HOUSTON TECHNOLOGY & INNOVATION TASK FORCE

JUNE 2017

OUR CHARGE

Deliver recommendations to the Mayor and City Council to best drive Houston's tech innovation and entrepreneurship economy

“Trillions of dollars in economic value is created by the technology sector, with much of that growth driven by startups. Technology creates more jobs than it displaces, and advances such as artificial intelligence will improve living standards in many ways.”

Global Startup Ecosystem Report
Startup Genome Project 2017

WHY BUILDING AN INNOVATION ECONOMY MATTERS

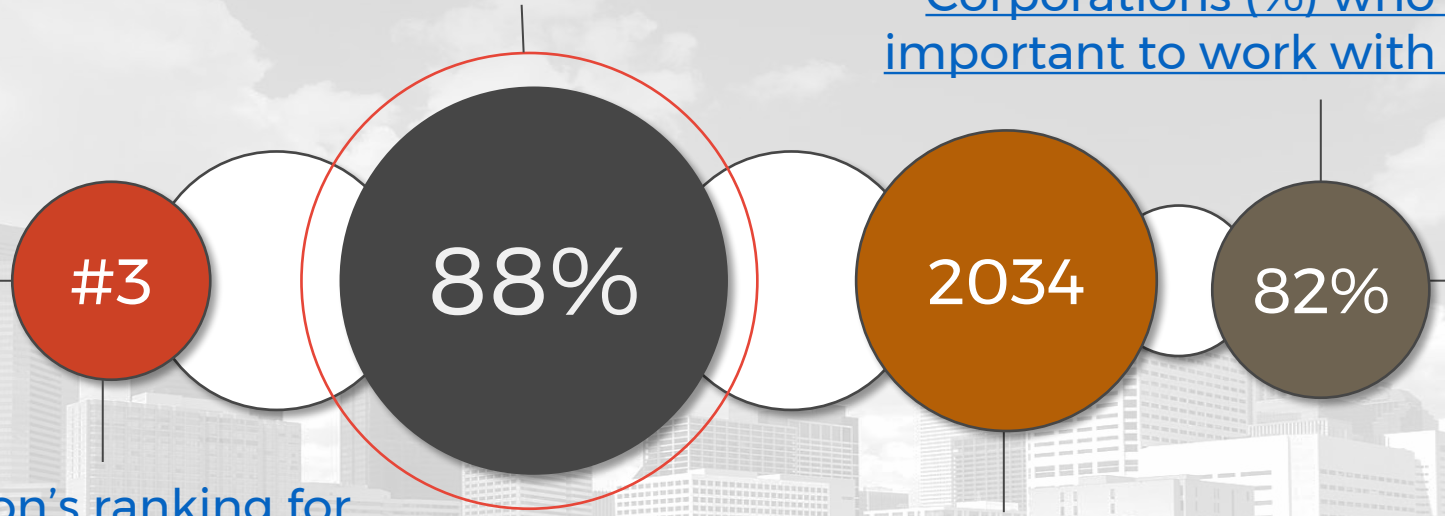
THE PROBLEM

Houston's lack of a robust innovation and entrepreneurship ecosystem is a significant threat to our economy as it is the largest driver of job creation, as well as a critical component in attracting and retaining corporate investment, venture capital and talent.

WHY A THRIVING INNOVATION ECONOMY IS CRITICAL FOR HOUSTON'S ECONOMY…

Companies (%) who have fallen from the Fortune 500 since 1955…only 60 remain!

Corporations (%) who say it's important to work with startups



Houston's ranking for density of Fortune 1000 companies

HALF of today's Fortune 500 will be replaced by 2034!

...WHICH IS WHY THE DATA IS ALARMING!

