

Megaregions Shape Communities

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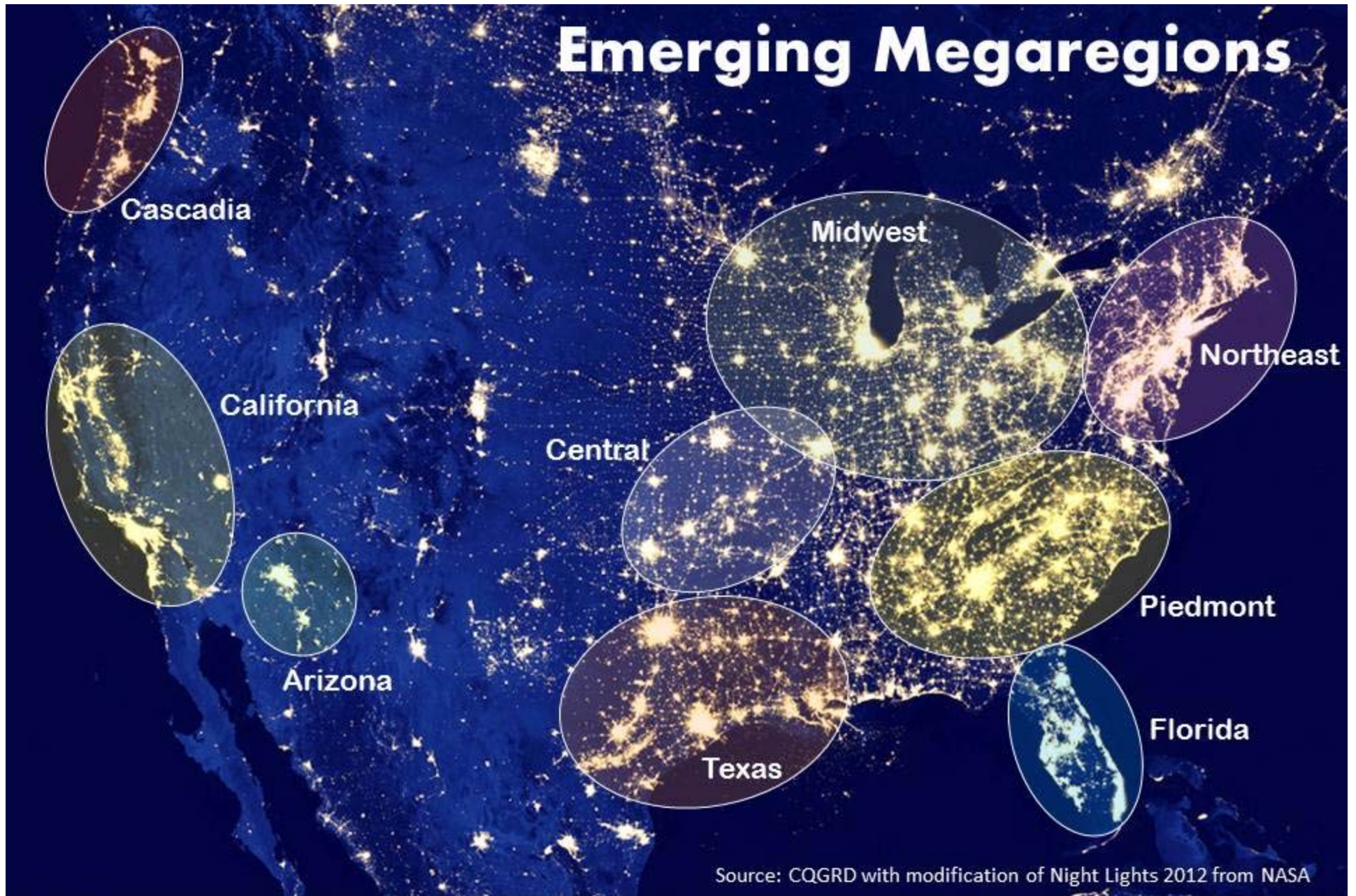
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Emerging Megaregions



Source: CQGRD with modification of Night Lights 2012 from NASA



**Georgia
Tech**

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and Regional Development
College of Architecture



