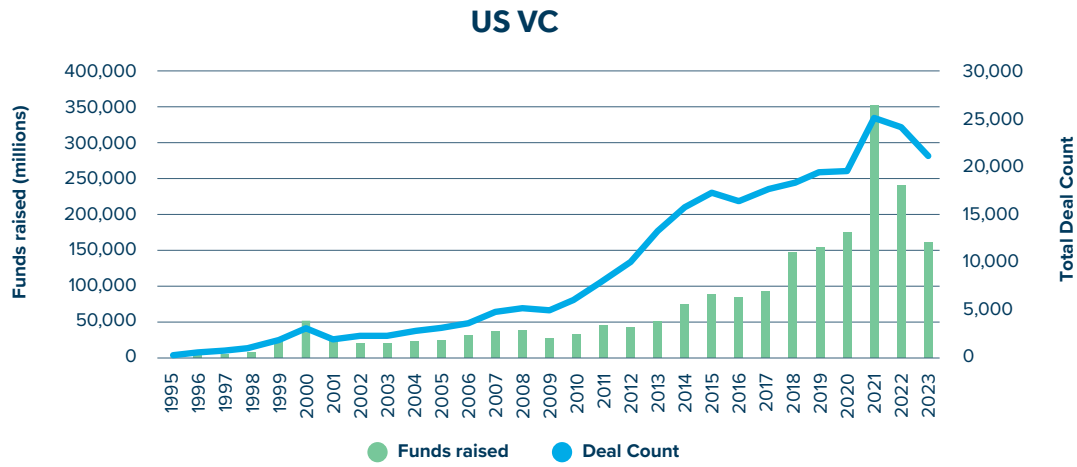
A possible driver behind the increase in outside attention to Houston-based startups is the work of HX Venture Fund (HXVF). HXVF was formed in 2017 as a $50 million fund-of-funds, with the model that they would invest in venture firms across the nation.

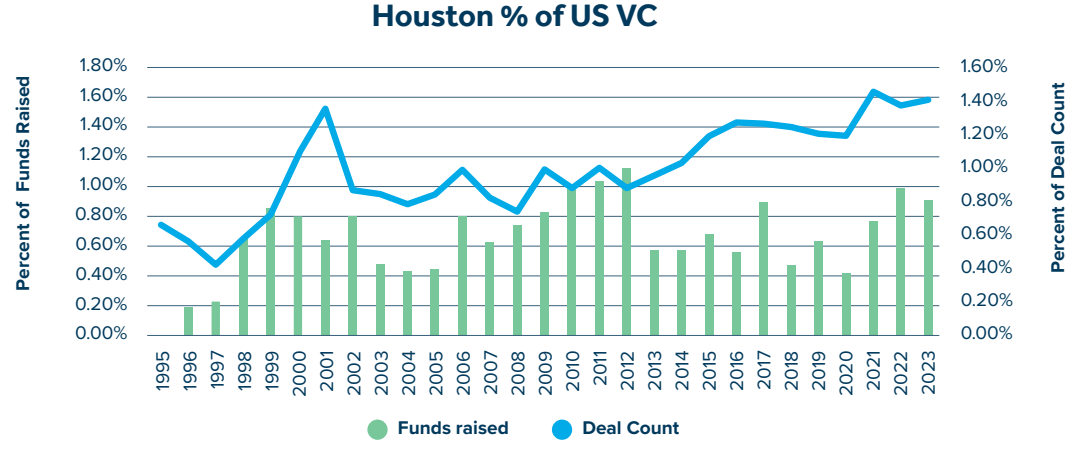
Those funds would then come back to the region and invest in Houston startups, creating a multiplier effect from the initial capital.

In addition to the initial funds, HX Venture Fund has also hosted Venture Houston since 2021, a conference spotlighting activity in Houston and bringing in investors from across the nation to see what is happening in the region.

The most prominent example of HXVF's model working is Updata Partners. HX Venture Fund invested as an LP in Updata Partners. Then in 2020, Liongard, a Houston-based startup, raised a $17 million series B round led by Updata. In addition to returning the capital to the region, this investment brought in the expertise and knowledge from Updata's team of seasoned entrepreneurs.







Startup Resources

Much like the rest of its startup ecosystem, Houston has seen an increase in resources available for startups, like accelerators, incubators, and coworking spaces.

Historically, there has been a lack of startup resources. In the early 2000s, startup programs in town were limited, and before 2016, there were only seven accelerators in Houston – Houston Technology Center, BioHouston, Fannin Innovation Studio, Enventure, TMCx, Station Houston, and the university accelerators, OwlSpark and RED Labs. While limited in quantity, each of those resources were successful, seeing lots of interest from startups.

This lack of resources meant there was also a lack of density in the existing startup ecosystem. Founders had limited opportunities to interact with other founders, talent, or investors, stifling startup growth.

This lack of density also led to the perception that there was no startup ecosystem. One direct consequence of this perception was Amazon not including Houston in the shortlist for HQ2. A more indirect, but possibly more impactful, consequence was that entrepreneurial-spirited people in Houston with ideas did not see a pathway for themselves to have a startup, limiting company formation.

The lack of density and resources was identified by Accenture in 2017 when they studied Houston's startup ecosystem, and a concerted effort was made to address this issue. One site that was proposed for Amazon's HQ2 was property owned by Rice University in Midtown – when Amazon did not select the site, Rice decided to proceed with turning the former Midtown Sears and surrounding area into an innovation hub, The Ion District, anchored by The Ion in the former Sears.

Houston Exponential was formed at this time, as a joint effort of the Mayor's Innovation Task Force, the Greater Houston Partnership's Innovation Roundtable, and the Houston Technology Center. One core charge of the organization was to support the recruitment of additional resources to Houston, and in conjunction with the Greater Houston Partnership's economic development team, a number of well-known accelerators and incubators were brought to Houston, such as MassChallenge and Greentown Labs.

This momentum also led to other entities recognizing the need to be in Houston, as well as multiple local organizations forming their own startup programs, and today there are 53 different accelerators, incubators, makerspaces, tech hubs, or startup development organizations.

The list includes national and international organizations like gBeta by Gener8tor, Impact Hub, and JLabs. There are new venture studios like the Golden Section Venture Studio and the Softeq Venture Studio. There are also hubs with the primary goal of creating a density of resources, like The Ion District.

The other notable thing is the concentration of programs around Houston's core industries. Of the 53, 14 are focused on energy or energy transition and 17 are focused on health and life sciences. One driver behind this density is existing institutions in Houston opening programs, such as Halliburton starting Halliburton Labs to support energy transition startups or the Texas Medical Center opening TMCi.

The other startup resource growing in recent years has been coworking space. Despite coworking space nationally declining by over 12 million square feet since 2020, Houston has seen consistent growth in the coworking supply over that same period.

Today, Houston has over 4 million square feet of coworking space, more than any city other than New York and Los Angeles. The average price for a coworking desk in Houston is $325/month.

One notable firm driving the recent growth in coworking space is Common Desk. The firm has 5 different locations across the Houston region, and their growth has been so attractive that WeWork acquired them in 2022.

While part of the growth has been driven by a change in the needs of corporate office users, a portion is also due to the increased startup activity. The increased stock of flexible space also helps support startup growth, providing affordable office space for cash-strapped companies, as well as spaces where startups can meet one another, and collaboration can thrive.

Houston Startup Development Organizations

Startup Hub

- BioHouston | Health & Life Science Startups
- Energy Tech Nexus | Energy and CarbonTech Startups
- Enventure | Health & Life Science Startups
- Impact Hub Houston | Minority Founders
- Resilience Manufacturing Hub | Resiliency Focused Startup
- Rice Alliance for Technology and Entreprenuership | Industry Agnostic
- TiE Houston | Industry Agnostic

Incubator

- Fannin Innovation Studio | Life Sciences Startups
- gBeta (Gener8tor) | Industry Agnostic
- Greentown Labs | Energy and ClimateTech Startups
- JLabs @ TMC | Health & Life Sciences Startups
- RBL | Biotech Startups
- Rice Alliance IdeaLaunch | Rice Affiliated Startups
- Rice Alliance NSF I-Corps | Rice Graduate Students and Faculty
- TMCi | Accelerator - Cancer Therapeutics | Cancer Therapeutics
- TMCi | Biodesign | HealthTech Startups

Venture Studio

- Flathead Forge | Energy HardTech Startups
- Golden Section Venture Studio | B2B Software Startups
- Portal Innovation | Health & Life Sciences Startups
- Softeq Venture Studio | Digital Tech Startups

Makerspace

- UH Incubator Labs | Research-based Startups
- Center for Device Innovation @ TMC | Medical Device Startups
- CreatorSpace | Industry Agnostic
- East End Maker Hub | Industry Agnostic
- TX/RX Labs | Industry Agnostic