VENTURE CAPITAL

Houston Ranked 31st in the Nation (and 3rd in Texas) for Venture Capital Investment (NVCA)

STARTUP DENSITY

Houston is the only Top 10 Greater Metro to Fall from Top 20 in High-Tech Startup Density (Kauffman)

ENTREPRENEURIAL ECOSYSTEM

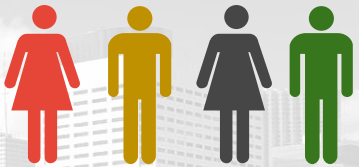
Houson Not Ranked as a Top 20 Startup and Entrepreneurial Ecosystem (Startup Genome)

TECH JOBS

Houston's Ranking for Tech Jobs Created fell to 43rd Nationally in 2017 (Forbes)

TECH STARTUPS CREATE A HIGH VELOCITY OF HIGH-WAGE JOBS AND ARE CRITICAL TO…

ATTRACT + RETAIN YOUNG TALENT	**>7%**	**Population of Educated Millennials in SF, Boston, DC and Austin (4% in Houston)***
CREATE LOCAL JOBS	**5:1**	**Multiplier Effect of New Jobs Created for each New Tech Job**
WIN CORPORATE INVESTMENT		**Attract Investment in Growth Areas**
INSPIRE A CITY'S IMAGE		**…& Culture!**



GE Moves HQ to Boston:
"Business Goes Where the Talent Flows"
(Forbes)

*Source: *Accenture / GHP Report*

How do we position Houston to be a world-leading and admired tech innovation and entrepreneurship economy?

OUR OPPORTUNITY

DEVELOPMENT APPROACH

RESEARCH

Best Practice Cities, Models Approaches, Data, Policy, etc.

NOV 2016 - FEB 2017

HYPERLINKS EMBEDDED WHERE POSSIBLE

AUDIT

Visited a Sample of Innovation and Entrepreneurship Assets in Houston

MARCH 2017

VISITS

VIsited Cincinnati and Chicago to Visit with Key Leaders

MARCH 2017

NOTES AVAILABLE FOR REVIEW

COLLABORATION

Collaboration with GHP's Innovation Roundtable & Accenture

ONGOING

FINAL REPORT LINK

EXPERTS

Calls + Visits with Experts; Chair Attended Kauffman Ecosystem Summit

APRIL, JUNE 2017

CASE STUDY: CHICAGO - BIRTH OF A NEW TECH ENTREPRENEURSHIP CENTER

In 2012, JB Pritzker along with the support of Mayor Rahm Emanuel and $2.3 million from the State of Illinois, launched 1871, a bold new model to drive its innovation economy. 1871 was launched at the famous Merchandise Mart, centrally located in one of the premiere and most accessible parts of Chicago.

CASE STUDY: CHICAGO - RISING FROM THE ASHES!

40K

New Tech Jobs

Since 2011

$1.7 B

Venture Capital Funding

Up from $391M in 2012

$8.2 B

Proceeds from Reported Exits

Up from $698 M in 2012

$3+B

Inward / Corporate Investment

Top Metro for Corporate Investment

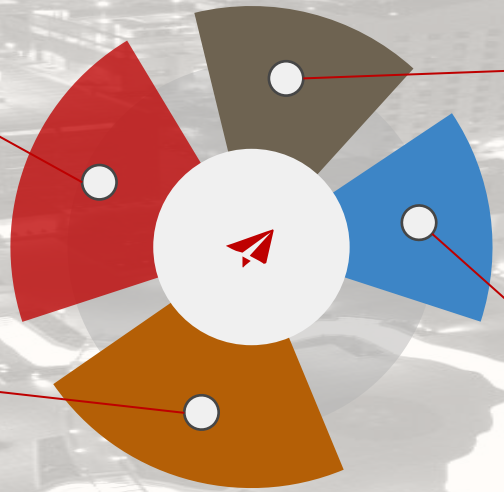
3rd Year in a Row

The advent of Chicago's tech innovation and entrepreneurship community drives material outcomes after launching in 2012, including recognition as a Top 20 Global Ecosystem in 2017 (Startup Genome Report)

RAW MATERIALS TO TRANSFORM INTO A WORLD LEADER

STEM Talent Base

Organizations Working To Build + Connect the Ecosystem



Diversity + Global Reach

Capital + Significant Fortune 1000 Base

Implementation should be Consistent with the City's Mission, Values and Objectives, including Inclusivity and Diversity Initiatives