Center for Quality Growth and Regional Development

Megaregions: Emerging Trends

Global Transportation: Next Decades



Changing Geography of Employment

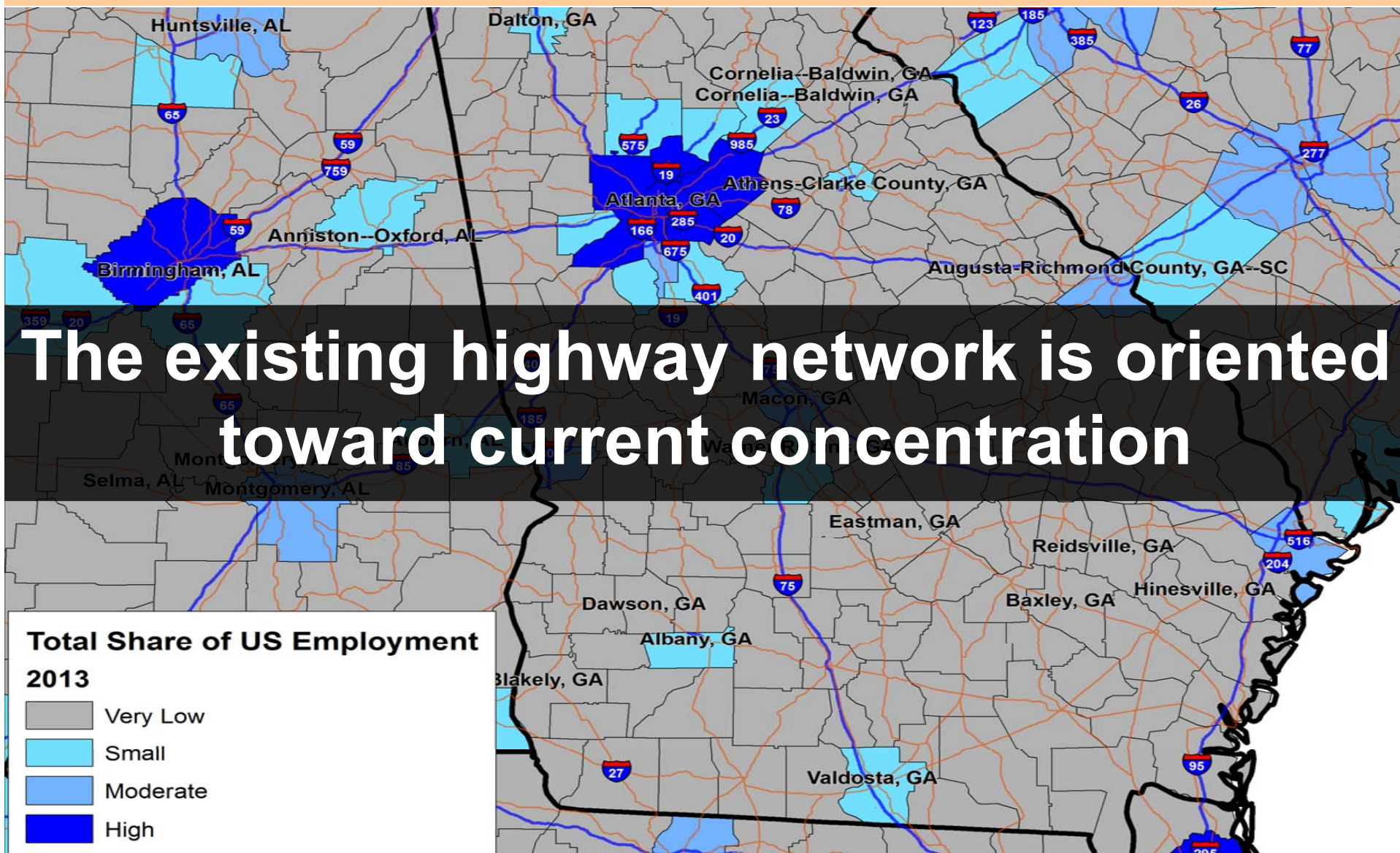
50% of US employment takes less than 4% of the total land mass
Employment will be much less concentrated by the year 2040