Tech Hub Building

- Bioscience Research Collaborative | Health & Life Sciences
- The Ion | Industry Agnostic
- TMC Innovation Institute | Health & Life Sciences
- UH Technology Bridge | Industry Agnostic

Accelerator

- BioWell | Industrial Biology Startups
- Chevron Studio | Clean Energy Startups
- CUBIO Innovation Center | Life Sciences
- DivInc | Women-led Tech Startups, SportsTech Startups, Web3 Startups, Clean Energy Startups, Underrepresented Founders
- Eunike Ventures | Energy Startups
- Founder's Institute | Industry Agnostic
- Greentown Go | Energy and ClimateTech Startups
- Greentown Labs and BGS's ACCEL | Clean Energy Startups, Underrepresented Founders
- Halliburton Labs | Energy and Climate Ventures
- LadderUp | Retails Businesses looking to enter E-Commerce
- M1 MedTech | Medical Device Startups
- MassChallenge | ClimateTech, Medical Tech, Space Commercialization
- NOV Supernova Accelerator Program | Energy Startups
- Owlspark | Rice Affiliated Tech Startups
- RED Labs | Industry Agnostic
- Rice Alliance Clean Energy Accelerator | Clean Energy Startups
- Rice Biotech Launch Pad | Rice Affiliated Biotech Startups
- TMCi | Accelerator - Health Tech | HealthTech Startups
- Woodside Rice Decarbonization Accelerator | Rice Researchers, Decarbonization Technologies

Colleges & Universities

Colleges and universities are a critical component of a successful tech ecosystem, for the talent that they provide, the entrepreneurs and startups they spin out, and the research that comes from them.

Houston area colleges and universities enrolled over 434,000 students in the fall of 2023. This included 202,598 students at two-year community colleges and another 231,653 students at four-year or above institutions. The Houston region boasts 3 Tier I research universities: Rice University, University of Houston, and Texas A&M University.

Looking at technical degrees, several higher education institutions across the region offer programs in fields of study core to digital tech and innovation. These fields include computer science (12 institutions), computer or electrical engineering (10 institutions), mechanical engineering (8 institutions), and data science (7 institutions).

Additionally, there are a large number of students enrolled in engineering programs separate from those listed above, such as chemical engineering, materials science, petroleum engineering, and more. Rice University has more than 2,900 engineering students across undergraduate and graduate programs. Texas A&M has 25,000 enrolled engineering students. The University of Houston has 4,800 engineering students.

The region's four-year institutions are complemented by a strong community college program as well. For example, Houston Community College offers an Associate's Degree in Artificial Intelligence, the first such program in the nation. HCC partners with Intel on the program to help provide curricular enrichment, faculty development, and career-oriented student support.

Additionally, there are sector-specific programs helping to support the workforce and talent driving innovation in Houston's other industries. For example, San Jacinto College is working with NIBRT to develop biopharmaceutical training for life science companies in the region, as well as the EDGE Center at the Houston Spaceport providing aerospace training as the official education training partner for the Houston Spaceport.

From a business perspective, Houston universities are also preparing students to open and run companies. Twelve universities offer undergraduate degrees in business, as well as five with undergraduate degrees in entrepreneurship. These are complemented by 12 MBA programs in the region.

Notable business programs in the region include the University of Houston's Wolff Center for Entrepreneurship, which has been ranked as the number-one undergraduate program in the nation for the last five years. For graduates, Rice University's Jones Graduate School of Business has been ranked first for entrepreneurship for the last five years as well.

At Texas A&M, the university offers an engineering entrepreneurship program, promoting innovation among students and commercialization of new technologies.

To support student entrepreneurship in the region, there are also a number of dedicated programs. These include the University of Houston's RED Labs, Rice University's Lilie Lab & OwlSpark accelerator, and Texas A&M's McFerrin Center for Entrepreneurship, among numerous others.

Houston Community College also offers entrepreneurship courses, with the opportunity to receive either an associate's degree or a certificate in a number of programs surrounding innovation, entrepreneurship, and enterprise development.

Another way that Houston area universities are contributing to tech and innovation is by engaging the community. For example, Rice University is developing the Ion District, a 12-block campus in Midtown Houston that is home to startup hubs like The Ion and Greentown Labs, and will grow to become a mixed-use district for innovation.

Rice also puts on numerous events annually that help engage the community. The most notable is the Rice Business Plan Competition, which brings 42 student startup teams from around the world to Houston to pitch for over $1 million in prizes annually. Other examples include the Rice Energy High Performance Computing Conference held annually, promoting innovation and collaboration in high-performance computing among researchers and industry; the Energy Tech Venture Forum, bringing startups and investors to Houston to showcase the latest innovations in energy tech; and Demo Days Rice puts on from their various accelerator programs.

The University of Houston similarly engages the community, such as partnering with the Houston Angel Network to help create investment and mentorship opportunities for UH alumni looking to become angel investors and participate in the local innovation community.

UH is a founding member of Evolve, a non-profit aiming to improve air quality and reduce greenhouse gas emissions by supporting and enabling the greater Houston area to increase electric vehicle adoption.

UH also runs the SURE program, or Stimulating Urban Renewal Through Entrepreneurship. The program connects students at UH's C.T. Bauer College of Business, local business owners and executives, and under-resourced entrepreneurs. The three groups are able to learn from one another and provide their expertise, allowing for community enrichment, stronger businesses, and uniquely skilled students.

These programs represent just a portion of the ways Houston universities engage the broader entrepreneurial community.

The other core way that universities contribute to the innovation ecosystem is with the research discovered in universities. These findings pave the way for businesses to be created and corporations to adopt new technologies.

One measure of internal innovation is the number of patents issued. In 2023, Texas A&M University System ranked 30th among universities, with 66 utility patents. University of Houston ranked 64th, with 27, and Rice ranked 94th, with 14.

These numbers are good, but leave room for improvement, especially when compared to universities in established startup ecosystems. For example, Bay Area institutions (Cal & Stanford) had a combined 745 utility patents in 2023, and Boston area institutions (MIT, Harvard, University of Massachusetts, Northeastern, Boston University, and Tufts) had a combined 726.

Patents aren't a perfect measure, as not all research will necessarily lead to one, but they are a measure, and they show room for growth in Houston.

The other way to look at university innovation is by R&D expenditure. In 2022, Houston area universities spent nearly $5 billion on research and development. This puts the region third nationally, behind only New York City ($5.1 billion) and the Bay Area ($5.3 billion), a very respectable position.

This statistic is buoyed by research in institutions of the Texas Medical Center, accounting for nearly 90% of the R&D expenditures in Houston. The region has 5 institutions in the top decile for R&D expenditures nationally, and each of them are medical schools.

Institution	Rank	Percentile	R&D expenditures (in thousands, 2022)
UT - M. D. Anderson Cancer Center	22	97.7	$ 1,182,536
Texas A&M Health Science Center	23	97.6	$ 1,152,666
Baylor College of Medicine	36	96.1	$ 827,005
UT Southwestern Medical Center	44	95.2	$ 719,002
UT Health Science Center	86	90.5	$ 342,633
University of Houston	113	87.5	$ 240,126
Rice University	124	86.3	$ 216,202
UT - Medical Branch	133	85.3	$ 204,518
Prairie View A&M University	286	68.3	$ 20,429
Texas Southern University	334	62.9	$ 12,120
Sam Houston State University	335	62.8	$ 12,009
Texas Woman's University	408	54.7	$ 6,029
Lamar University	428	52.5	$ 5,304
UH - Clear Lake	579	35.6	$ 1,800
UH - Downtown	603	33.0	$ 1,485

Talent

The Houston area has a total tech workforce of more than 152,000 individuals. That includes 99,000 workers who are doing directly tech-heavy roles, whether in a 'tech' company or not, as well as an additional 53,000 workers at tech companies doing non-technical jobs. Houston's rate of 65% technical workers is higher than the national average of 61%.

Houston has the 15th largest tech workforce nationally, and the third largest in Texas, behind both Dallas and Austin. Overall workforce numbers are similar in size to Denver, Philadelphia, and Minneapolis. Of note, Houston's 99,000 tech occupation jobs is more than Austin's 94,500, despite general perceptions of the markets being the opposite.

One key advantage of Houston's tech ecosystem is the diversity of the workforce. Houston ranks in the first quartile of CompTIA's diversity index.

The top tech occupations within the tech workforce are software, programmers, web, and QA occupations, at 28,600, including 19,900 software developers. This is followed by 15,800 IT support specialists and repair technicians; and 14,700 cybersecurity and systems engineers.