TASK FORCE RECOMMENDATIONS

COLLABORATION WITH THE GHP & ACCENTURE TO ACTIVATE ALL STAKEHOLDERS

HOUSTON'S INNOVATION STRATEGY
SUPPORTED BY ALL OF ITS INNOVATION ASSETS

One Strategy

INNOVATION STRATEGY

Two Supporting Groups

- **Mayor's Innovation Taskforce**
- **GHP Innovation Roundtable**

Ten Initiatives

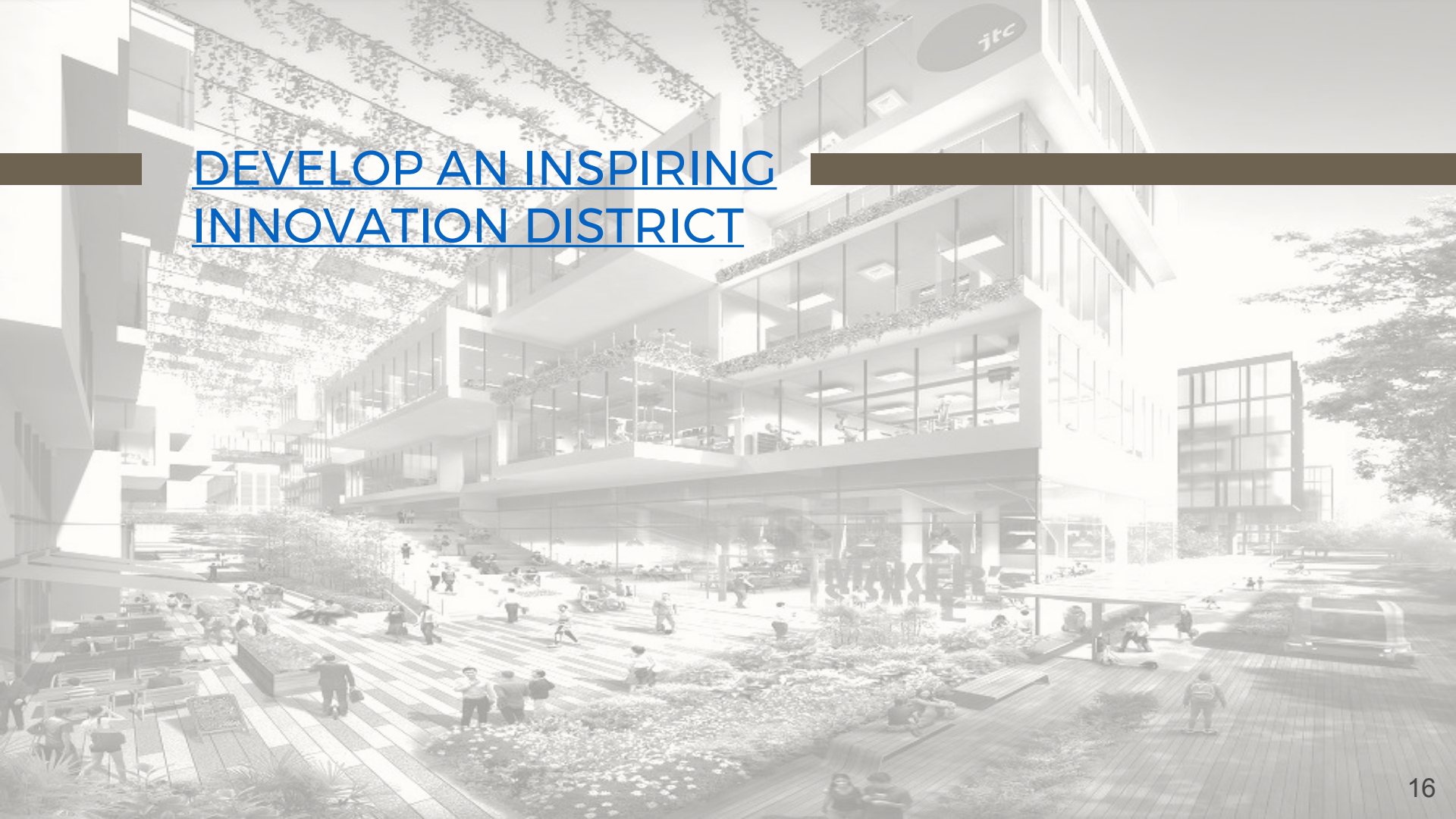
1. Thematic focus areas
2. Anchor hi-tech firm
3. Founder visa program
4. Testing ground for innovation
5. Startup ecosystem strategy office
6. Tech & life sciences innovation districts
7. Create fund-of-funds
8. Activate UHNW & Corp Exec Champions
9. Refresh Houston's startup image
10. City gov't should embrace innovation