Share and Trend in U.S. Employment 2013-2040

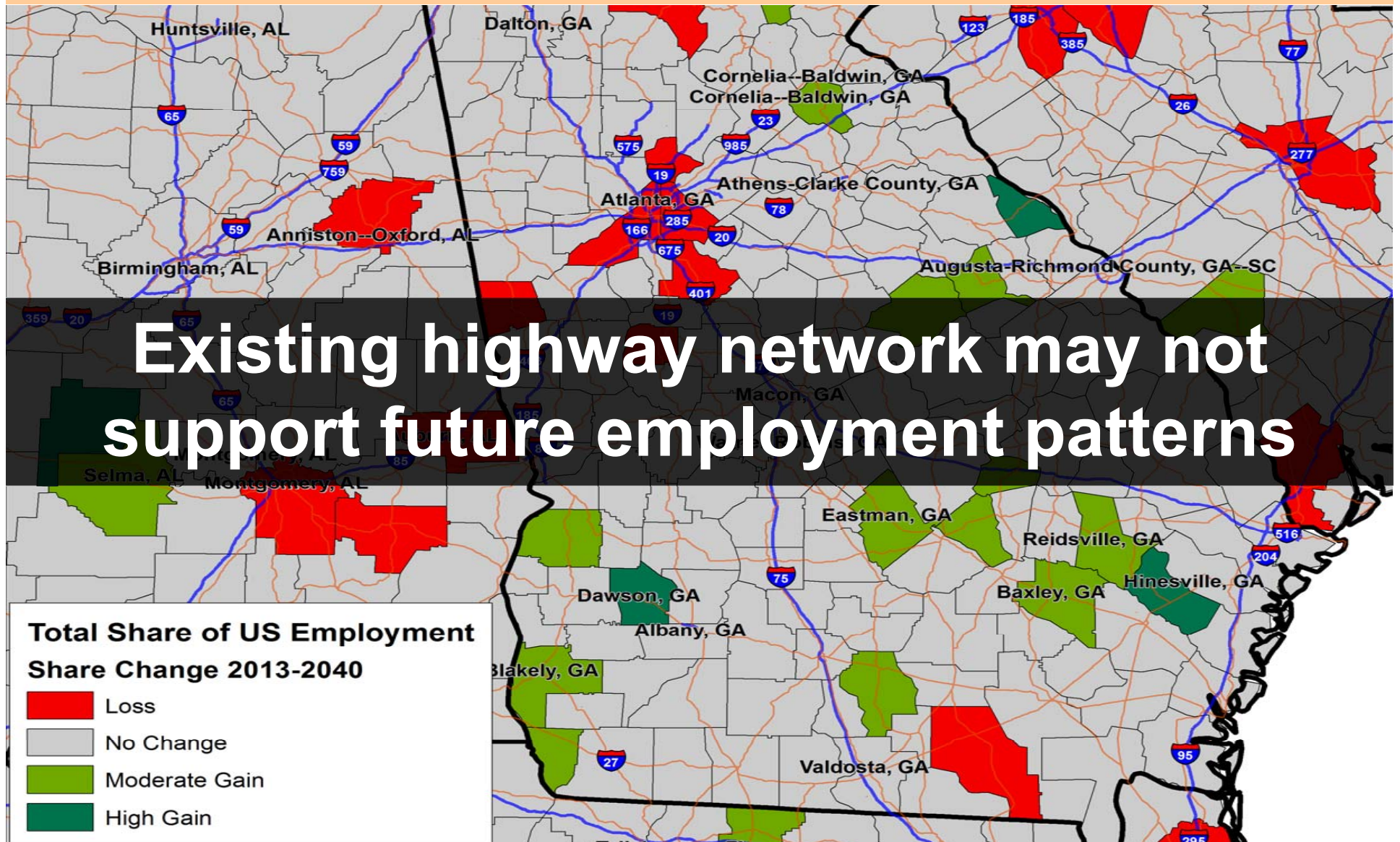
- Light Blue: Large and Declining Share
- Dark Blue: Large and Growing Share
- Light Red: Small and Declining Share
- Dark Red: Small and Growing Share
- Yellow: Roughly Constant Share

Source: CQGRD (2016)

