



# Houston's Call to Action

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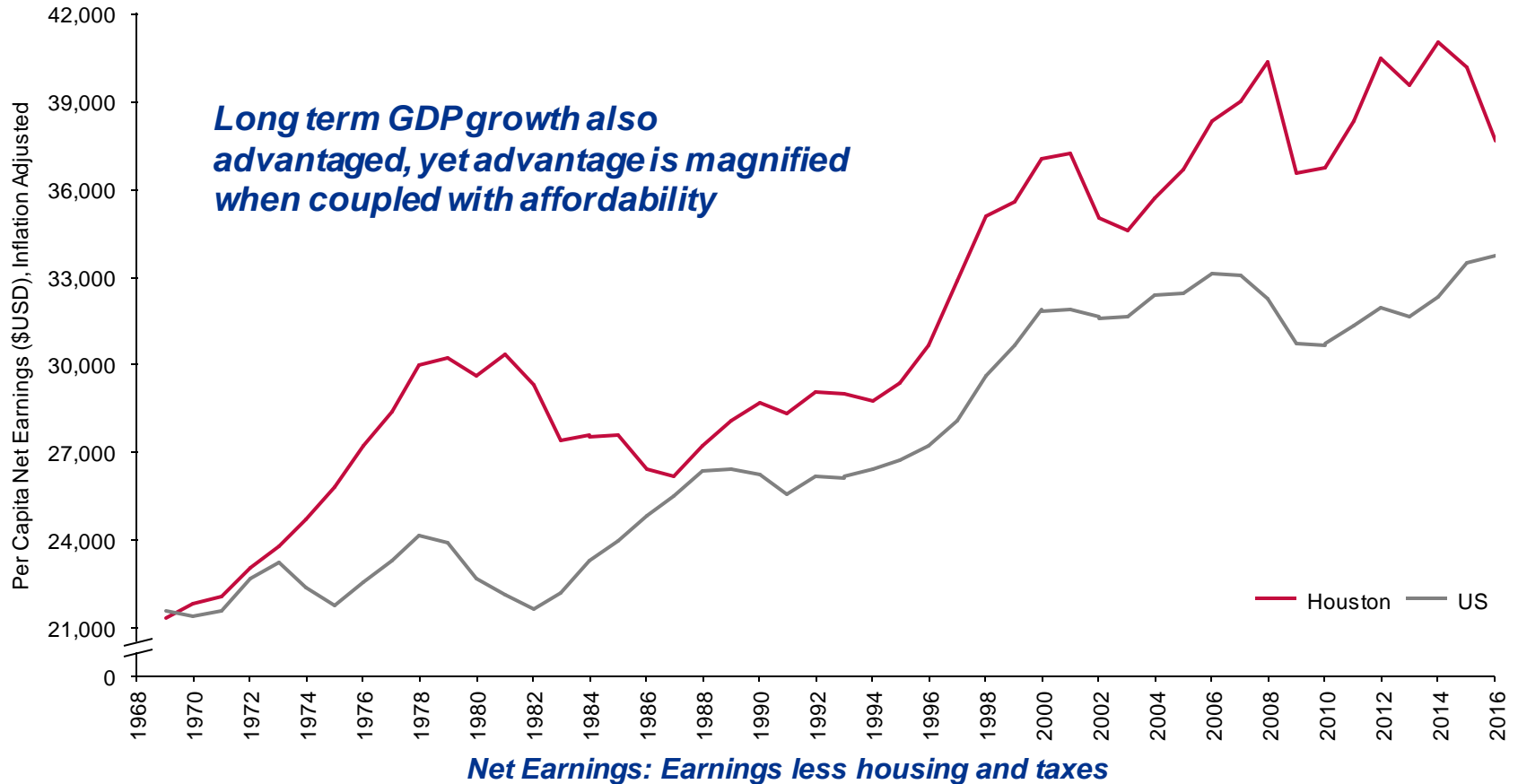
# Center for Houston's Future

## A Call to Action

- **Houston MSA's long trend of economic outperformance has been disrupted, suggesting the existing 'growth model' be reexamined and potentially changed**
- When faced with similar crossroads – natural disaster, industry shifts, or other disruptions – peer cities have demonstrated an ability to transform and thrive
- Houston MSA's current challenges suggest an opportunity for leadership to adopt similar strategies

Houston MSA has held a long standing economic advantage (especially in terms of discretionary income growth), though recently we've slipped