Promisingly, tech occupations overall and within each subcategory of jobs are growing year over year. From 2022 to 2023, the tech workforce grew 2.0%, higher than the national growth rate of 1.2%. Houston ranked 5th in net tech employment gains, behind only Dallas, New York, Austin, and Miami.

Notably, Houston's workforce grew by more than 11 of the 14 ecosystems larger than it in 2023, a sign that the region has the potential to move up the rankings in future years.

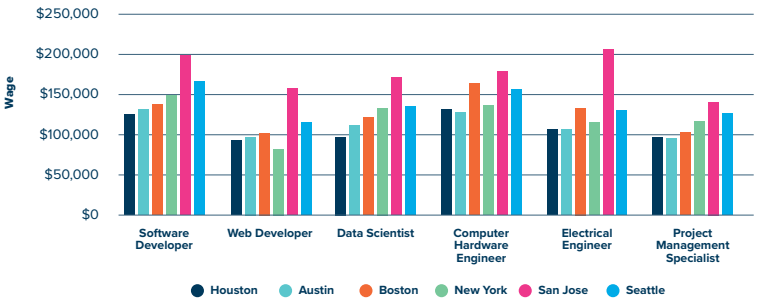
Tech workers in Houston saw a median wage of $95,000 in 2023. While this was about 13% higher than the median wage for the metro overall, it is lower than the national median of $104,500 by around 9%.

The charts below compare the median wages for key tech occupations (software developers, web developers, data scientists, computer hardware engineers, electrical engineers, and project management specialists) in Houston to specific other metros.

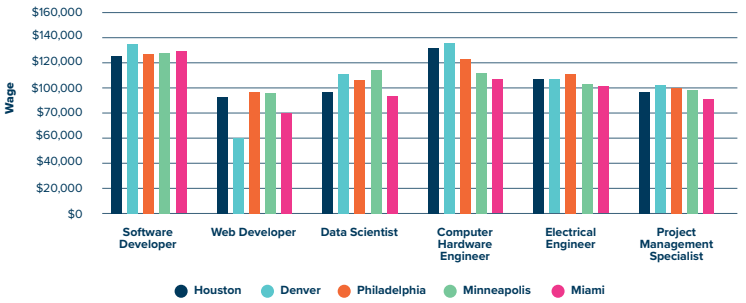
Houston's wages are highly competitive compared to established tech hubs, where competition for talent has driven wages up. However, compared to similar-size tech labor pools, the wages in Houston are on par, if not more expensive.

It is worth noting that these tech workforce numbers only account for the digital tech workforce in Houston. The region has a large pool of technical and engineering talent in other fields, with over 45,000 engineers across all fields. Additionally, the region has a large pool of other corporate talent, across finance, sales, marketing, and other office roles, critical to supporting a successful company presence.

Median Wages for Select Tech Occupations, Houston vs Established Hubs



Median Wages for Select Tech Occupations, Houston vs Similar Sized Hubs



Investors

Houston has 295 investors (venture capital firms, angels, angel groups, or corporate venturecapital firms) headquartered in the region, as well as another 53 not Houston-based, totaling 348 investors. When you also include private equity firms, family offices, government investors, and other groups who participate in VC deals, the list increases to 461 investors.

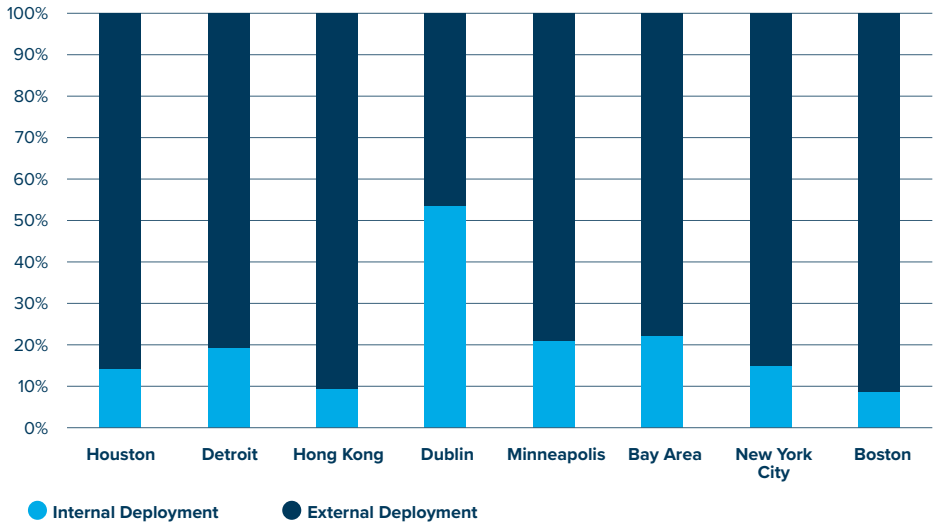
Investor Type	
Angel	161
Angel Group	9
CVC	20
Not for Profit VC	2
Venture Capital Firm	156

The region hasn't always had such a wealth of investors. Of those with data on founding date in Pitchbook (145 investors), 82 were founded from 2016-2024, and another 19 of the longer standing funds are part of the group not based in Houston, who likely opened their Houston office in more recent years, long after being founded.

One issue not shown in the topline number of investors in Houston is the amount these investors participate in rounds in Houston. In 2023, Houston-based investors participated in 223 deals with companies based outside the Houston region, as opposed to just 37 with companies inside the Houston region, a 14.2% internal deployment rate. Stretching the data back to 2010, those numbers become 1738 external deployments and 356 internal, a 17.0% internal deployment rate. A possible bright spot is that among angel investors, there has been a 25.1% internal deployment rate since 2010 (145 internal deals, 433 external).

These metrics point to a distinct need for more capital within the Houston region.

VC Deployment from Select Metros

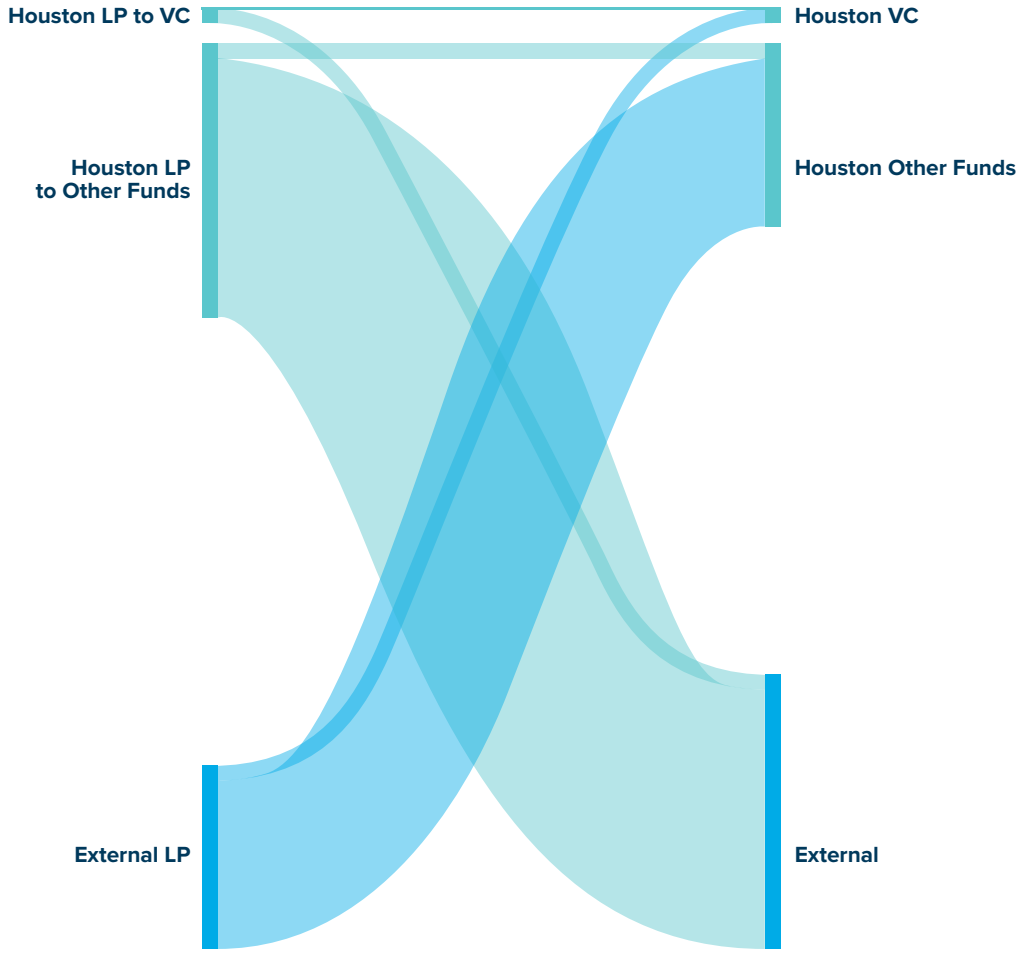


The other issue is the breakdown in the stages of investors. Houston has historically lacked early-stage capital, at the Seed or Pre-Seed stage. This remains true today, with many of the largest investment firms in town focusing on Series A or beyond, or being Corporate Venture Capital firms that are best suited for late-stage investments.