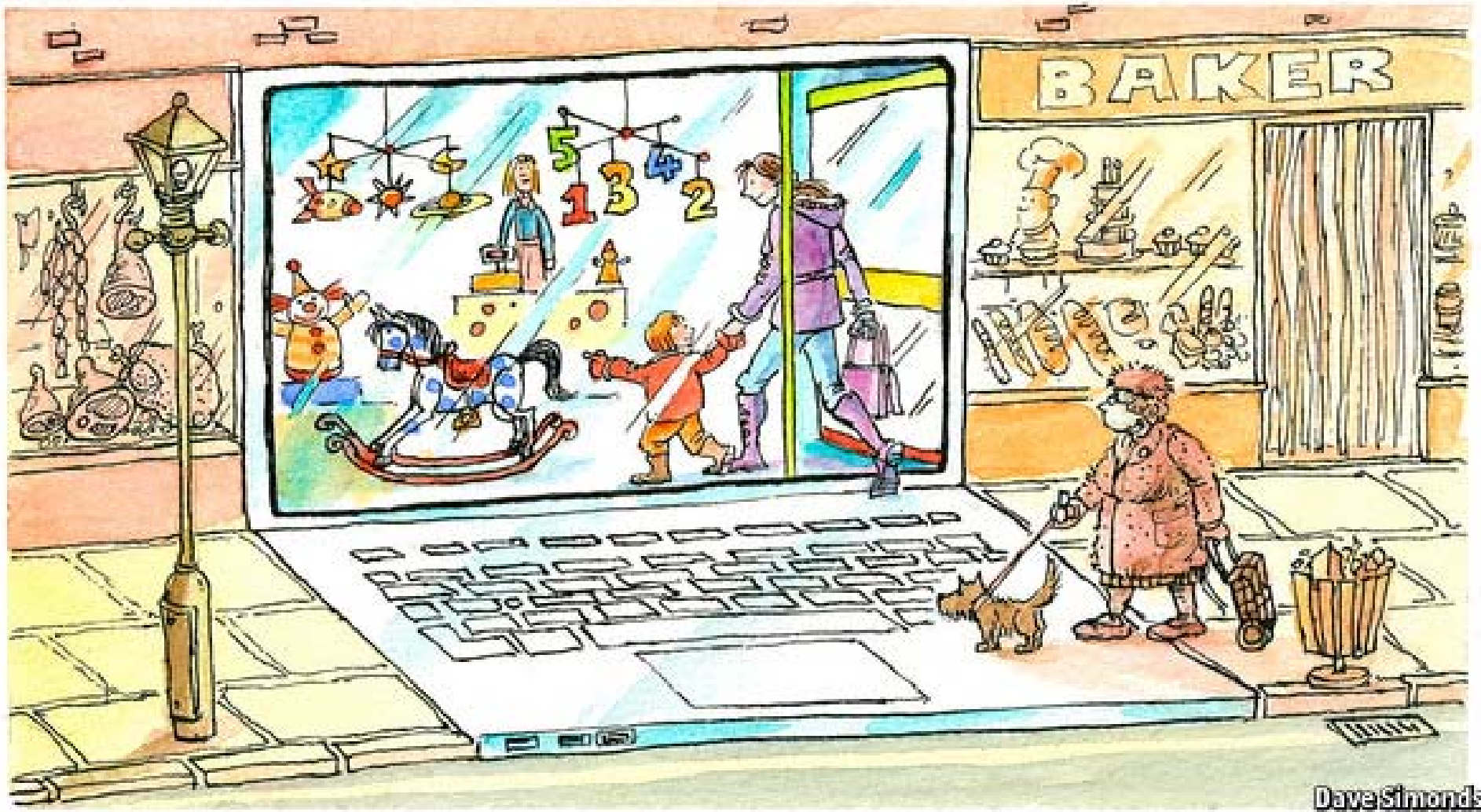
Challenge of Infrastructure