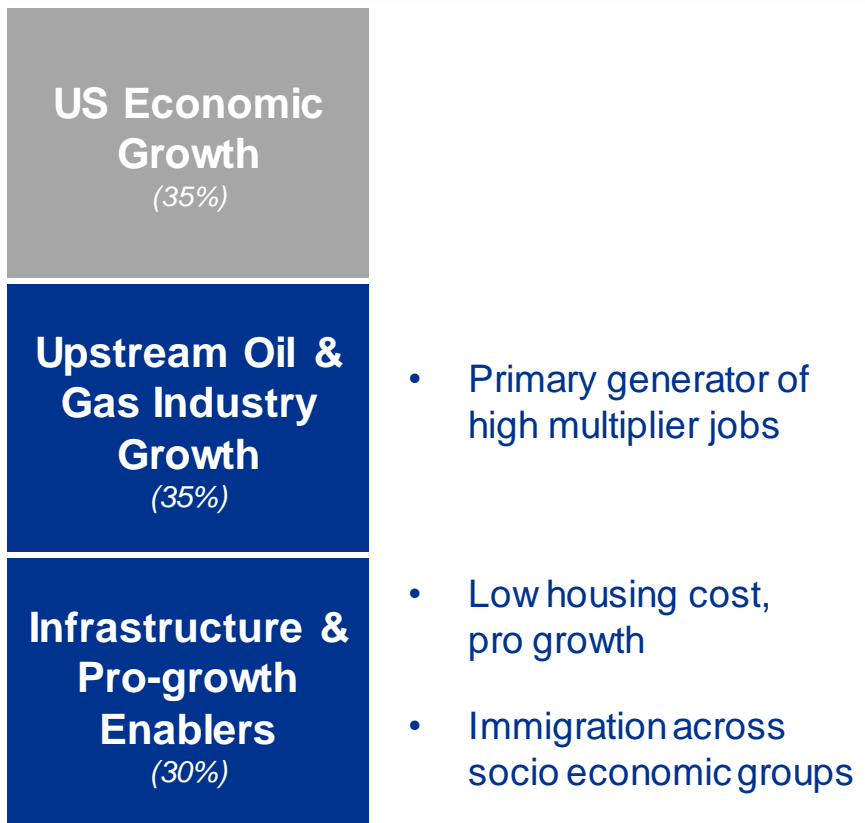
### Houston MSA and US per capita net earnings



Note(s): Per Capita Net Earnings adjusted using US Bureau of Labor Statistics Inflation Calculator  
Source(s): US Bureau of Economic Analysis

# Houston MSA's relative economic success has been proven to link back to three key catalysts

## Houston MSA Growth Catalysts



## ***Dr. Gilmer & the Institute for Regional Forecasting Model***

- Provides Houston an independent center of economic and forecasting expertise, conducting bi-annual symposia on Houston's economy since 1984
- Led by Dr. Gilmer, previous VP/senior economist at the Federal Reserve Bank of Dallas
- Work on Texas' economy has been recognized in the Wall Street Journal, The Economist, and Forbes

## ***Model architecture***

- Isolates US economy vs. Houston specific economic drivers
- Model back-tested over 1996 – 2016 period to ensure validity

*Note: In addition to the above factors, foreign trade has been key to Houston's long-term growth. Furthermore, the recent petrochemical boom has helped bolster Houston's economy over the past several years*

*Source(s): Dr. Bill Gilmer from the U of H Institute for Regional Forecasting*

# Post 2014, Houston MSA's economic advantages have been disrupted

## Then

## Now



*Pro-growth policies and investments enabled rapid development*

*Limits of Houston MSA's pro-growth model are being reached (e.g., congestion, watershed destruction)*



*While cyclical, O&G industry predominantly headed 'up and right'*

*Increasing probability of 'Lower for longer' or Lower Forever'*



*Growing economy attracted immigrants—education often 'imported', rest of system adequate*

*Less educated population out of balance with escalating job requirements*

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# Oklahoma City is an example: took actions around infrastructure, business renewal, and talent after losing a major United Airlines depot

## Case study framework

Call to Arms



What Leadership did

## Oklahoma City

**Call to Arms:** United chose not to move a major depot to OKC, citing 'poor quality of life'

### Infrastructure enhancement:

- Voter approved, Metropolitan Area Projects (MAP) revitalization
- Repurposed old warehouses for residential space

### Business rejuvenation:

- Stabilized existing industries (purchased aero plant for Air Force program; incited shale drillers to stay in OK)
- Collaborated with Brookings on an innovation district driving health, energy, and aerospace