Another cause for concern is the lack of capital deployment from Houston-based limited partners to Houston-based venture capital firms. Since 2019, Houston-based LPs have made over $6 billion in commitments to funds. Of that, only 4.8% has gone to venture capital, and only 8.6% of those dollars have gone to Houston-based firms, leading to a minuscule 0.4% of Houston capital going into Houston-based venture capital.

On one hand, this is concerning, that more capital is not going into venture. However, the volume of commitments, even through a tumultuous period in financial markets, shows that capital is available locally for venture funds to raise. It might not be as abundant, as Houston-focused, or as venture-focused as fund managers would like to see, but there are dollars looking for investment that can be unlocked for local venture activity.

Flow of Capital



One potential avenue for increasing the amount of capital in Houston is to bring additional Corporate Venture Capital firms into the region. Houston is already home to over a dozen different CVC firms, either with headquarters or main offices here.

One bucket of existing CVC is from energy companies. These include both companies headquartered in the region, such as Shell, SLB, or Oxy, and companies from elsewhere, such as international firms like Equinor and Aramco.

Another bucket of existing CVC is the firms tied to Houston's other industries. Johnson and Johnson has an office here, serving the health and life sciences industry. United Airlines Ventures invests both in aerospace companies and in clean fuels companies. Prologis Ventures is looking for cutting-edge technology advancing the logistics industry.

Corporate Venture Capital represents a unique way to unlock capital from major companies, bringing it from their headquarters into the Houston region, and from their internal innovation teams to startups in the area. It also represents a unique way for startups to access committed customers and users for their products, and partners who understand how to bring innovation to scale.

With Houston as a great place for startups to scale, it makes sense that CVC firms, who largely invest in startups at a stage where they are scaling to commercial size, and have a dual interest in startups reaching commercial scale as both investors and customers, should be operating in the Houston area. This will give them access to Houston startups that are well-positioned to grow, as well as access to a market where they can bring other portfolio companies when they are ready to scale.

On the other end of the spectrum, for investors looking to begin funding startups at their earliest stages, Houston Angel Network provides a great entry point into the market. High net worth individuals looking to deploy capital can join Houston Angel Network to be part of a larger community looking to do the same.

Houston Angel Network provides high net worth individuals access to large amounts of deal flow, along with the collective knowledge of HAN for understanding the flow. The network puts on regular events to learn more about industries, hear pitches from companies, and meet peer investors.

For those who want to deploy their capital, but don't want quite as much hands-on involvement, Houston Angel Network can also help direct individuals to funds where they have the opportunity to be an LP.

Select Houston Investors

		Pre-Seed	Seed	Series A	Series B	Series C+
Angel Groups	**Buenas Vista Angels** | Consumer Products, Software	■				
	Pearl Influential Capital | Female Consumer Companies	■				
	TiE Houston Angels | Industry Agnostic	■				
	Task Partners | Industry Agnostic	■	■			
	Houston Angel Network | Industry Agnostic	■	■	■		
Venture Capital	**Ten X Labs** | First Time Founders of Color	■				
	Born Global Ventures | Impact Driven Startups with Immigrant Founders	■	■			
	SofTeq Venture Fund | Software	■	■			
	South Loop Ventures | Energy, Space, SportsTech, Health, FinTech, B2B SaaS with underrepresented founders	■	■			
	Cathexis Ventures | Industry Agnostic	■	■	■		
	Carnrite Ventures | Energy and Climate Technology, Healthcare Technology	■	■	■	■	
	The Artemis Fund | Diverse Founders, FinTech and Commerce Enablement		■			
	Texas HALO Fund | Life Sciences, Digital Technologies, Other Tech		■			
	First Bright Ventures | Synthetic Biology		■			
	Houston Health Venures | Healthcare IT, Medical Devices		■			
	Medingenii | Medical, Healthcare, Life Sciences		■	■		
	Curate Capital | Female Founded Companies		■	■		
	Fathom Fund | DeepTech		■	■		
	Portal Innovations | Health & Life Sciences		■	■		
	New Climate Ventures | Carbon Reduction and Avoidance Technology Companies		■	■	■	
	Valhalla Investment Group | Energy, Healthcare, Digital Technologies		■	■	■	
	Ampio | Digital Technologies		■	■	■	■
	GOOSE Capital | Emerging Technology		■	■	■	■
	Golden Section | B28 Software		■	■	■	■
	Texas Ventures | Energy, Health & Life Sciences, Digital Technologies		■	■	■	■
	SpaceFund | Aerospace		■	■	■	■
	Urban Capital Network | Industry Agnostic		■	■	■	■
	Mercury Fund | B28 SaaS			■	■	■
	Houston Ventures | Energy			■	■	■
	Venten | Clean Energy			■	■	■
CVC	**DRW Venture Capital** | Finance and Enterprise Tech	■	■	■	■	■
	GBM Ventures | FinTech, E Commerce & Marketplaces, Health & Wellness, Food Tech		■	■		
	TMC Venture Fund | Health & Life Sciences		■	■		
	Johnson & Johnson Innovation - JJDC | Health & Life Sciences		■	■	■	■
	Maximo Capital | Automotive		■	■	■	■
	Aramco Ventures | Sustainability, Industrial Technologies, Digital Tech		■	■	■	■
	Equinor Ventures | Energy		■	■	■	■
	SABIC Ventures | Energy, Industrial Technologies		■	■	■	■
	bp Ventures | Energy			■	■	■
	Chevron Technology Venture | Energy, Digital Technologies			■	■	■
	ConocoPhillips Technology Ventures | Energy, Industrial Technologies			■	■	■
	Oxy Low Carbon Vehicles | Low Carbon Fuels and Products			■	■	■
	Pinnacle Ventures | Aerospace, Energy, Pharmaceuticals, Industrial			■	■	■
	Prologis Ventures | Logistics			■	■	■
	Schlumberger Technology Investments | Energy, Industrial Technologies			■	■	■
	Shell Ventures | Energy, Industrial Technologies			■	■	■
	United Airlines Ventures | Aerospace, CleanTech, B2B Technologies			■	■	■

Conclusion

Houston's tech and innovation landscape is strong and growing, but not without gaps that need to be addressed.

As the energy industry continues to evolve, both major energy companies expanding their energy portfolio and startups in the CleanTech and ClimateTech verticals will find Houston to be the best place to deploy technologies. Digital health, new medicines and medical devices, and advancing patient care technologies will continue to revolutionize Houston's health and life science industry. Developments like the Houston Spaceport, NASA JSC's Exploration Park, and the Texas A&M Space Institute facilitate the growth of Houston's commercial aerospace industry.

These industries are also rapidly digitizing, creating opportunities for Houston to see new offices dedicated to digital tech teams from traditionally non-digital tech companies, whether focused on IT & cybersecurity, traditional software applications, or the use of AI in these industries.

Major tech companies are increasingly maintaining a presence in Houston. There is room for growth on the technical side of these presences, as a relatively high proportion of these teams are tied to sales, customer success, or other non-technical roles. However, as the needs of these companies change, and the talent and market in Houston evolve, Houston can capitalize and win future expansion projects.

The region has a number of startups that are unicorns or near unicorns that will continue to grow and add jobs in the region. These, paired with startups founded elsewhere coming to Houston as the right place to scale, will create opportunities for those looking to work in established startups.

Houston is also seeing a large wave of new startup formation, across both the traditional industries of the region and in new and emerging industries. These companies have the potential to become the success stories of tomorrow, helping drive economic growth in the region.

As the exit market becomes more favorable, there are a number of Houston startups that likely will go public or get acquired. Beyond the positive press this will generate for Houston's startup ecosystem, this has the potential to unlock resources for the next wave of younger startups. Invested capital will see returns with the chance to reinvest. Experienced entrepreneurs and startup staff can become mentors or serial entrepreneurs. However, these exits need to happen, and happen successfully, to start the flywheel of startup success.

The newest waves of entrepreneurs and startups can tap into the resources that have been accumulating in Houston, as well as others that become available as the ecosystem continues to grow. These resources will hopefully also inspire new entrepreneurs, whether coming from corporations, Houston area colleges and universities, or other startups.

All of this growth continues to expand the size, experience, and abilities of Houston's workforce. The workforce also continues to grow thanks to the region's strong network of universities and colleges, which are also supplying research and other resources to the innovation ecosystem.