Some of Houston's Innovation Assets

GREATER HOUSTON PARTNERSHIP
STATION HOUSTON TX
NASA
TMC X
OWL SPARK
Houston Technology Center
CIRCULAR BOARD
REDHOUSE Associates
Mercury Fund
UNIVERSITY of HOUSTON ENERGY RESEARCH PARK
RED LABS
SKETCH CITY
VESALIUS Ventures
January Advisors
accenture

ADVOCATE + CHAMPION

DEVELOP AN INSPIRING INNOVATION DISTRICT



BECOME LEADING TESTING GROUND FOR NEW TECHNOLOGIES

INNOVATE CITY PRACTICES + REDUCE FRICTION TO ACCESS ENTREPRENEURSHIP

SUMMARY

Data is Alarming	Leading Indicators Suggest the Time to Take Action is NOW!
Raw Materials for Success	Organizations and Community Efforts Need Support + Advocacy to Drive Houston Forward
Clear Paths for Action	Elements of Best Practice Models Provide Path to Accelerate Ideal Strategies for Our City
Transformative Impacts	Leadership, Support and Collaboration Can Propel Houston to be the City and Economy of the Future Today!

RECOMMENDATIONS EXPANDED AND SUPPORTING DATA

APPENDIX: SECTION ONE

ADVOCATE + CHAMPION (EXPANDED)

1. *Be engaged and visible advocate for Houston's tech and entrepreneurship economy*
   a. *Attend events, judge pitch competitions*
   b. *Schedule meetings and press briefings at local tech hubs, such as: Station Houston, TMCx and the Houston Technology Center, even if briefings or themes are not tech-related*
   c. *Tell the stories of Houston's innovators and startups whenever possible*

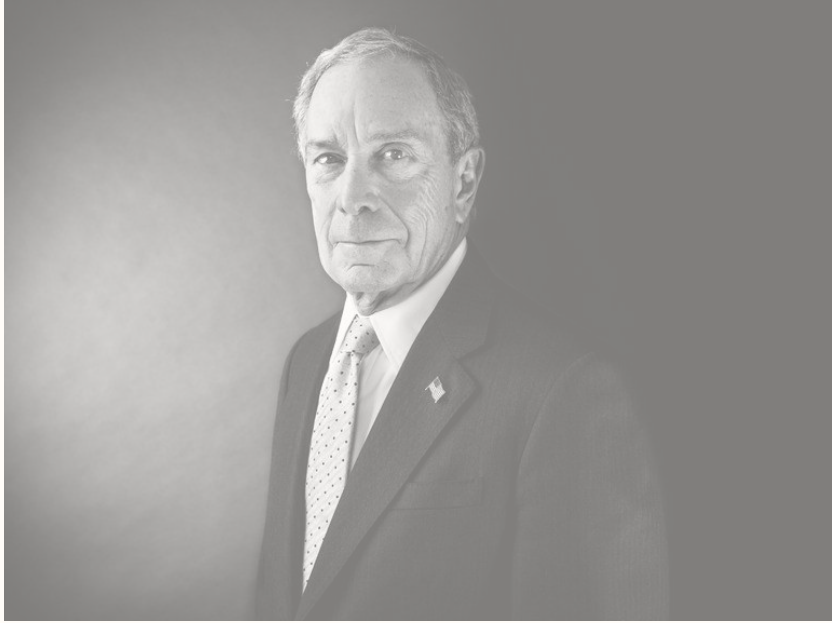
2. *Champion Houston's tech innovation and entrepreneurship culture as core to Houston's brand*
   a. *Champion technology themes, such as robotics, cyber security and industrial internet of things, as covered in the Accenture / GHP report as well as machine learning and artificial intelligence, medical devices and digital health solutions that attract and drive venture capital to the region*
   b. *Drive inclusion so opportunities are created for all Houstonians*
   c. *Tell the story of Houston startups and entrepreneurs to shine a brighter spotlight on Houston's startup and tech community and capabilities*