Challenge of Infrastructure



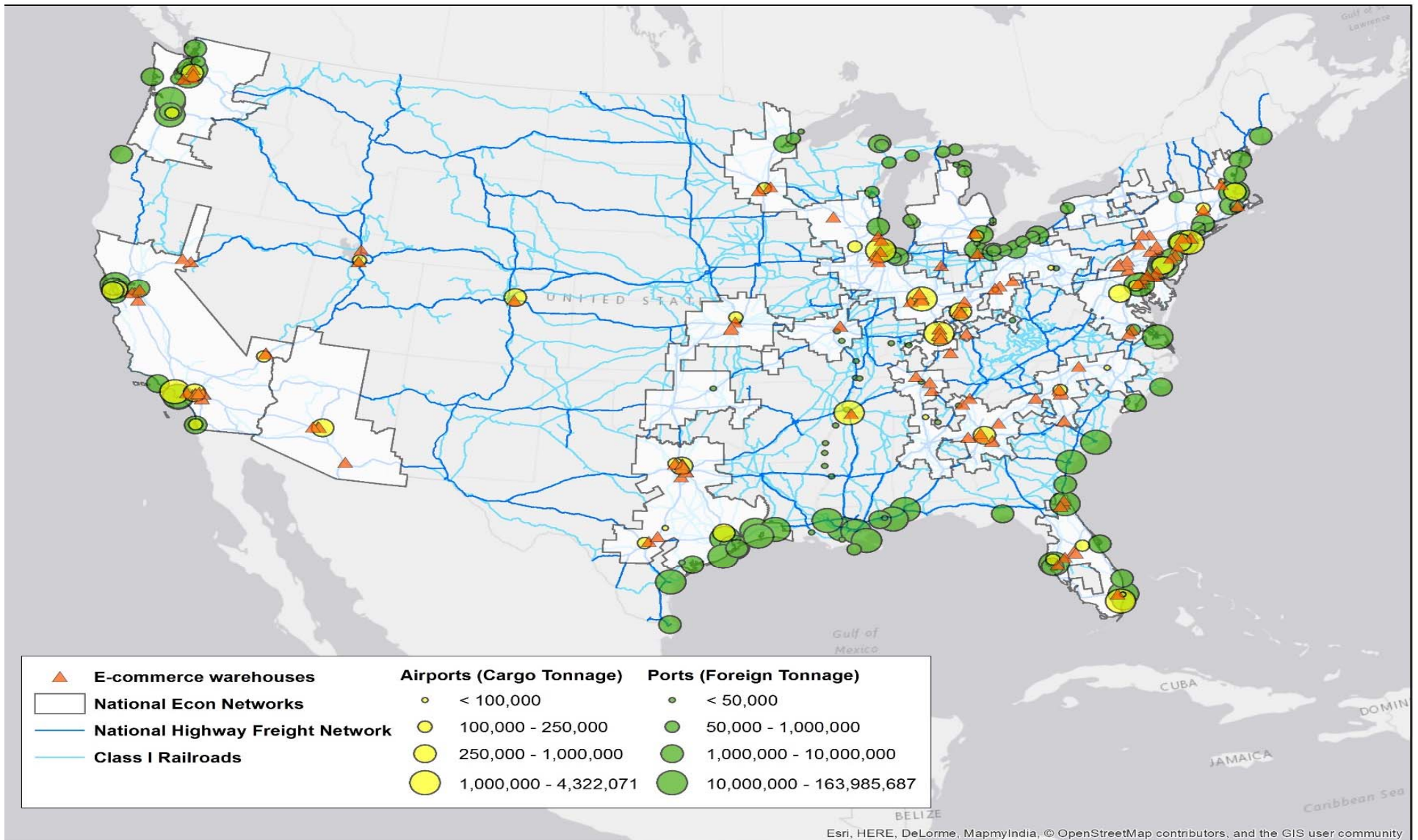
E-commerce