Houston does still suffer from a lack of local capital. There has been recent progress with the advent of new angel investing programs and venture funds. However, more deployable capital will need to form in Houston, especially for seed and pre-seed companies, and LPs in Houston such as institutional investors and family offices will need to deploy more capital to venture funds.

One part of the solution will be continued growth in the interest of outside capital to invest in Houston companies. Ideally, this will lead to major venture firms and CVCs opening additional offices in Houston. The other portion of the solution is for capital from LPs and high net worth individuals in Houston to fund and create venture firms across a range of investment stages and theses.

Since 1837, Houston has been a city where problems are solved and potential is realized. In the 21st century, the world is rapidly changing, and Houston has the potential, the need, and the responsibility to be the hub of critical innovation in the major industries of the world.

Amperon

Founded | 2018

Current Employees | 100

Funds Raised to Date | $31 million

Website | **Amperon.com**

Amperon is a software company providing electricity forecasting and analytics solutions to improve grid reliability, manage financial risk, optimize renewables, and accelerate decarbonization. The company was founded in 2018 by Sean Kelly, a native Houstonian. After spending time as an energy trader and software technician, Sean ended up working in New York City in the mid 2010s. There he saw a vibrant tech scene that knew little to nothing about the energy industry, and saw an opportunity. He met a technical cofounder there, Abe Stanway, who had experience in technical roles at a number of startups prior. The two joined forces, and in 2018, Amperon was founded.

The product quickly gained traction in Texas, where ERCOT's policies and the Texas Interconnection provided a good use case for the company's products. This traction, and Sean's Houston roots, caused him to move back to Houston in 2019, and officially move the company here in February of 2020. Houston also made sense for the company, as the energy capital of the world. Since then, the company has continued to grow, and today is providing forecasting for electricity demand, wind power generation, and solar power generation, as well as insights on prices and carbon impacts. Amperon has over 100 customers across 19 countries, including serving 2.5 million meters in Texas and 40% of the state's electricity demand. With so much of the energy industry in Houston, around a third of the companies they sell to have either a Houston presence or a Houston headquarters.

Throughout the company's history, they've been built with a remote workforce, after their first data scientist was an international hire. Today, in addition to their Houston headquarters, Amperon has hub offices in Seattle, Boulder, Boston, and New York, each with around 8-10 employees. Despite being remote first, they see value in having physical presences, to help build culture, enter new markets as a company, and engage with local events and business ecosystems. However, the willingness to hire anywhere has helped the company acquire top notch talent, as they scaled from 28 employees at the start of 2023 to 100 today. For software talent, they hire lots of former big tech employees across the nation. Much of the data science arm of the company comes from Europe's strong labor pool. And the commercial and administrative roles of the organization are largely in Houston, where there is lots of experience with the energy industry.

Finding funding for Amperon was initially an effort outside of Houston. When they raised their first round in 2018, there were few funds in town, and those that did exist didn't fit Amperon's needs. However, as the company has matured and the funding landscape in Houston has matured, there have been more options in town, including a number of later stage funds or corporate VC firms. These later stage funds, such as Veriten, have also been helpful in providing a deep knowledge of the energy industry.

Going into the future, Amperon sees two main pathways for growth. The first is to continue building new products for its existing U.S.customers. The second is to focus on expanding into European markets, which they believe have a significantly larger total accessible market than in the U.S., creating a major opportunity for the company.

Cart.com

Founded | 2020

Current Employees | 1,000+

Funds Raised to Date | $300 million

Website | **Cart.com**

Cart.com is an omnichannel commerce and logistics solutions provider, offering software for marketing, order, inventory, and warehouse management, as well as fulfillment and logistics capabilities, for B2B and B2C customers. Founders Omair Tariq and Remington Tonar met each other at events at The Cannon. Their founding investor, Jim Jacobsen, had previously reached out to Omair to collaborate. Cart.com was founded in 2020, and they rapidly iterated and grew, acquiring a number of other commerce and logistics companies to extend their capabilities across the commerce and logistics industries.

As the company continued to grow, they found a growing need for more talent, specifically software developers. As a startup, they found it hard to get Houston talent to leave corporate roles, especially for the developers in the region. As a result, the company moved to Austin in 2021 to take advantage of the available talent there.

The company continued to evolve, and eventually, in 2023, they made the decision to return to Houston. At that point, the company had grown to a point where developers were no longer the main talent need, and instead Cart.com was looking for administrative professionals in marketing, finance, operations, and more, as well as people with expertise in logistics – both of which were needs Houston could fill. Houston also offered Cart.com access to larger corporate customers, two airports with great global connectivity, and proximity to their executive team, many of whom had stayed in Houston throughout both moves.

When looking at talent, Houston had a pool of aspiring or recent entrepreneurs who were great talent for the early days of Cart.com, as well as a strong pool of corporate talent that helped drive the decision to return to Houston in 2023. However, when the company was looking to scale, despite there being high quality talent in Houston, it was difficult to recruit them from corporate jobs to take a risk working at a startup.

Searching for funding, Cart.com was able to tap into local investors like the Houston Angel Network and Mercury Fund for their early rounds. This was helped by the founders' existing networks – Omair was well connected with Mercury Fund, Remington had a strong network working at The Cannon, and Jim had connections as the founder of RTIC Outdoors. In their Series B & C rounds, Cart.com has continued to get follow on funds from Houston investors, but has also had to bring on coastal funds and blue chip strategic investors to reach the size of rounds they've raised. The company reached unicorn status in 2023 with their Series C round, despite a very difficult venture landscape.

Since September of 2023, Cart.com has been profitable. Cart.com enables thousands of customers, supports tens of millions of orders per year and operates over a dozen omnichannel fulfillment centers nationwide. The company expects continued growth in topline revenue and profitability, as well as additional acquisitions to expand the company. The other large arenas for growth are expanding internationally and supporting customers in new industries and verticals.

Entera

Founded | 2018

Current Employees | 100

Funds Raised to Date | $60 million

Website | **Entera.ai**

Entera is a software and services company enabling residential real estate investors to buy, sell, and operate single-family homes across the U.S. The platform helps investors make intelligent investment decisions, scale operations, optimize the buying and selling process, and reduce transaction and operational costs. The company was founded by Martin Kay, Robert Salmons and Greg Morrison in 2018. Martin, who has a background in tech and Robert, who has a background in real estate recognized the potential to improve efficiencies in the residential real estate industry. Given that the single-family residential investment market exceeds $500 billion annually with significant fees, Martin saw this sector as a prime opportunity to create value and build a business.

The platform initially launched in two U.S. markets and has since expanded to serve over 32 metro areas. It now addresses a broader range of needs for real estate investors, including both existing homes and new construction; enterprise and mid-market buyers and sellers; and services for partners and sellers of new construction communities. The company's growth has been largely organic, identifying opportunity markets and entering them while continually adding features to meet new customer demands.

Throughout its history, Entera has operated between New York City and Houston, maintaining a co-headquarters structure. Martin has lived in Houston for nearly 20 years and recognized it as a place where Entera could find high-quality, hard-working talent, particularly in the real estate sector. This, combined with access to technical talent with PropTech and FinTech experience in New York, where Greg, the Co-Founder and CTO is based, has supported the company's growth. Today, much of Entera's services and operations are centered in Houston, while its AI and FinTech development talent is primarily located in New York and the West Coast.

The company was initially self-funded. In 2019, Entera raised its initial seed funding round, securing capital primarily from firms in San Francisco, where investors were familiar with PropTech startups like Entera. When raising additional capital in 2020, the company attracted new growth partners in New York City who were best positioned to support its next phase. While there has been an increase in Houston and Texas-based venture funds, at the time of these investments, there were not enough funds in Houston with a dedicated focus and expertise in the FinTech/PropTech space to meet Entera's needs.

Entera envisions future growth through several avenues: expanding services for existing customers, particularly in the sales side of the business; entering additional real estate markets; and eventually serving smaller investors nationwide. The company aims to become the real estate platform equivalent to what Shopify is for e-commerce or Bloomberg is for finance.

Liongard

Founded | 2016

Current Employees | 85

Funds Raised to Date | $34.05 million

Website | **Liongard.com**

Liongard is a cybersecurity platform that provides continual discovery, management, and monitoring of an organization's attack surface, helping provide cyber-resilience to prevent attacks and limit damage when they do happen. The company was founded by Joe Alapat and Vincent Tran in 2016. The two had previously worked together at EmpactIT, an IT service provider, and saw an opportunity to solve the greater cybersecurity problems they had experienced. They were inspired to answer the question "Can we predict where a data breach will happen next?"