### Talent influx:

- Downtown renewal and Innovation District attracted talent

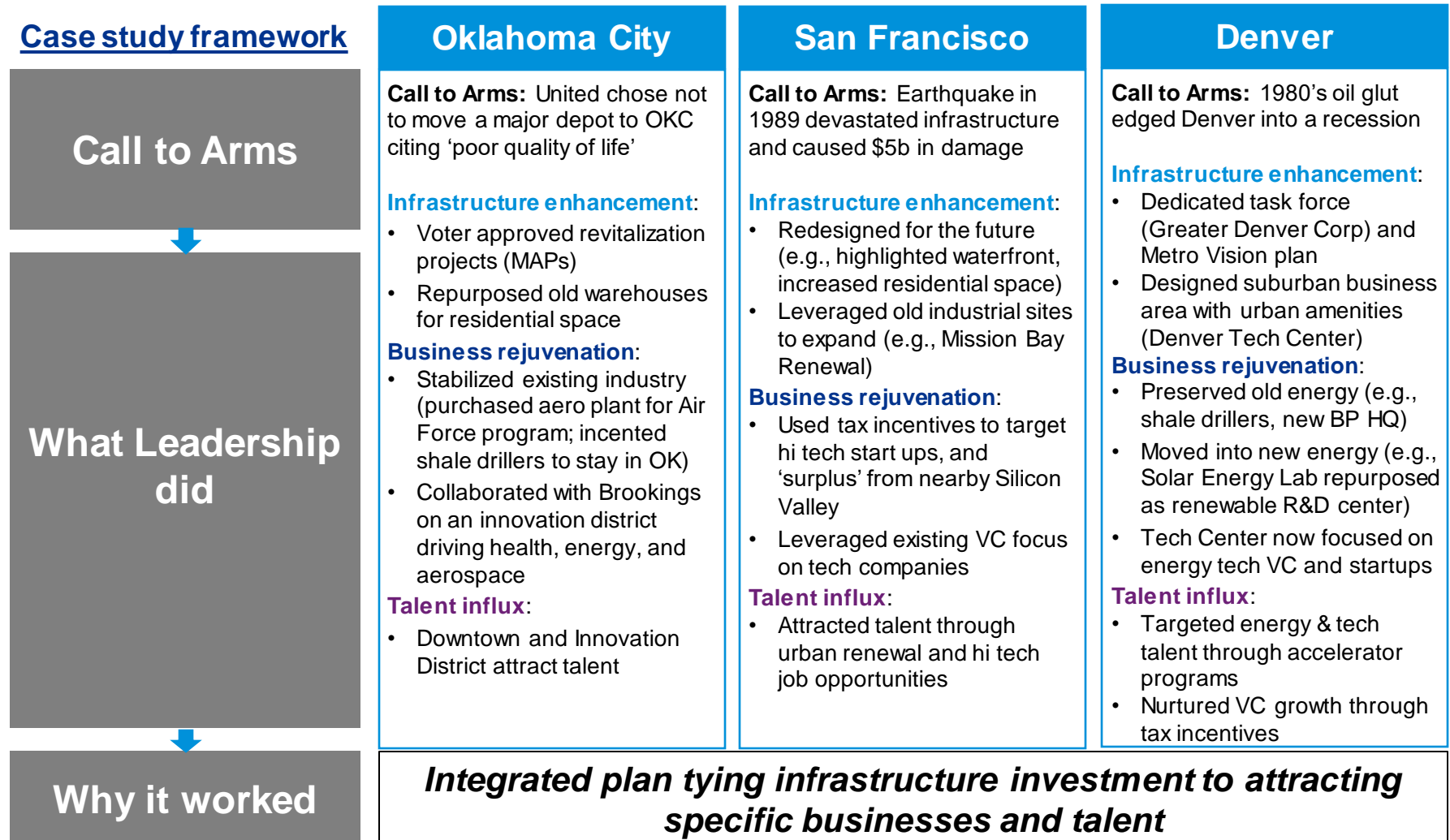
What led OKC and other case study cities to success?

**An integrated plan tying infrastructure investment to retaining and attracting specific businesses and talent**

Other cities in KPMG's 'Magnet City' case studies include: Denver, San Francisco, and Pittsburgh



# Other cities have followed a similar integrated path of infrastructure, talent and business rejuvenation to revitalize after a significant disruption



Source(s): CityLab, SF Gate, San Francisco Center for Economic Development, New York Times, KPMG Smart Cities, Denver Post, National Renewable Energy Lab, TechStars

# The successful turnaround of Oklahoma City and other cities that experienced similar disruption suggests several key takeaways

## Leadership 'call to arms'

- Cities all recognized the need, and the opportunity, for change
  - Oklahoma City: United depot loss
  - San Francisco: 1989 earthquake devastating infrastructure
  - Denver: 1980's recession due to oil & gas dependency

## Infrastructure rejuvenation

- Existing assets
- Future business needs
- Workforce vision

- Implemented specific infrastructure projects (e.g., San Francisco 'Mission Bay Renewal', Denver 'Greater Denver Corporation')
- Repurposed existing and designed new infrastructure with a mind towards the future (e.g., old industrial site rejuvenation)

## Business rejuvenation

- Existing assets
- Existing capabilities

- Rejuvenated existing assets in line with business goals (e.g., Denver solar energy facility turned into a Renewable Energy lab)
- Implemented specific business initiatives aligned with strengths (e.g., Denver Tech Center attracted telecom and cable companies, major tech and other corporations later followed)

## Talent attraction and retention

- Role of infrastructure
- Business opportunity

- Offered economic incentives and accelerator programs (e.g., SF attracting Silicon Valley talent, Denver tech accelerator programs)
- Ensured infrastructure and rejuvenation plans were attractive to talent (e.g., urban renewal in SF and Denver attracted new and helped retain current talent)

# Center for Houston's Future



## A Call to Action

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- When faced with similar crossroads – natural disaster, industry shifts, or other disruptions – peer cities have demonstrated an ability to transform and thrive
- **Houston MSA's current challenges suggest an opportunity for leadership to adopt similar strategies**

# Where does Houston stand against these key levers?

## Magnet City Model



Leadership 'call to arms'



Infrastructure rejuvenation

- Existing assets
- Future business needs
- Workforce vision



Business rejuvenation

- Existing assets
- Existing capabilities



Talent attraction and retention

- Role of infrastructure
- Business opportunity

Houston MSA leadership has initiated the call to arms...