CLICK GRAPHIC FOR ACCELERATING STARTUP ECOSYSTEMS WITH THE POWER OF 5 REPORT

3. *Actively connect corporations and their executives, to startup community*
   a. *Recruit targeted companies to Houston as well as local companies to the Innovation District where those companies are engaged with the startup community*
   b. *Drive corporate involvement in Fund-of-Funds strategy to attract risk capital to the region*
   c. *Encourage and drive policy that drives corporate engagement with startup community*

4. *Attend the 2017 Kauffman Mayors Conference on Entrepreneurship*
   a. *Reference: Mayors must be policy entrepreneurs*

5. *Create Mayor's Technology and Innovation Advisory Group to address:*
   a. *Data-driven efficiency within Houston*
   b. *Smart technology experimentation*
   c. *Broadband connectivity and next-generation infrastructure*
   d. *A smart cities initiative plan and inclusion practices for City procurement reform*



CLICK GRAPHIC FOR INTERVIEW WITH MICHAEL BLOOMBERG, TECHCRUNCH (2010)

ADVOCATE + CHAMPION (EXPANDED)

CLICK GRAPHIC FOR ONE YEAR LATER REPORT (BROOKINGS)

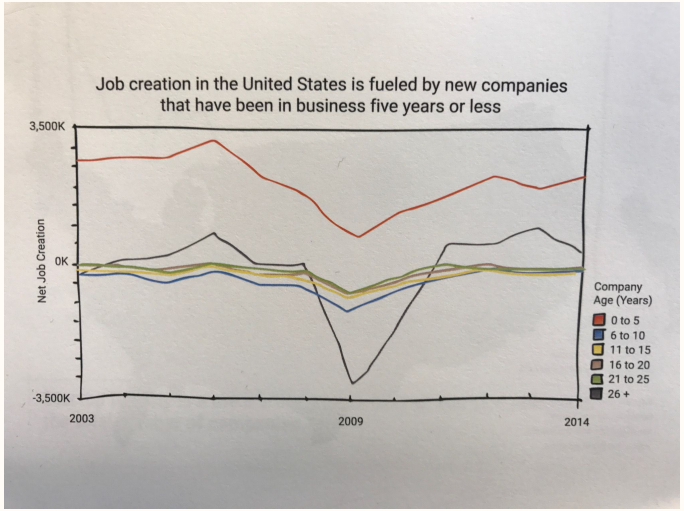
INNOVATION DISTRICT (EXPANDED)

1. *The Task Force recommends the City should leverage its tools and resources to expedite the development of an innovation district that fosters collisions births new technologies and companies and brings together talent*

2. *Connect with entrepreneurship ecosystem experts to better understand best practice policy approaches that would maximize impact. Connect with contacts who can provide more specific policy feedback, such as:*
   a. *Evan Absher @ Kauffman Foundation*
   b. *Tom Alexander @ 1871*
   c. *Ed Egan @ Baker Institute*

3. *While traditional economic development tools should be evaluated (ie. 380 agreements, tax abatements, expediting online permitting, possible TIRZ increment or P3's), the Task Force believes that policy should focus on maximizing new job creation from early-stage companies, as this is the segment (tech startups) have a significant impact on net job creation*

4. *The roles that both states and cities have played have varied across the country. The City should review how it can provide resources to help overcome capital barriers that would prohibit the advent of a technology innovation and entrepreneurship district*