Joe and Vincent spent time officing at Station Houston in the early days of the company, where they met other entrepreneurs, mentors, and investors who could give feedback and advice about the company. The company continued to grow, raising their Seed round in 2018 from a group of investors in the Houston area. After this, they went to market with their platform, working with a number of MSP customers in Houston that the founders were familiar with. The company raised multiple more rounds, and in their Series B, took on Updata Partners as an investor, a portfolio firm of HX Venture Fund.

With their growth, the message of the company changed from monitoring the attack surface to automating visibility in IT and cybersecurity, and at the time of their Series B extension round, they pivoted to focusing more on profitability, rather than growth. However, not long after the Series B extension, they saw the opportunity to pivot back to their original concept of monitoring the attack surface, as the concept was gaining traction among major players in the field such as Gartner. They also saw the opportunity to recruit a new CEO, Michelle Acardi, who was able to act almost as a cofounder and deliver unique expertise and experience to the company.

Liongard started very much as a Houston company, and their initial hiring reflected that, pulling talent exclusively from the local labor pool. However, the company had the flexibility that if an employee decided to move away, they could pivot to a remote role and stay with Liongard. This prepared them well for the COVID pandemic, when they decided to begin hiring talent anywhere to be able to find the best talent possible. Houston made a good base for hiring remote workers, as the Central Time Zone made it easy to work with employees on either coast, or in Canada and South America. Post-COVID, the company is seeing the cultural benefits of being in office, as well as the retention benefits of flexibility, and have adopted a hybrid work model for many employees. They're also helped by having much of their team, especially technical talent, already in Houston.

Liongard plans to continue to focus on profitability in their growth. They hope to provide end users profitable growth with sanity, by providing good IT and cybersecurity software, which will then lead to profitable growth for Liongard.

Mallard Bay

Founded | 2019

Current Employees | 30

Funds Raised to Date | $6.85 million

Website | MallardBay.com

Mallard Bay provides software to help people have a better experience booking and interacting with outfitters for outdoor trips, such as hunting or fishing trips. The company was founded by Joel Moreau and Logan Meaux when they were students at Louisiana State University, in 2019. Both had previously had bad experiences booking and going on trips with outfitters, and believed there was a better solution. They also had experience with startups – Logan had been a part of the journey for Waitr from founding to exit, and Joel had been in the Louisiana startup and venture capital scene for years.

In the early days, the company participated in the LSU venture challenge, which helped them with both validation and early funding for the company. They also were able to raise a friends and family round from Louisiana angel investors. This helped them continue to develop until they had their launch in November of 2021. By April of 2022, they saw rapid adoption of the product, and entered the Rice Business Plan Competition, where they were one of the top finalists.

The Rice Business Plan Competition also opened up Mallard Bay to the possibility of having a presence in Houston. There they were introduced to the Softeq Venture Studio, which they participated in during the summer of 2022, and met Mitra Miller from the Houston Angel Network. This time in Houston and the connections they made helped the company raise their Seed round in fall of 2022, and after a bit more growth, they opened a Houston office in 2023, recognizing the opportunities Houston would provide the company.

Since expanding here, Houston has helped the company gain more access to capital and corporate customers. The city's connectivity makes it easier for offsite employees or customers to visit. Mallard Bay has also found a network of other outdoor industry startups, such as Turtlebox, Everest, and others.

The other big advantage in Houston was a new labor pool. While Baton Rouge had a large pool to hire from, many of their hires there were students. Houston provided Mallard Bay with more experienced talent, as well as an attractive metro area for employees to relocate too if they aren't already in the region.

Going forward, Mallard Bay is looking to grow its supply of outfitters, as well as to provide more tools and resources to the outfitters using their platform. The other big area for growth is working with corporate partners looking to book outdoor trips to entertain clients or for company retreats.

Syzygy Plasmonics

Founded | 2018

Current Employees | 115

Funds Raised to Date | $110M

Website | **Plasmonics.tech**

Syzygy Plasmonics is a decarbonization company building electric chemical reactors that use light, rather than combustion, to produce chemicals in a cleaner fashion. Founders Trevor Best and Suman Khatiwada met working in the R&D department at Baker Hughes while developing new products for the energy industry. In 2017, Best and Khatiwada began searching for cutting edge technology at Rice University, where they learned about Syzygy's core technology of plasmonic photocatalysis. With a firm belief that it had the potential for commercialization, they began raising funds for the company, and in 2018 Syzygy was formed.

The technology was at TRL3 coming out of Rice University labs. The company began developing and testing small scale photoreactors, scaling to larger and larger prototypes. In 2020, Syzygy left its first shared lab space and moved into its own official research and development facility. As it continued to scale up and grow, the company needed more space again, and opened an additional R&D lab, headquarters, and manufacturing facility in Pearland in 2022.

Today Syzygy has achieved TRL8 with its technology and is starting to build and demonstrate commercial scale reactors. Syzygy has designed its Rigel reactor cells to run on renewable energy and to accommodate many different chemical reactions, with its initial pathways focusing on producing hydrogen and clean fuels. Rigel reactor cells are small, efficient, modular, and are built with low cost materials.

The company received four rounds of funding as it grew. In their initial raise in 2018, around half the funds came from angel investors in Houston, and half came from a pair of venture capital firms outside Houston. Since then, their capital has come from corporate investors, and has been primarily from investors outside the region (more than 80% of funds in Series A, B, and C came from outside of Houston). In Syzygy's experience, Houston had few investors when they were raising funds, and those that did exist weren't familiar with HardTech. Since then, Syzygy believes things have greatly improved, with funds such as Veriten and Artemis Energy Partners springing up.

Finding talent has never been an issue for Syzygy. Houston's energy industry is full of people looking to make a positive impact on the climate, and willing to take some risk at a startup while seeking meaningful work. There is a significant pool of highly skilled talent interested in working CleanTech, which is essential for a technical, chemistry-based company like Syzygy. Where it has found some friction is getting employees adjusted to the culture shock of moving from a corporation to a startup. While workers will make the jump, it takes some time to get them used to how a startup like Syzygy operates. By putting in the necessary effort to help build culture and retain employees, Syzygy has been able to overcome this friction.

Syzygy is working on executing a number of commercial demonstration plants with high-profile partners. These demonstrations will are the highlight behind Syzygy's next fundraise, which it anticipates will take the company to cash flow positivity, and position it solidly for future growth.

Work & Mother

Founded | 2017

Current Employees | 12

Funds Raised to Date | $5.2 million

Website | **WorkandMother.com**

Work & Mother provides fully equipped and managed mothers room facilities at scale, working with landlords to serve the needs of entire buildings. The company was founded by Abbey Donnell in 2017, when she saw a number of people in her life struggling to return to work after having a child, largely due to troubles being able to breastfeed. Abbey had a background in marketing and enough knowledge in corporate real estate to be able to pitch an outsourced resource model to property managers. This allowed the company to launch their first pilot in 2018.

From the first pilot, the company made a number of changes that were critical to helping scale the business. Namely, they found ways to digitize the management of facilities. The other factor that helped the company was the COVID pandemic. First, it helped give them time to focus on their tech strategy. Second, the pandemic created a need for buildings to offer more assets and amenities to bring workers back to the office, making a resource like a mother's room more critical to property managers.

Today, Work and Mother has facilities in eight different markets across the country, and has seen evidence that mother's rooms successfully help companies recruit and retain employees.

Finding talent has been difficult at times for Work & Mother – not due to a lack of ability in the workforce, but because it's difficult to find people who are willing to jump from corporate roles into a startup, both due to the salary difference and the culture difference. This is a challenge many startups have, but is especially difficult for Work and Mother, who pulls largely from the corporate real estate industry, which has a very unique culture. As a result, the company is spread across the country. The leadership is in Houston, but much of the rest of the team is built with remote workers.

In their first funding round, Work and Mother was able to find funds in Houston, due in part to a good relationship with Artemis Fund and other local angels. However, as the company grew, they had to look outside Houston for further funding. The company had no trouble getting investors outside the region to look at the company, and eventually invest, but has had to go outside Houston for capital.

Work & Mother's next products include a smaller version of their mother's room, to serve uses like light industrial or more temporary and budget friendly needs. Work & Mother is also looking to expand to serve a broader work & wellness concept, including meditation, prayer, and general wellness space, where the company will manage the space and curate resources for the people using it.

HighRadius

Founded | 2006

Current Employees | 3,750

Funds Raised to Date | $485 million

Website | **HighRadius.com**

HighRadius offers AI-driven software to help automate and manage accounts receivable and treasury management processes for companies. The company was founded in 2006 by Sashi Narahari, who had a background as CEO of Riversand Technologies, a SaaS company working in the data management space. This experience gave him both business management and technical expertise that he was able to bring to HighRadius.

When the company was founded, they were providing on-premise software solutions installed on company servers, helping corporations with their accounts receivable. In 2010, the company shifted to a cloud-based SaaS model, offering flexibility and cost-saving to customers. Staying ahead of trends, HighRadius launched Rivana, their AI powered platform, in 2014, one of the earlier AI FinTech softwares.