### Houston Leadership: This is a wake up call

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As disappointing and heartbreaking as [not making the Amazon cut] is, **it serves as a wake up call** that we must move at a much quicker pace

*-Sylvester Turner, Houston Mayor*

Houston did not make [Amazon's] short list...we are obviously disappointed and believe **this is a wake up call for Houston**

*-Bob Harvey, GHP CEO*

...and the public appears ready to respond

## Houston public receptive

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No excuses: we need to fully understand why Houston didn't make the [Amazon] cut. And **we need visionary leadership** to make sure this doesn't happen again

*-Houston Chronicle*

Houston's oil industry is crucial, but **we need to be able to diversify** and be a part of America's future

*-Houston Chronicle*

Houston's **infrastructure** – water lines, roads and bridges, and stormwater systems – **is crumbling, and the problem needs a [large scale] solution**

*-Houston Business Journal*

How do you attract the talent of the 21<sup>st</sup> century? **Houston has to turn itself into a destination of choice.** Quality of life is now essential to [Houston's] economic prosperity



*-Houston Public Media*

Source(s): Houston Chronicle, Houston Public Media, Houston Business Journal



# Several infrastructure initiatives are in place, yet key questions remain

## Current Houston MSA infrastructure initiatives

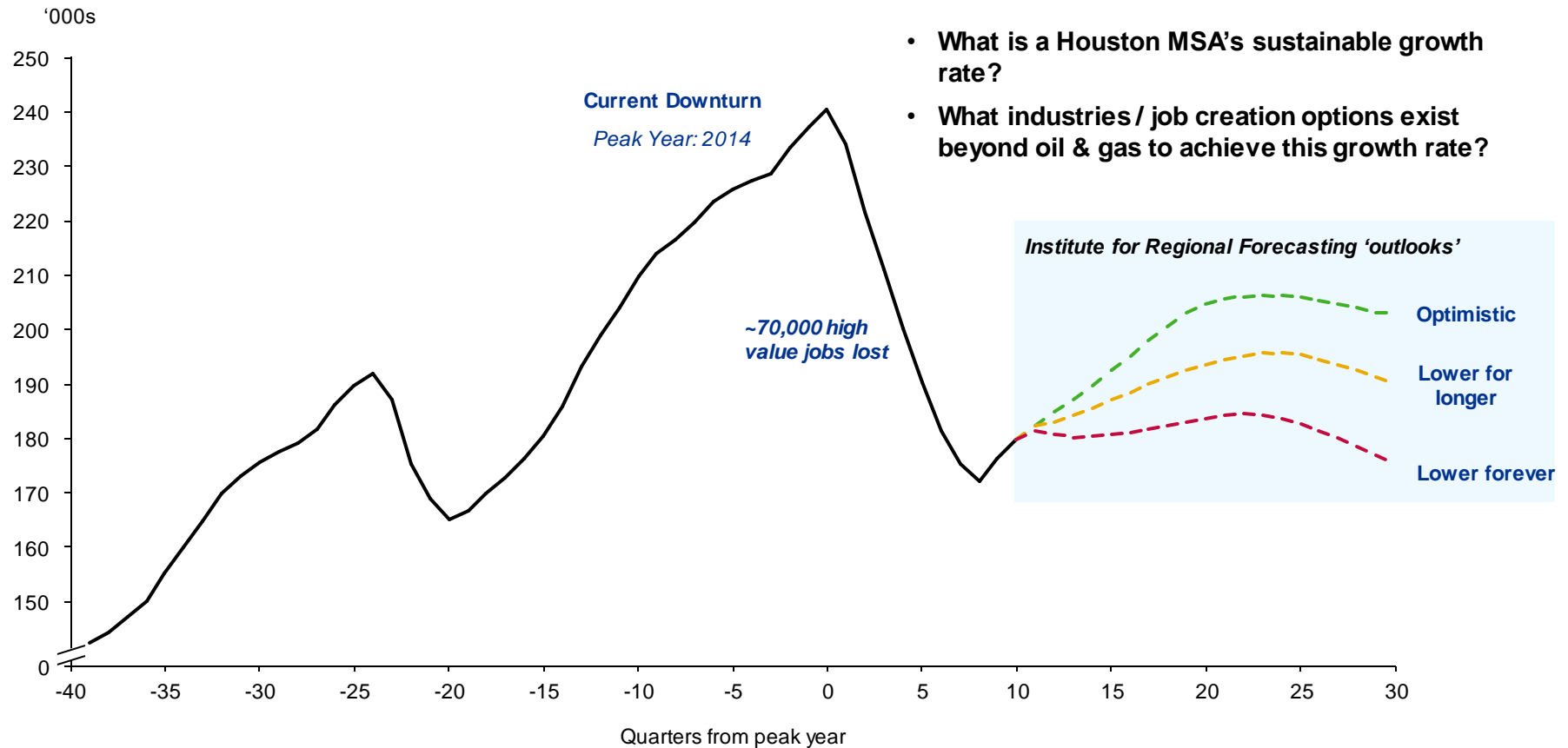
 <h3>Downtown Plan</h3> <p><b>Modernizing and revitalizing Houston's downtown district by 2036</b></p> <ul style="list-style-type: none"> <li>• Innovation district</li> <li>• Building residential units</li> <li>• Connectivity improvements (e.g., electric vehicles)</li> <li>• Walkability and greenspace</li> </ul>	 <h3>MetroNext</h3> <p><b>Improving Houston's transportation system to support population growth</b></p> <ul style="list-style-type: none"> <li>• Improved accessibility</li> <li>• System expansion (e.g., rail, park and ride)</li> <li>• Increased connectivity</li> </ul>	 <h3>The Cannon</h3> <p><b>Co-working ecosystem for Houston's entrepreneurs, small businesses, and freelancers</b></p> <ul style="list-style-type: none"> <li>• New Founder's District (24+ acre campus)</li> <li>• Discounted professional services</li> </ul>
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- Do we have an adequate plan (and funding) in place to **upgrade weather infrastructure** and address related development policies?
- What is the right balance between addressing **near term vs. longer term** infrastructure needs? Should an **integrated program** be explored?
- Are we developing infrastructure **in alignment with our business rejuvenation and talent agendas?**