Source: Kauffman Foundation

INNOVATION DISTRICT (EXPANDED)

5. *The Innovation District should be a safe and centrally-located center where companies, laboratories, universities and research centers seek to innovate their industries. Corporations must play an active and engaged role to birth the district and help sustain the groups who nurture and foster connections between various beneficiaries*

6. *The Houston Innovation District should:*
   a. *Be able to grow in density so other ecosystem players (corporations, investors, research and academia, service providers, foreign companies, etc. can participate / locate in the district*
   b. *Be a focal point of Houston's culture and entrepreneurial spirit, featuring eateries that celebrate Houston's diversity*
   c. *Balance live, work and play; and have easy-access to multi-modal transit options and walkable places*
   d. *Inclusive - all organizations that want to participate can come to the table to access offerings and opportunities*
   e. *Ideal location to implement smart city technologies*

7. *Designate a liaison to drive connectivity between the Innovation District and the Complete Communities initiative, including programming, events and training opportunities*

8. *Encourage Houston area universities to create environments that foster a creative culture by including entrepreneurship modules within curricula and through linkages with the Houston Innovation District*

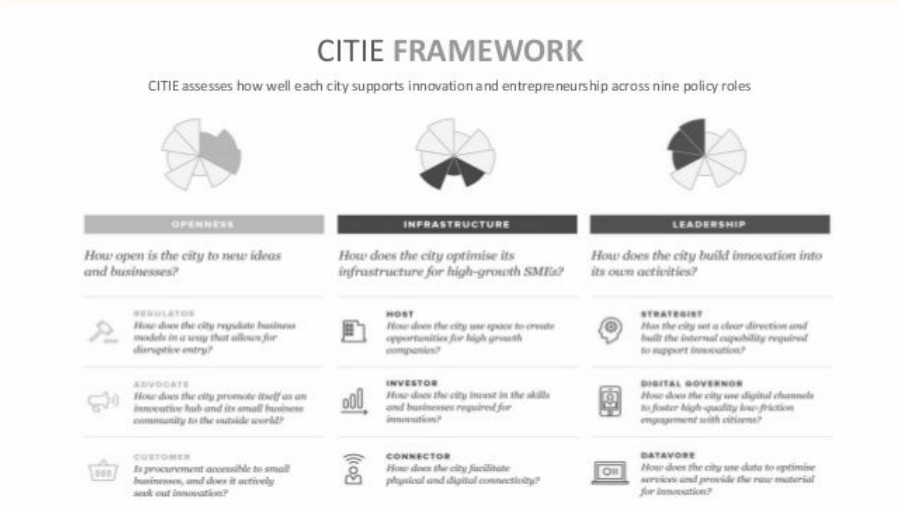
1. *Develop policy, assets and opportunities to drive the research, development, testing and commercialization of highly disruptive technologies themes that can help transform the City's leading industries*
    a. *Disruptive technology themes, such as: Robotics, Cyber-security, Industrial Internet of Things, which are mentioned in the Accenture report, as well as Machine Learning and Artificial Intelligence, Digital Health Solutions and Medical Devices*

2. *Enhance core capabilities in advancing research and development around data science*
    a. *Drive inclusion of broader innovation community to drive this strategy (ie. startups, entrepreneurs, corporations, universities and other key stakeholders) to build a world-class capabilities*

3. *Develop policy that allows the City to become the premium testing ground and research center for emerging technology, such as: drones, autonomous vehicles as well as reimaging manufacturing and logistics industries*

CLICK GRAPHIC FOR ARTICLE ON AUTONOMOUS VEHICLES IN PITTSBURGH

TESTING GROUND (EXPANDED)



[CLICK GRAPHIC FOR LINK TO:
CITY INITIATIVES FOR TECHNOLOGY, INNOVATION AND ENTREPRENEURSHIP]

(CITIE.ORG)

CITY PRACTICES (EXPANDED)

1. *The Houston brand and messaging must reflect its focus on being a world-class tech innovation and entrepreneurship ecosystem. The brand and messaging must be developed from the bottom-up where policy should enable and foster this spirit and culture of innovation*