The company was bootstrapped for it's first 11 years, and raised its first outside capital with a $50 million Series A round in 2017. At this point, the company had already seen lots of success and was cash flow positive. However, these funds helped the company launch Autonomous Treasury in 2019, helping automate cash forecasting for treasurers.

2020 was a monumental year for the company, when they achieved unicorn status after raising a $125 million Series B. This made the company the first unicorn in Houston. This was followed by a $475 million round a year later, further accelerating the growth of the company.

The company's funding experience is dominated by the storyline of being able to bootstrap the company for the first 11 years of their growth. However, once the time came to raise funds, they had to go outside Houston, and the company's major investors are exclusively outside the region. They've been able to raise form both major name VCs and high profile angel investors, and have continued to bring that capital into the Houston region.

HighRadius has employees across the world, with offices in London, Bhubaneswar, Bangalore, Paris, Amsterdam, and Hyderabad, but the leadership and a large number of other employees are here in the Houston region, where the company's main offices and headquarters are. Since raising capital, the company has seen rapid growth in headcount, going from around 500 employees in 2017 to over 3,000 by 2022.

The company will continue to grow to serve additional clients and provide more resources. They aim to continue provide more automation and efficiency to the office of the CFO at companies globally.

Solugen

Founded | 2016

Current Employees | 230

Funds Raised to Date | $640 million

Website | **Solugen.com**

Solugen®

Solugen is a clean chemical manufacturer, using bioreacting to produce chemicals with little to negative carbon footprint.

The founders met in 2010, Sean Hunt and Gaurab Chakrabarti, at a poker game when they were in med school at UT Southwestern. They continued their educational journeys, and in 2016, Chakrabarti was studying enzymes that were able to make chemicals currently produced in industrial processes, while Hunt was a graduate student in chemical engineering at MIT studying nanomaterials for catalysts. These researches came together perfectly, and they saw a possibility where enzymes could help create end products more efficiently. This led to Solugen being founded in 2016.

The company got second at the MIT Business Plan Competition, which came with a $10k prize they used to start the company. To save costs, the initial reactor was built largely with materials from Home Depot. They quickly found their first customers, needing to sell product due to a lack of inventory space.

The company continued to grow, launching new product lines and expanding their space as they brought in revenue and funding. Bioforge 1, their first full scale chemical plant, was built in just 2 years, and opened in 2021. Solugen has achieved a highly sustainable process, using sustainable feedstocks & a highly efficient process. The next steps for them are to build more plants, creating a network of local manufacturing and distribution for their products.

Houston has been the perfect headquarters for the company for multiple reasons. First, the region had the perfect talent for the company, with top notch chemical & industrial engineers, who could help with both the research developing the company, and the ability to scale their processes to industrial levels, Second, the region had chemical companies and other manufacturers who were perfect customers for Solugen. Finally, Houston has been a welcoming city for the employees and the company to prove themselves.

As they found funding, Solugen raised from investors outside the Houston region, at all stages of their growth. As a Y Combinator company, they were able to find direct investment from the accelerator, as well as connect with other investors. These investors largely pulled the company to be in the Bay Area or the East Coast, but Solugen refuted those calls, recognizing that even if their capital wasn't from here, Houston was the right place to scale.

Solugen's future sees growth coming in 2 ways – first is opening new Bioforges in new locations, and second is finding ways to make more new molecules in their Bioforges.

Axiom Space

Founded | 2016

Current Employees | 230

Funds Raised to Date | $640 million

Website | **AxiomSpace.com**

Axiom Space is a private space infrastructure developer looking to operate the world's first commercial space station. The company was founded in 2018 by Michael Suffredini and Kam Ghaffarian. Suffredini had been the program manager for the International Space Station at NASA from 2015 to 2018, and Ghaffarian was an entrepreneur and engineer who had his own NASA contracting business, Stinger Ghaffarian Technologies, that he had just sold to KBR.

With the upcoming retirement of the International Space Station in the late 2020s, the founders believed a commercial space station could be viable, and launched the company with that goal in mind. They're plan is to attach modules to the existing ISS, then launch as an independent station, Axiom Station, when the ISS is deorbited.

Axiom has achieved a number of milestones in their lifetime, including sending their first commercial astronauts to the ISS on Axiom Mission 1, in 2022. This was followed by two more successful missions, with one more mission currently planned and more likely to come. Axiom has also developed the latest generation of spacesuits for NASA, that will be used as the Artemis missions return to the moon and beyond.

The other big milestone in Axiom's story was opening their facility at the Houston Spaceport, as one of the anchor tenants for the facility. In 2023, Axiom opened their Assembly Integration and Test Building, a 22-acre campus within the Spaceport that serves as Axiom's headquarters and includes offices, facilities for astronaut training, testing labs, and assembly space for Axiom Station.

From a staffing perspective, the company has had no trouble bringing in top level talent in the region. Their staff includes a number of high profile former NASA employees and astronauts, as well as talented engineers and operations professionals with experience in the space industry from time at NASA or its contractors.

Axiom has consistently been able to raise funds. The majority of their funds have come from investors outside the Houston region, but in their $130 million Series B round in 2021, they included SpaceFund, here in Houston, as one of their investors.

The company is continuing to execute on space missions, and still is on progress for their goal of having the first commercial space station. They're preparing for the 2026 launch of the first section of Axiom Station into low-Earth orbit.

Artemis Fund

Founded | 2019

Funds | 2
Fund I, 2019, $15M.
Fund II, 2022, $36M

Investments | 23 portfolio companies,

$23M deployed to date

Artemis Fund was established in 2019, after Diana Murakhovskaya and Stephanie Campbell came together with the intent to form a fund helping women invest from the Houston startup ecosystem. Murakhovskaya started in banking and commodity trading, but became disenchanted with Wall Street and left to find something she was more passionate about. She found that in New York's startup scene, and dove in head first. She eventually started her own accelerator focused on diverse founders, hoping to address the inequities she saw in the ecosystem there.

In 2016, Diana Murakhovskaya moved to Houston, and wanted to find that same ecosystem. That led her to meeting Stephanie Campbell at a hackathon in 2016. Campbell was interning for Houston Angel Network at the time as she was finishing her MBA at Rice. From both Murakhovskaya's perspective as an outsider, and Stephanie's perspective with experience in Houston, what was missing from the ecosystem was women investors. The two started putting on community focused events, to see how women were investing, or if they were at all, and in 2018, they decided to build Artemis Fund.

Artemis' investment thesis is to invest in diverse founders helping solve personal, everyday economic problems. They've seen how technology has the possibility to help people overcome difficult backgrounds, and want to help facilitate that. They invest primarily in FinTech and commerce enablement companies nationally, but with a bend towards "secondary" tech cities. They very intentionally lead rounds, and invest at the Seed stage, when companies have a team in place, a product in the market, and some revenue.

Artemis' deal flow comes from a balance of inbound leads and outbound efforts, with a research-heavy, thesis driven approach to sourcing deal flow. They often will take a research-backed viewpoint about a market opportunity, then look to source companies in that space. They also spend a lot of time building their network of investors at earlier and later stages, both to help connect founders that aren't at the right stage for Artemis, and to source founders at the wrong stage for other investors.

When evaluating deals, Artemis takes a heavy handed, disciplined approach to diligence. They spend a lot of time getting to know the founders and a lot of time analyzing financial metrics. They'll often have founders take personality tests, to help better understand how to work together. Artemis also works to establish strong KPI tracking and a board for the company, helping prepare startups for later rounds and institutional capital as early as they can.

Artemis has raised two funds. The first launched in 2019, at $15 million, and the second in 2022, at $36 million. When raising the funds, they found the LP landscape in Houston to be fairly positive – around half of Fund I came from Houston LPs, and 1/3 of Fund II. In their fundraising, they've had to do a lot of education on venture capital as an investment class, but have found capital. Raising Fund II, they found the LPs to be more mission aligned, as well as more institutional, compared to Fund I.

From their two funds, Artemis has invested in 23 companies, deploying around $23 million in capital. Of those, three investments were in Houston based companies. They haven't had any portfolio companies move to Houston because of Artemis, but have seen companies find unexpected customer bases in the region.

Over the lifespan of the firm, they've seen the startup ecosystem in Houston dramatically improve, from one where founders left town due to a lack of capital to one where investors are interested in coming to town to invest, and founders are able to stay. The region still has room to grow, but is in a cautiously optimistic place.