# Though differences in views exist, relying primarily on an O&G upcycle to drive high quality job growth appears increasingly problematic

## Houston MSA oil and gas related jobs versus peak quarter

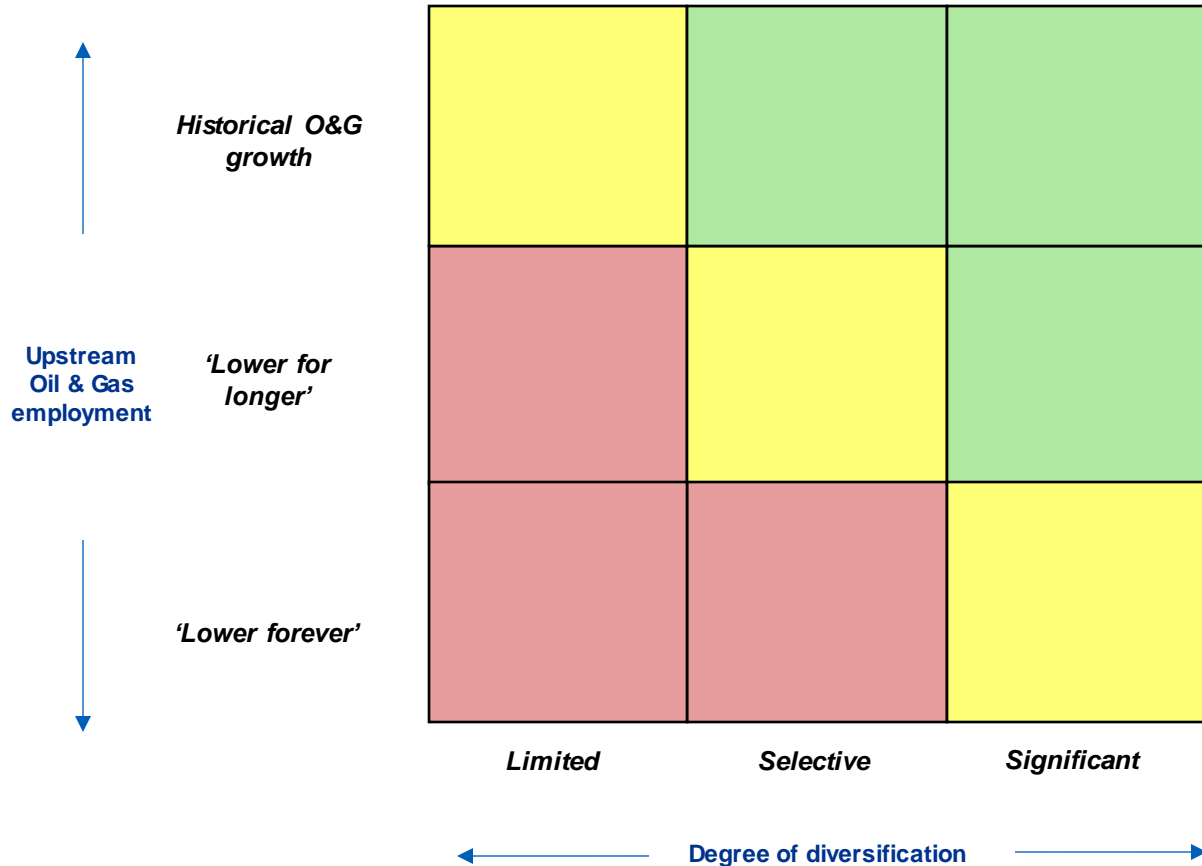


- What is a Houston MSA's sustainable growth rate?
- What industries / job creation options exist beyond oil & gas to achieve this growth rate?

Note(s): Jobs consist of oil production, oil services, machinery, and fabricated metals – change from SIC to NAICS coding results in classification change  
 Source(s): US Bureau of Labor Statistics; The Institute for Regional Forecasting

## Job growth modeling

Modeling was conducted to answer the key question: to what extent does Houston need to diversify to maintain an outperforming economy?