2. *Innovate approach and practices to improve our City's balance sheet as well as quality of life:*
   a. *Establish programs where executives are seconded / loaned to the City to lead strategies and initiatives. An example program would be developing and executing a smart city business case, strategy and implementation approach and its integration between the Innovation District and the Complete Communities Initiative*
   b. *Develop Innovation Fellows and / or Entrepreneur-in-Residence programs to identify challenges, obstacles and opportunities for the City to solve problems*
   c. *Host startup showcases, reverse pitches and hackathons to identify emerging technologies that can help the City of Houston and its residents*
   d. *Reduce friction to make it easier and less cumbersome for startups to (a) form; and (b) contract with the City*

OTHER RECOMMENDATIONS (1-6)

1. ***Bring Awareness and Support the Advent of a Founder's Visa Program**:* Bring awareness to challenges surrounding work visas to better attract and retain talent that comes to the Houston region from around the world. Leverage best practice models to drive leading founder's visa program in Houston

2. ***Develop Data Science Institute Center of Excellence**:* Help convene the ecosystem around a common vision to develop and gain support for data science programs as well as the advent of a data science institute

3. ***Expand Hire Houston Youth**:* Expand the Hire Houston Youth Program to include corporate sponsorship of eligible candidates to attend coding academies as well as internships at early-stage tech companies

4. ***Collaborate with Other Cities:*** As tech innovation and entrepreneurship ecosystems continue to launch and evolve, active relationships with other city leaders to share best practices, advances in policy, challenges and opportunities can drive collaboration, healthy competition and win-win scenarios

5. ***Develop Expert Rotation Program and Innovation and Entrepreneurship Education**:* Enlist the City's Director of Education to (1) facilitate innovation expert rotation into schools to inspire young people, increase exposure and knowledge and drive access to potential careers in technology; and (2) facilitate a standardized invention, innovation and entrepreneurship curriculum (with pitch day competitions) across Houston school districts

6. ***Build on our Diversity***: Build upon Houston's strength of diversity to ensure that practices, procedures, and outcomes related to building an innovation economy are inclusive

OTHER RECOMMENDATIONS (7-10)

7. ***Communicate Progress and Leaders of Technology Themes:*** Venture capital is generally attracted to invest in technology and disruptive innovation. Therefore, greater emphasis on emerging technologies and the startups, universities and research centers advancing those technologies is core to attracting new capital to the region, as well as having local capital seek investment opportunities.

8. ***Promote Angel Investing and Venture Philanthropy****:* While Houston has a strong capital base, currently, more than 99% of capital is attracted to private equity and real estate investments versus actively seeking investment in promising emerging technology companies / early stage ventures. This "hole" in the capital base severely limits promising entrepreneurs to start tech companies in Houston nor consider relocating to the City to grow their businesses.

9. ***Implement Policy that Drives Corporate Engagement to Accelerate the Development of Houston's Startup and Entrepreneurship Ecosystem:*** Leverage policy, tools and resources to drive greater corporate support to drive the innovation community. To attract and retain great talent, startups need paths to pilot technologies with potential customers and partners as well as easier paths to sell and contract with larger organizations. Promote inclusivity and help local entrepreneurs who face disproportionate barriers to access capital.

10. ***Recruit Technology and Entrepreneurship Conferences to Houston as well as develop and Develop a flagship Conference or Summit****:* Houston should support bids and outreach to bring innovation and entrepreneurship conferences and summits to Houston. In addition, develop a flagship conference that celebrates Houston's culture of innovation. An example of such efforts includes: launching ARTificial Intelligence Week to celebrate Art and Innovation, with a State of Innovation kick-off event featuring the Mayor.