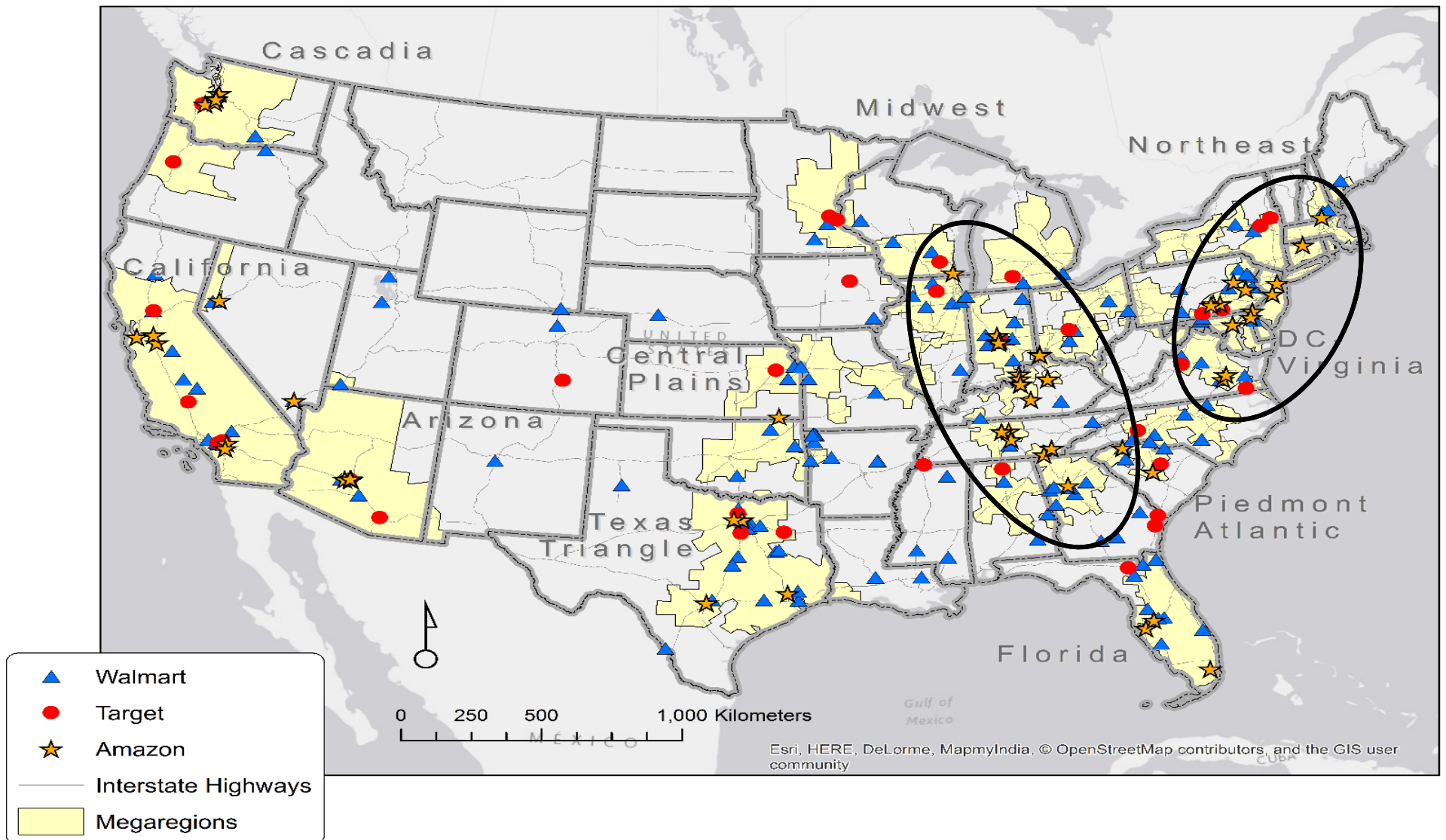
Dave Simonds

Image source: The Economist (2013)

