Modernizing Shared Transportation:
Public Responsibilities in the Digital Age
Divergence defines America’s recent economic story

Note: Income changes are significant at the 90% level, excepting “no change” category. Source: Brookings analysis of decennial Census and American Community Survey data
Divergence defines America’s recent economic story
Metro areas need assets to deliver global economic competitiveness

Innovative
Integrated
Digitalized
Productive

Technology is changing the nature of work

Share of U.S. employment by digital skill level

<table>
<thead>
<tr>
<th>Year</th>
<th>Low</th>
<th>Medium</th>
<th>High</th>
</tr>
</thead>
<tbody>
<tr>
<td>2002</td>
<td>56%</td>
<td>40%</td>
<td>5%</td>
</tr>
<tr>
<td>2016</td>
<td>30%</td>
<td>48%</td>
<td>23%</td>
</tr>
</tbody>
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Source: Brookings, "Digitalization and the American workforce," 2017
Our country is aging and becoming more diverse

Ethnicity by generation, United States, 2015

- **55+**: 75% White, 10% Black, 9% Hispanic, 5% Asian, 5% Other
- **35 to 54**: 62% White, 13% Black, 18% Hispanic, 6% Asian, 6% Other
- **18 to 34**: 56% White, 14% Black, 21% Hispanic, 6% Asian, 6% Other
- **Under 18**: 52% White, 14% Black, 25% Hispanic, 5% Asian, 5% Other

Source: Brookings analysis of 2015 1-year ACS
Divergence within metro areas

Growth in the Seattle metropolitan area, 2011–16

- Jobs: 24th overall, +15.1%
- Gross Metropolitan Product (GDP): 15th, +18.9%
- Jobs at young firms: 55th, +6.1%

Prosperity change in the Seattle metropolitan area, 2011–16

- Productivity: 5th overall, +3.2%
- Standard of living: 18th, +9.4%
- Average annual wage: 3rd, +12.3%

Inclusion change in the Seattle metropolitan area, 2011–16

- Median wage: 51st overall, +6.3%
- Relative poverty: 41st, -0.2%
- Employment rate: 77th, +5.9%
The built environment only intensifies economic disparity

Share of after-tax income spent on infrastructure services, by income quintile, 2016

- **Personal vehicles**
- **Public and other transportation**
- **Telephone services**
- **Electricity, natural gas, and other fuels**
- **Water and other public services**
- **Housing**

Lowest Quintile → Highest Quintile
1. Local Transportation: From Static to Dynamic
2. Core Questions
3. Emerging Local Responses
Persistent, but slowed, driving

VMT CAGR, 1970-2000: +3.0%

VMT CAGR, 2000-2016: 0.9%
Deep uncertainty within traditional transit systems
Digital connections unlock new opportunities while leaving others behind

70+ mil
Population in low-broadband neighborhoods

64%
National smartphone adoption
New digital transportation habits

- **28%** Share of 18-49 year-olds who have used ride-hailing apps
- **100+** Bikeshare systems in the U.S.
- **43%** Share of adults who work remotely at least part of the time

Source: US Census, Pew Research Center, NACTO, and Gallup
E-commerce inextricably connected to transportation and land use


- 48%
- 12%
- -10%

Warehousing & e-commerce
All private industries
Retail

Source: Brookings
Autonomy will bring even more powerful market-shaping forces.

- Impacted transportation workers: 9.5 million
- Urbanized land acres: 69.4 million
Public trust is difficult to build, easy to lose

- Local government: 68% (2004) to 70% (2017)
- Federal government (Legislative branch): 60% (2004) to 35% (2017)

Source: Gallup
States and localities are willing to invest more in themselves …

- 25 States who have raised their gas tax in the past 4 years
- $70b Muni bonds included within state and local ballot measures in 2016
- +70% Passage rate for transportation-focused ballot measures

Source: Pew Charitable Trusts, Reuters, and APTA
While the federal government keeps reducing its role

Federal vs. state and local spending on transportation infrastructure, 1956-2014

- State + local spending in billions of 2014 dollars
- Federal spending in billions of 2014 dollars

Source: Brookings analysis of Congressional Budget Office data
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What does it mean to connect people to economic opportunity in the digital age?

What tools do people need access to?

How is local economic geography changing?

How can land use regulations and other public policies tilt market dynamics?
How do we prepare this century's transportation workforce?

Which jobs will disappear? Stabilize? Still to be invented?

What are the ingredients for a digital-age workforce development ecosystem?
What environmental risk factors can be managed locally?

How could climate risks impact local transportation networks?

How can a region sustainably finance more resilient infrastructure and usage?
What does it mean to be a local transportation agency in the digital age?

What’s the Mission Statement? What’s the balance of internal and external services?

Where do public subsidies flow? What are the revenue sources?

How must employment approaches and digital content management evolve?
Local Transportation: From Static to Dynamic

Core Questions

Emerging Local Responses
New Partnerships

Transportation Network Company Agreements

Dig Once
Internal Intelligence, Upgraded

Economic Value, Atlas

Data Trusts

Seamless Experience
Fiscal Transformations

Congestion and Other Fees

Resilience Financing
Remaking Workforce Development

Infrastructure Academies

Redesigning Credentials
Modernizing Shared Transportation: Public Responsibilities in the Digital Age