STARTUP ECOSYSTEM PLAYERS

Mercury Fund

STATION HOUSTON

CIRCULAR BOARD
THE COLLABORATIVE ACCELERATOR FOR WOMEN ENTREPRENEURS

TMC INNOVATION

Houston Technology Center

REDHOUSE Associates

RED LABS

NASA

TiE HOUSTON
FOSTERING ENTREPRENEURSHIP

SKETCH CITY

HAN HOUSTON ANGEL NETWORK

GOOSE Society of Texas

OWL SPARK

TSU
TEXAS SOUTHERN UNIVERSITY

HCC
HOUSTON COMMUNITY COLLEGE

RICE ALLIANCE
for TECHNOLOGY and ENTREPRENEURSHIP

SUMMARY OF KEY STRATEGIES FOR ENABLING ENTREPRENEURIAL ECOSYSTEMS (KAUFFMAN)

- ***Favor Incumbents less**:* Policies and regulations that favor existing, dominant companies over entrepreneurial ventures constrain competition and create barriers to entry for new firms. Examples of such regulations include assertive enforcement of non-compete laws, excessively restrictive occupational licensing requirements and regulatory complexity that inhibits contracting. Policymakers should avoid such policies and regulations and work to reduce the barriers to business startup.

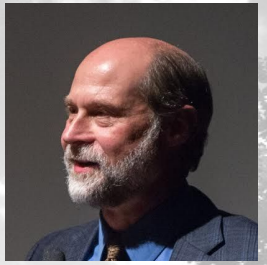
- ***Listen to entrepreneurs**:* Rather than developing policies abstractly intended to correct "market failures," policy makers should listen to what entrepreneurs have to say about their challenges. That input should be used to develop policies that stimulate idea exploration, product development and increased rates of deal flow.

- ***Map the ecosystem**:* Entrepreneurial supporters should create an inventory or graph that indicates who the participants in the ecosystem are and how they are connected. Ecosystem maps can become valuable tools in developing engagement strategies.

- ***Think big, start small, move fast**:* This simple rule, long a guiding principle for entrepreneurial ventures, also holds true for successful entrepreneurial ecosystems. The ecosystem should enable the connectivity needed for early success, and then clear the runway for future growth.

- ***Avoid artificially segmenting your community or strategies**:* Much like the rotting trunk of a fallen tree feeds the growth of new saplings, economic disruption creates entrepreneurial opportunities. Because disruptions are inevitable in economic and social life, architects of entrepreneurial ecosystems should anticipate them and prepare to make the most of the opportunities they create.

Paul Cannings
Managing Partner
RPH
pcannings@rphcg.com



Daniel V. Jacobs
NASA Executive Liaison, GHP;
Manager for International Partners,
Space Station Program
daniel.v.jacobs@nasa.gov

Aziz Gilani
Partner
Mercury Fund
aziz@mercuryfund.com

Ken Jones
Executive Director, Center for
Innovation and Partnerships
The University of Houston
kenjones@uh.edu

Yael Hochberg
Ralph S. O'Connor Professor in
Entrepreneurship;
Head, Rice University
Entrepreneurship Initiative
hochberg@rice.edu

Carol Abel Lewis, Ph.D
Professor, Center for Transportation
Training & Research
Texas Southern University
lewis_ca@tsu.edu

MAYOR'S TASK FORCE

Gina Luna
President
Luna Strategies, LLC
gina@lunastrategies.com

William F. McKeon
President & CEO
Texas Medical Center
mckeon@tmc.edu

John S. Reale, Jr. "JR"
Co-Founder & CEO
Station Houston
(Task Force Chair)
jr@stationhouston.com

Jeff Reichman
Principal
January Advisors
jeff@januaryadvisors.com

Lori Vetters
Executive Director, President & CEO
Houston Technology Center
lori.vetters@houstontech.org

MAYOR'S TASK FORCE

Amanda Edwards
Houston City Council
Member At-Large, Position 4
(Task Force Initiator)
amanda.edwards@houstontx.gov

Andy Icken
Chief Development Officer,
Office of the Mayor
City of Houston
andy.icken@houstontx.gov

Gwen Tillotson
Deputy Director,
Economic Development
City of Houston
gwendolyn.tillotson@houstontx.gov

MAYOR'S TASK FORCE

REFERENCE GREATER HOUSTON PARTNERSHIP + ACCENTURE INNOVATION REPORT IN SEPARATE FILE

NOTES