Mercury Fund

Founded | 2013

Funds | 3.
Fund III, 2013, $100M.
Fund IV, 2018, $100M.
Fund V, 2023, $160M

Investments | 50 portfolio companies, ~$260M deployed to date

Mercury Fund was founded in 2013 by Blair Garrou, spinning out from DFJ Mercury. In DFJ Mercury's 2 funds, Blair had seen a lot of success investing in software companies from the middle of the country, and he saw an opportunity to build a fund focused around this thesis. Mercury's model is to find SaaS companies that Mercury can help implement their playbook for, creating success in the company.

Mercury invests in early stage B2B or B2B2C SaaS companies from middle America, the typical "flyover country," that are highly capital efficient. They have a bend towards companies that are data science or AI driven, but are sector agnostics. The firm is always a companies first institutional capital, writing checks around $1 - 4 million initially, then following on for around $8 to 10 million across the life of a company.

To source deal flow, Mercury works very intentionally to build relationships in secondary and tertiary venture markets with universities, angel investors, accelerators, and other ecosystem players. They aim to build networks in two to three new cities per year, and are currently active in around 30 cities. This inbound deal flow makes up 80%-90% of Mercury's sourcing, with the remaining 10%-20% outbound.

As Mercury Fund evaluates deals, the biggest thing they look at is the founder. They're hoping to find founders who are coachable, but also have the conviction to be able to pitch their own company. This, combined with Mercury's thesis and the company's financials, drives Mercury's decision making process.

As Mercury Fund, the firm has raised three funds – Fund III in 2013, with $100 million; Fund IV in 2018, with $100 million; and Fund V in 2023 at $160 million. Around half their capital has come from Houston-based LPs, either from institutional investors, family offices, or high net worth individuals. Over time, they've seen the LP landscape in Houston become friendly to venture, especially among institutional investors. Recently, they've started to see more "oil & gas money" and other wealth in town, especially from family offices, flowing into venture, and have even seen some family offices start to stand up first-time funds.

Mercury has invested in 50 companies since 2013, deploying almost all of their first two funds and around half of Fund V. The deployment has been around 30-50% in initial investments, with the remainder saved for follow-on capital. Thirteen of those 50 companies have either been headquartered in Houston or have an office here. Initially, Mercury only saw around 5% of their deal flow in Houston – now, it is closer to 25%. This is due to both an increase in good entrepreneurs and ideas in the region, as well as a willingness of companies to be in or move to Houston, with other success stories coming from the region. One result of that is a number of Mercury's portfolio companies from outside the region opening additional offices in Houston.

Mercury Fund sees a lot of potential for growth in Houston. The market has success stories and companies that have the potential to exit soon, helping create a flywheel effect of capital in the region. The region has a great quality of life that is attractive to talent, and opportunities in fields like space or energy that is can capitalize on in the upcoming years.

Softeq Development Studio

Founded | 1997 **Current**

Employees | 400

Softeq was originally founded by Chris Howard as a software development company in 1997. Howard saw an opportunity to do highly technical software development, taking on projects that were more harder and more innovative. Howard wanted to be an entrepreneur to support family and work from home, and quit his job at IBM to pursue it.

Softeq found early success, getting their first contract with Compaq in 1997 to build the first PC/TV hybrid. From there, they continued to take on contracts working with large Fortune 500 companies with "in-trepreneurs". Their customer base quickly included names like HP, Disney, Epson, SanDisk, and more. The core of the company's expertise was and still is understanding hardware.

As the company grew, they hired staff wherever they could, and were built as a remote company. This helped when COVID struck, as the company was prepared to be remote, and was able to grow around 70% of that period. Lots of the company's hires, even from its start, were international, largely due to the economics of international labor, and today they have developers in 22 countries, and offices in Munich, Vilnius, Poland, and Monterrey.

Around 10% of the company is in Houston, and Softeq has never seen a lack of tech talent in Houston, being able to draw from companies like Compaq or HPE, or talent from the energy or medical industries.

Softeq Venture Fund

Founded | 2022

Funds | 1, 2024, $40M

Investments | 64 portfolio companies, $18M deployed to date

Softeq Venture Fund was established in 2022, along with the accompanying Softeq Venture Studio. After Chris Howard's personal journey with entrepreneurship, he wanted to find a way to support that journey for others. He originally began with angel investing, but often saw startups with great ideas, but without the money to always execute.

He recognized that Softeq's development resources could be useful to startups, and built a program to give founders funding, mentorship, and the software development quality typically reserved for Fortune 500 firms at no cost.

The target companies for Softeq are pre-seed companies that are best able to benefit from the development services that Softeq has to offer.

Softeq Venture Fund has raised around $30 million of their $40 million fund to support this goal. Around 1/3 of their LPs, and 60% of the capital, has come from Houston-based LPs, but overall Softeq has seen that high net worth individuals and family offices need more education on the potential of venture as investment, and are underexposed to the asset class.

The Venture Fund and Studio have worked with 64 startups, of which 15 have been from Houston. In addition, they've seen a number of companies open offices or relocate to Houston after being impressed with the friendly and collaborative spirit of the city and the resources Houston offers.

Texas HALO Fund

Founded | 2012

Funds | 4.
Fund I, 2012, $2M.
Fund II, 2018, $4.6M. Fund III, 2019, $6M.
Fund IV, 2020, 12.4M

Investments | 83 portfolio companies, $25M deployed to date

Although no longer affiliated, Texas HALO Fund was established in 2012 as an initiative of the Houston Angel Network to help members of HAN and other angel investors quickly build a diversified portfolio of early stage startup investments. Since then, the fund has been one of the most active early stage investment funds in Houston.

Texas HALO Fund invests in an intentionally diverse portfolio of startups to mitigate risk to the fund, with about 1/3 of their companies in the life sciences, 1/3 in tech, and 1/3 falling into other industries. Their thesis is companies with initial valuations ranging from $3 - 15 million, raising $1 - 1.5 million, with check sizes from HALO around $200,000 - $300,000. The firm reserves a large amount of capital for future follow on. Investments.

Texas HALO Fund does not outreach to companies to source deal flow, but stays very involved in early stage communities to help allow deal flow to come to them. They review about 1200-1500 deals per year, which then leads to around 10-12 investments annually.

To parse through the deal flow, Texas HALO Fund has four partner members, each with a unique area of expertise. They will evaluate deals within their domain, and if they think it is particularly interesting, bring it to the rest of the group. All four partners will see a pitch before any investment happens, and typically reach unanimous consensus about participating in a deal.

As they've raised their four funds, Texas HALO has had no trouble finding LPs. The vast majority of their capital has come from Houston, aided by the strong networks and high levels of personal interaction that the partners have within the Houston community. They find it easier to raise locally, as it's easier to pitch a fund to someone you can meet in person. Texas HALO Fund's LPs are almost exclusively high net worth individuals, but there are some family offices that have invested in their funds.

Across the four funds, the firm has invested in 83 different companies, deploying around $25 million in capital. Geographically, the startups are from across the country, with about 1/3 here in Houston. They've seen a recent surge in the quantity and quality of deal flow coming from Houston, although the quality of deal flow has been rising across the board, not uniquely in Houston.

Veriten

Founded | 2022

Funds | 1.
NexTen Fund 2022, $85M

Investments | 9 portfolio companies, $24M deployed to date

Veriten was founded by Maynard Holt, formerly of Tudor, Pickering, and Holt, in 2022. The goal of the firm was to deeply understand where energy is going over the next 10 years, and invest accordingly. As a result, they've become a research, investing, and strategy firm, with three focus areas.

First is outbound connecting. Veriten produces a podcast, published editorials, and puts out other content to help connect with the rest of the world and serve as a forum for learning about energy, both for themselves and for others.

Second is consulting companies on their strategies. This helps leverage Veriten's knowledge and expertise, but also helps Veriten learn what questions and challenges exist in the market, to be able to learn more themselves.

Third is the investment arm of Veriten – NexTen Fund. The fund is a small, growth capital fund with a focus on specifically non-oil and gas energy. They look for technologies they believe can succeed, are resilient, are economically viable, aren't government subsidized, and that have less technology risk. In addition to making investments, Veriten aims to help the businesses in their portfolio with their knowledge and expertise.

Veriten's current portfolio is made up of eight investments. Of those, six companies are related to power – three with software, and three with on-site generation. As power

The explicit non-oil and gas focus for Veriten is not because they believe there isn't money to be made in oil and gas. In fact, they believe there is potential, and many of the staff make private investments into oil & gas deals that come across their desks.

However, Veriten believes that there is also money to be made in other energy investments, and are mission driven, based on curiosity about new technologies, and an understanding that on a long time horizon, the world is changing and other energy is a smart investment.

Despite this mission-driven approach, Veriten believes a focus on making money is critical. Many energy transition funds are built without the goal of making money, and this can lead to bad companies being funded, due to a lack of diligence. The key to change will be making good investments in good companies, and a profit-driven motivation is key to making those good investments.

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