### Modeling Approach





- Used IMPLAN economic development model
- Selected key sectors for job diversification through a multi-screening process
- Set target of outperforming peer city average annual growth rate **(2.1%)<sup>(a)</sup>**
- Modeled extent of diversification beyond oil and gas required

Note: (a) Average employment CAGR from 1990 – 2016 of key peer cities outperforming US employment growth: Austin, Atlanta, Dallas, Denver, Oklahoma City, Phoenix  
 Source(s): Bureau of Economic Analysis, Bureau of Labor Statistics

Sectors for diversification were selected based on connectedness to Houston, economic value add, and growth potential





## Selective Diversification

Existing presence

	<p><b>Healthcare manufacturing</b>                      5 year CAGR: <b>7.1%</b>                      2017 jobs: 2,631</p>
	<p><b>Healthcare R&amp;D<sup>(a)</sup></b>                      3 year CAGR: <b>1.7%</b>                      2017 jobs: 27,407</p>
	<p><b>Plastics manufacturing</b>                      5 year CAGR: <b>1.3%</b>                      2017 jobs: 6,525</p>
	<p><b>Chemical manufacturing</b>                      5 year CAGR: <b>1.7%</b>                      2017 jobs: 14,428</p>

## Significant Diversification

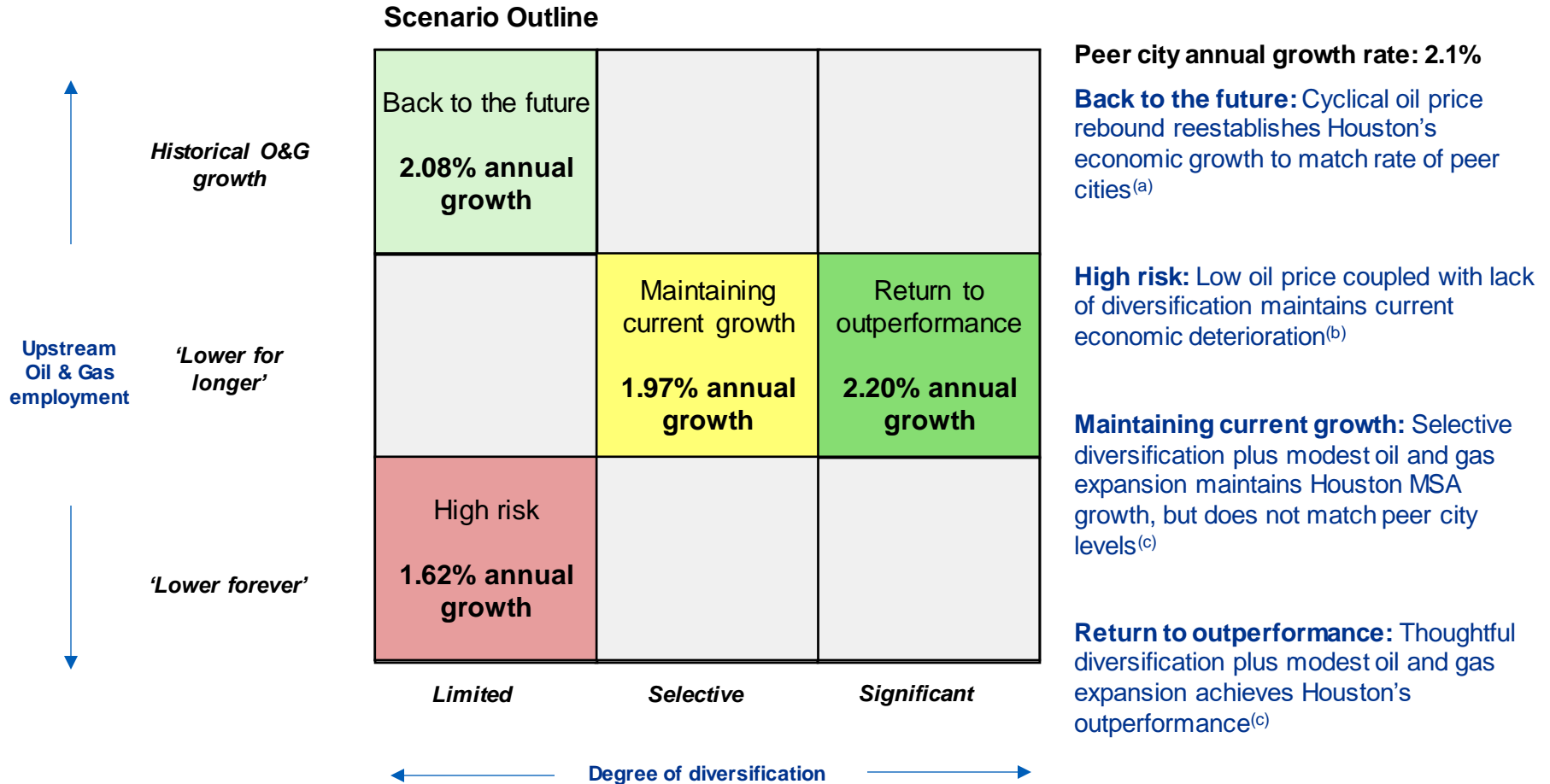
Existing capabilities and/or high applicability

