Workforce Development in the 21st Century

A discussion for Houston’s civic influencers, presented by Microsoft and featuring the Brookings Institution.
Digitalization of the American Workforce

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Welcome Remarks

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The Future of Work

Alan Berube
Senior Fellow and Deputy Director
Brookings Institution Metropolitan Policy
1. Inclusion, prosperity...and tech
2. How’s Houston doing?
3. Ensuring the future works
Inclusion, prosperity... and tech
Economic success requires growth, prosperity, and inclusion

Growth
- Jobs
- GDP
- Entrepreneurship

Prosperity
- Productivity
- Standard of living
- Average wages

Inclusion
- Employment rate
- Median earnings
- Relative poverty rate
Greater inclusion yields faster growth

Annualized GDP per capita growth rate
100 largest metro areas, 2005-14

Source: Brookings analysis of Opportunity Insights data
Tech, meanwhile, both empowers and divides
Tech empowers: Digitalization brings higher wages

Average annual wage by digital score
United States, 2016

- Low: $30 K
- Medium: $48 K
- High: $73 K

Source: Muro et al., “Digitalization and the American workforce”
Tech divides: Tech tends to increase wage dispersion

Average annualized growth rate by occupation group
United States, 2010-16

Source: Muro et al., “Digitalization and the American workforce”
How’s Houston doing?
Houston’s economy has grown, but hasn’t delivered greater prosperity and inclusion

2007-17 trends

**GROWTH**
- +17% (13th) Jobs
- +19% (22nd) GDP
- +4% (8th) Jobs at young firms

**PROSPERITY**
- +2% (74th) Productivity
- -4% (78th) GDP per capita
- +5% (55th) Average annual wage

**INCLUSION**
- +0.1% (49th) Median earnings
- -3% (53rd) Relative poverty
- -0.3% (67th) Employment rate

Source: Berube et al., "Metro Monitor 2019"
Automation and AI will exacerbate these trends
Automation has already caused significant labor market change

Source: Muro et al. “Automation and artificial intelligence: How machines are affecting people and places”
Looking forward, automation may affect low-wage sectors more

Source: Muro et al. “Automation and artificial intelligence: How machines are affecting people and places”
Houston ranks among the top third of large metro areas for likely automation pressures

46.3%
Avg. automation potential in Houston

31st
Highest among 100 largest metro areas

Source: Muro et al., “Automation and artificial intelligence: How machines are affecting people and places”
Many low-skill Houston jobs are highly vulnerable to automation

<table>
<thead>
<tr>
<th>Occupation</th>
<th>Automation potential</th>
<th>Houston employment, 2017</th>
</tr>
</thead>
<tbody>
<tr>
<td>Combined food prep and serving workers</td>
<td>87%</td>
<td>89,100</td>
</tr>
<tr>
<td>Waiters and waitresses</td>
<td>77%</td>
<td>56,900</td>
</tr>
<tr>
<td>Stock clerks and order fillers</td>
<td>86%</td>
<td>42,000</td>
</tr>
<tr>
<td>Heavy and tractor-trailer truck drivers</td>
<td>81%</td>
<td>38,600</td>
</tr>
<tr>
<td>Bookkeeping, accounting, and auditing clerks</td>
<td>86%</td>
<td>33,200</td>
</tr>
</tbody>
</table>

Source: Brookings analysis of EMSI data
Several already-vulnerable groups may experience more disruption

Average automation potential in Houston
By education/age/race, 2017

Source: Brookings analysis of 2017 American Community Survey microdata
These groups are overrepresented in exposed occupations

Share of employment in Houston
Selected occupation groups, 2017

- Sub-baccalaureate workers
- Young workers
- Hispanic workers

These groups are overrepresented in exposed occupations.

Source: Brookings analysis of 2017 American Community Survey microdata
### Other “safe” occupations are growing

<table>
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<th>Occupation</th>
<th>Automation potential</th>
<th>Houston employment CAGR, 2010-18</th>
</tr>
</thead>
<tbody>
<tr>
<td>Personal care aides</td>
<td>24%</td>
<td>+12.1%</td>
</tr>
<tr>
<td>Financial analysts</td>
<td>11%</td>
<td>+7.6%</td>
</tr>
<tr>
<td>Software developers, applications</td>
<td>8%</td>
<td>+7.6%</td>
</tr>
<tr>
<td>Business operations specialists</td>
<td>18%</td>
<td>+7.5%</td>
</tr>
<tr>
<td>Mobile heavy equipment mechanics</td>
<td>28%</td>
<td>+7.4%</td>
</tr>
</tbody>
</table>

Source: Brookings analysis of EMSI data
Ensuring the future works
Promote a constant learning mindset

Emphasize inclusion

Reduce hardships for those who are struggling
Promote a constant learning mindset

- **Embrace** data to understand what’s happening
- **Expand** accelerated learning and certifications
- **Make** skill development more financially accessible
- **Align** and expand traditional education
- **Cultivate** uniquely human qualities
Emphasize inclusion

- **Target** career on-ramps on under-represented populations
- **Aim** digital, technical, and skills training at needs of vulnerable cohorts
- **Maximize** hiring through subsidized employment
Reduce hardships for those who are struggling

- **Expand** income supports for workers in low-paying jobs
- **Reduce** financial volatility for workers in service industries
- **Increase** portability of benefits
Panel Discussion

Workforce Development in the 21st Century

Panelists:

- Peter Beard: Senior Vice President, Regional Workforce Development, Greater Houston Partnership
- Alan Berube: Senior Fellow and Deputy Director, Brookings Institution Metropolitan Policy
- Morag Watson: Vice President, BP
- Ernesto Chavarin: Director of BPM Management, Microsoft
- Amanda Edwards: Houston City Council Member
Thank you!

Peter Beard
Senior Vice President,
Regional Workforce Development
Greater Houston Partnership