E-commerce and Freight Infrastructures



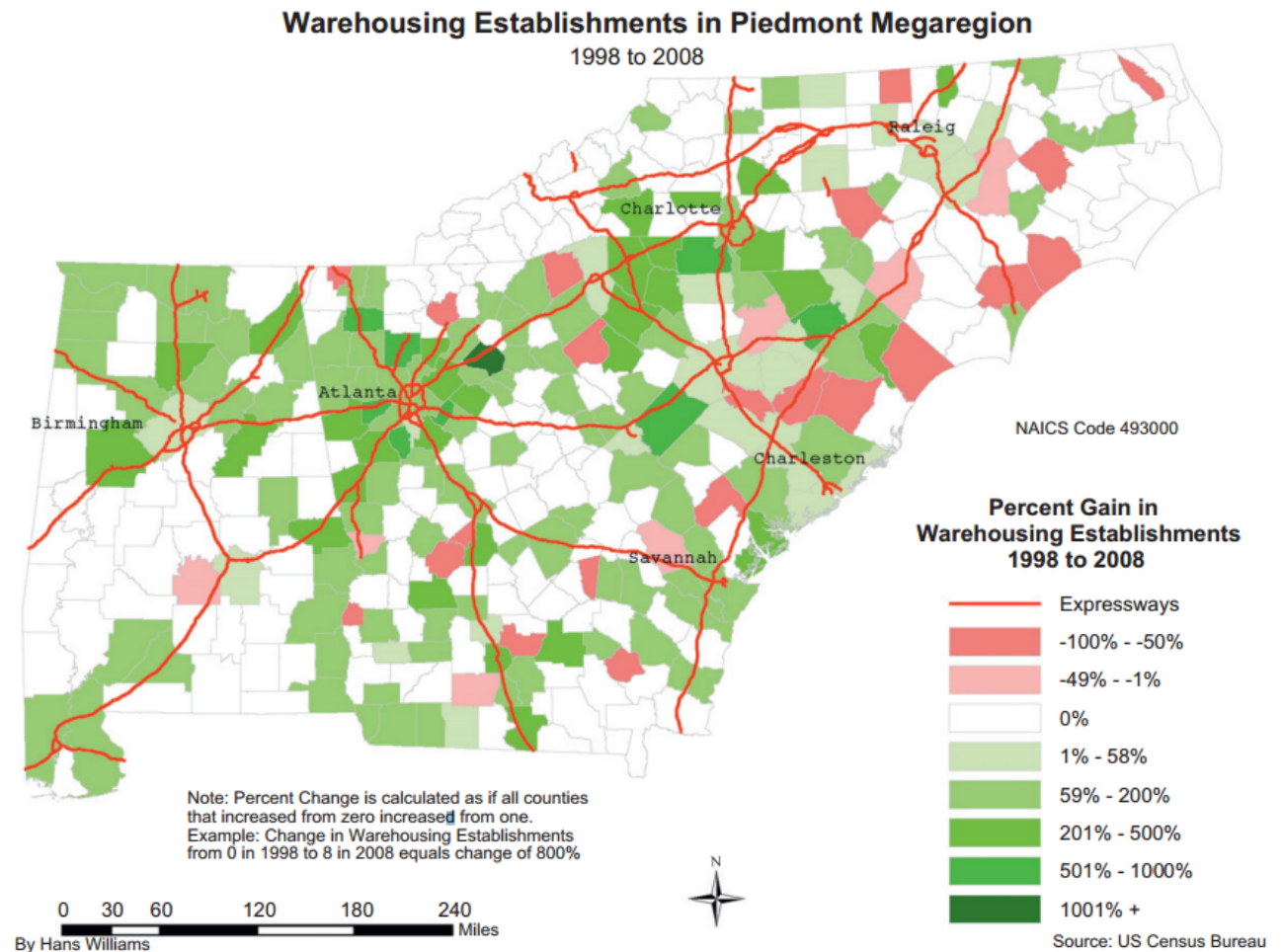
Fast Growth of E-commerce



Source: Ross and Hylton (in preparation)

Distribution Center Sprawl

Distribution centers are increasingly adding value to supply chain process (Rodrigue, 2006)



Source: Dablanc and Ross (2012)

Megaregions and Communities

Megaregions and Communities

Straw Effect

Better Connection = Better Community

“The phenomenon that relatively smaller city is taken its commercial power by larger city when the two cities are connected by high-speed transportation infrastructure such as freeway and high-speed rail.” (Cho et al., 2009)

Megaregions and Communities: Better Connection = Better Community

High-speed transportation infrastructure in megaregions



Diesel Train

| | |
|---------------|--------------|
| Trip duration | Top speed |
| 6h | 150km/h |
| Ticket price | Power source |
| \$115* | Diesel |

Dirty and slow: this mode of transport is not sustainable for modern society.



Aircraft

| | |
|---------------|--------------|
| Trip duration | Top speed |
| 1h 12m | 840km/h |
| Ticket price | Power source |
| \$280* | Jet fuel |

Aircraft jet fuel emissions are a leading contributor to global warming.



TransPod

| | |
|---------------|--------------|
| Trip duration | Top speed |
| 45m | 1200km/h |
| Ticket price | Power source |
| \$80 | Electricity |