	<p><b>Data Science &amp; Programming</b>                      5 year CAGR: <b>2.9%</b>                      2017 jobs: 30,885</p>
	<p><b>Computer systems &amp; engineering</b>                      5 year CAGR: <b>2.8%</b>                      2017 jobs: 37,813</p>
	<p><b>Power transmission<sup>(a)</sup></b>                      5 year CAGR: <b>2.0%</b>                      2017 jobs: 9,539</p>
	<p><b>Utility scale renewables</b>                      5 year CAGR: <b>3.2%</b>                      2017 jobs: 706</p>

Note: (a) CAGR from 2013 – 2016 due to availability of data  
 Source(s): US Bureau of Labor Statistics, IMPLAN

## Job growth modeling

The scenario modeling considers a combination of oil & gas sector employment growth and diversification across selected sectors



Note: (a) Employment CAGRs are based on Houston MSA historical data from 1990–2014. O&G sector employment CAGR is 2.77%, All other Houston MSA employment CAGR is 2.03%; (b) High risk scenario includes 2.03% CAGR across non O&G employment - no incremental growth across chosen diversification sectors and no growth in the O&G sector is included; (c) Incremental growth across each chosen diversification sector is determined by analyzing how much faster the sector is currently growing over the overall employment CAGR of 2.03%. 'Lower for longer' O&G sector growth is approximately 1.3% (matches 1990–2014 CAGR). 'Significant' diversification includes sectors from the 'selective' category.

Source(s): US Bureau of Labor Statistics, IMPLAN

Overall, significant job diversification will be required to maintain outperformance in the event of low to modest oil and gas expansion

**Back to the future**

A 1980's or 2014 rebound in the oil and gas cycle in theory could return Houston MSA to outperforming growth rates, however there is decreasing likelihood of this occurring

**High risk**

If an oil and gas rebound does not occur and Houston MSA does not diversify, economic performance will lag the general economy and peer cities

**Keeping up**





Even in a modest oil and gas sector recovery scenario, Houston MSA will require at least selective diversification in order to sustain the current level of economic growth

**Return to outperformance**

Lacking high oil and gas cyclical upside, more significant business diversification will be required to return to economic outperformance as witnessed through 2014

# Many business rejuvenation efforts are underway, however the question of urgency around diversification remains

## Current Houston MSA business rejuvenation initiatives

 <b>The Cannon</b>	 <b>Houston Exponential</b>	 <b>Station Houston</b>	 <b>TMC Innovation</b>
<p><b>Co-working ecosystem for Houston's entrepreneurs, small businesses, and freelancers</b></p> <ul style="list-style-type: none"> <li>• New Founder's District (24+ acre campus)</li> <li>• Discounted professional services</li> </ul>	<p><b>Creating a hub to nurture tech-driven startups and attract venture capital</b></p> <ul style="list-style-type: none"> <li>• Innovation district</li> <li>• Accelerator programs</li> <li>• Working closely with local government</li> </ul>	<p><b>Connecting Houston's startup economy and innovation ecosystem</b></p> <ul style="list-style-type: none"> <li>• Innovation district</li> <li>• Connect companies with venture capital and corporations</li> <li>• Provide startup resources</li> </ul>	<p><b>Uniting healthcare innovators with academia, science and medicine</b></p> <ul style="list-style-type: none"> <li>• Streamlining development of medical devices and technology</li> <li>• Access to TMC resources and experts</li> </ul>

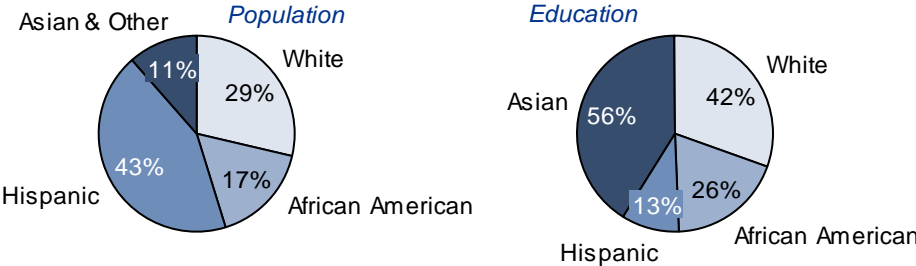


- What level of **effort and urgency** is required to **push beyond the traditional oil and gas business**?
- Do the planned business initiatives **synergize effectively with existing assets and capabilities**? Do they **leverage the current skill base**?
- **Can we attract the entrepreneurial talent** relative to targeted innovation initiatives?

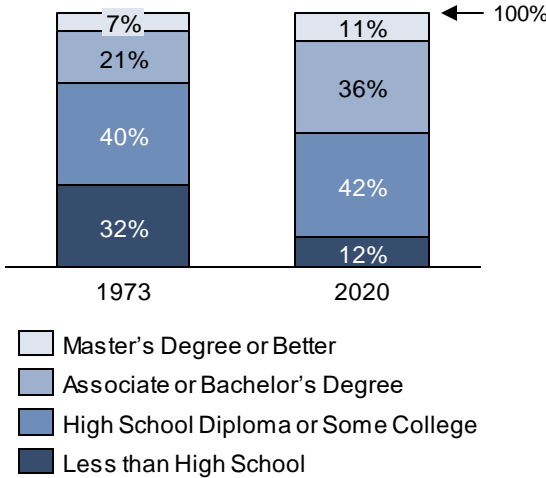
Source(s): The Cannon, Houston Exponential, Station Houston, TMC Innovation, Greater Houston Partnership

# 'Left-behind' talent initiatives are crucial, as Houston's job market is at risk of a supply and demand imbalance

## Houston MSA population forecast (2030) vs. Percent of Houston MSA ethnicity groups with a college degree (2016)



## Educational Demand for Jobs (1973 vs. 2020)



## Current Houston MSA 'left-behind' initiatives

**UPSKILL HOUSTON** **Upskill Houston**

**Helping develop skills and opportunities for middle-skill job market**

- Focus on Houston key businesses (e.g., healthcare, petrochem)
- Industry-led collaboration
- Training & job placement

**earlymatters** **Early Matters**

**Raising awareness about the importance of early education**





- Improving quality of and access to education
- Reducing dropout rates
- Prioritizing funding based on return on investment

- Is it sufficient to continue to **import Houston's educational needs**?
- What is the risk of a **growing undereducated** population?
- Do we have sufficient programs in place for **vocational training**?
- Are **entry education levels accessible and viable** across the diversified population?

Source(s): US Census Bureau, Kinder Institute for Urban Research, Georgetown Center on Education and the Workforce Analysis

# Additional initiatives around future talent, to support diversification moves, are also underway

## Current Houston MSA talent initiatives

 <b>The Cannon</b>	 <b>Innovation District</b>	 <b>U of H Data Science Center</b>	 <b>Rice Liu Innovation Lab</b>
<p><b>Co-working ecosystem for Houston's entrepreneurs, small businesses, and freelancers</b></p> <ul style="list-style-type: none"> <li>• New Founder's District (24+ acre campus)</li> <li>• Discounted professional services</li> </ul>	<p><b>Downtown district dedicated to startup growth</b></p> <ul style="list-style-type: none"> <li>• Part of Downtown Plan and Houston Exponential</li> <li>• Catalyzing formation of innovative startups to grow central city innovation economy</li> </ul>	<p><b>Expanding Houston's educational focus on data science</b></p> <ul style="list-style-type: none"> <li>• Cybersecurity, healthcare, energy, and infrastructure focus</li> <li>• Focus on building data science talent base</li> </ul>	<p><b>Supporting Rice students in entrepreneurial endeavors</b></p> <ul style="list-style-type: none"> <li>• Expanded entrepreneurial courses</li> <li>• 'Start-up' learning programs</li> <li>• Led by Rice's entrepreneurial initiative</li> </ul>

- Are local universities (Rice, U of H) **producing the right talent** needed for the future?
- Do the current infrastructure plans (e.g., Innovation District) create a **'city of the future'** that will **attract innovation talent**?

Source(s): The Cannon, Houston Plan Downtown, Houston Chronicle, Uof H, Rice University



# Where does Houston stand against these key levers?

## Magnet City Model

### Leadership 'call to arms'

- Clearly exists

### Infrastructure rejuvenated

- Existing assets
- Future business needs
- Workforce vision

- Crumbling infrastructure needs repair
- ***Beyond repair, what is needed to enhance target businesses and attract desired talent (new mobility paradigm)?***
- ***How will we fund new infrastructure?***

### Business rejuvenation

- Existing assets
- Existing capabilities

- Significant public / private efforts in building innovation eco-systems underway
- ***What is the link to the assets we have and what we already do well?***

### Talent attraction and retention

- Role of infrastructure
- Business opportunity

- How do we retain current talent?
- ***How do we handle the growing 'left-behind' issue?***
- ***What is the nature of the new talent we seek to attract, and how can we attract this talent?***

# Potential Center Initiatives – Initial Thoughts

## The Center's Role



- Decide to what degree the Center should be focused on **addressing current imperatives** (e.g., weather infrastructure, 'left-behind' education) versus **shaping and orchestrating a future vision**
- **Communicate the imperative to integrate** infrastructure, talent and business rejuvenation plans

## Infrastructure rejuvenation



- Determine if participation in Rockefeller resilient cities initiative is additive to **addressing Houston 'ante to play' infrastructure issues**, or if other actions are required
- **Identify opportunities to influence infrastructure plans** (e.g., Downtown Plan, MetroNext) towards business and talent imperatives

## Business rejuvenation



- Assess if **participation in the current Houston Exponential focus area study** would be feasible and beneficial
- Finalize scope and launch **'Future of Energy in Houston'** study

## Talent attraction and retention



- Determine if **'left-behind' education challenges are being sufficiently addressed** (e.g., UpSkill Houston, Early Matters, Center Immigration Study) or if additional action is required
- **Partner with local universities** to share perspectives on opportunities to **play a differentiated role in Houston's development**