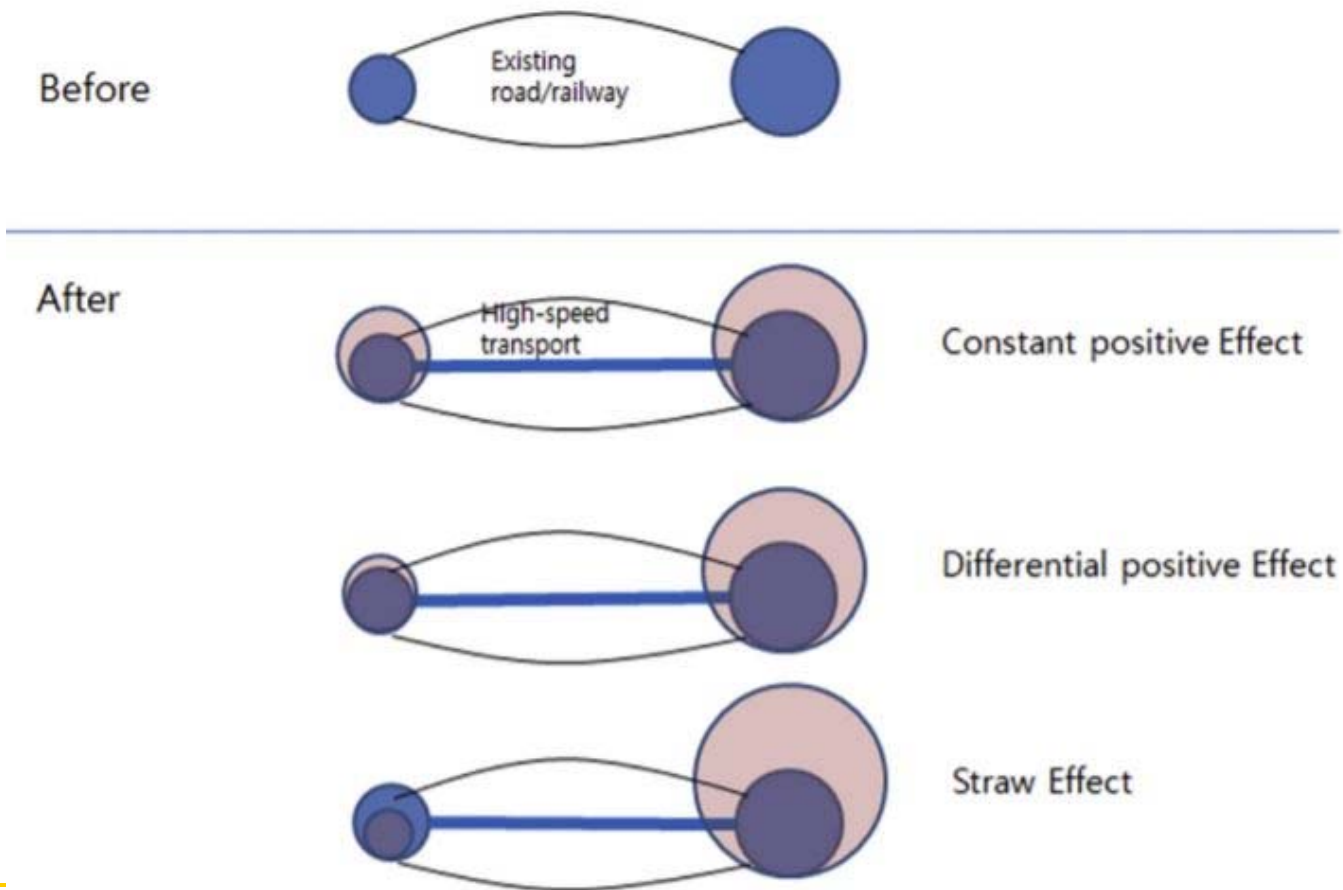
TransPod's hyperloop eliminates the fossil fuel requirements and carbon emissions of jet travel.

*Prices are based on a same-day booking one way trip between Toronto and Montreal

Source: TransPod Hyperloop (transpod.com)

Better Connection = Better Community

Transportation infrastructure as a “Straw”



Source: Kim & Han (2016)

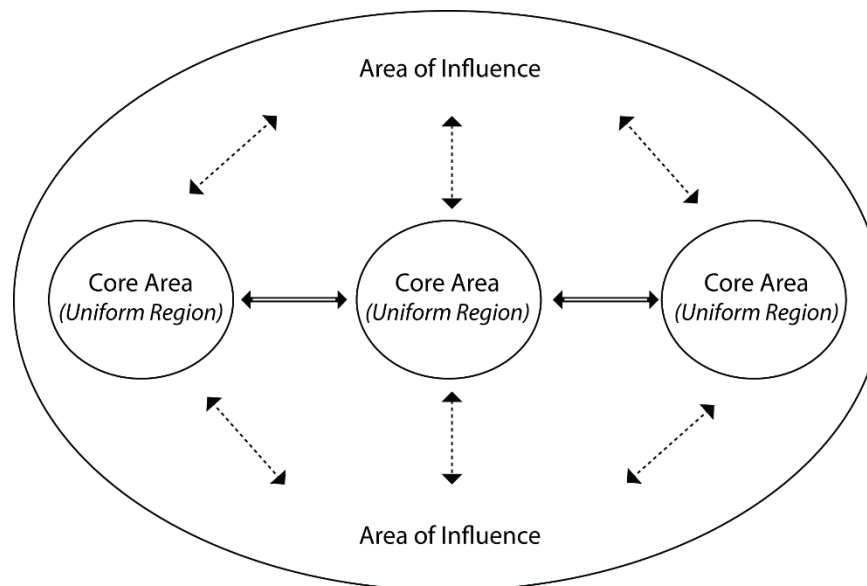
Fig. 1. Three possible effects with simple two locations theory.

Better Connection = Better Community

Changing the relationship among regions in megaregions?

Conventional model

Change of model the Straw Effect?

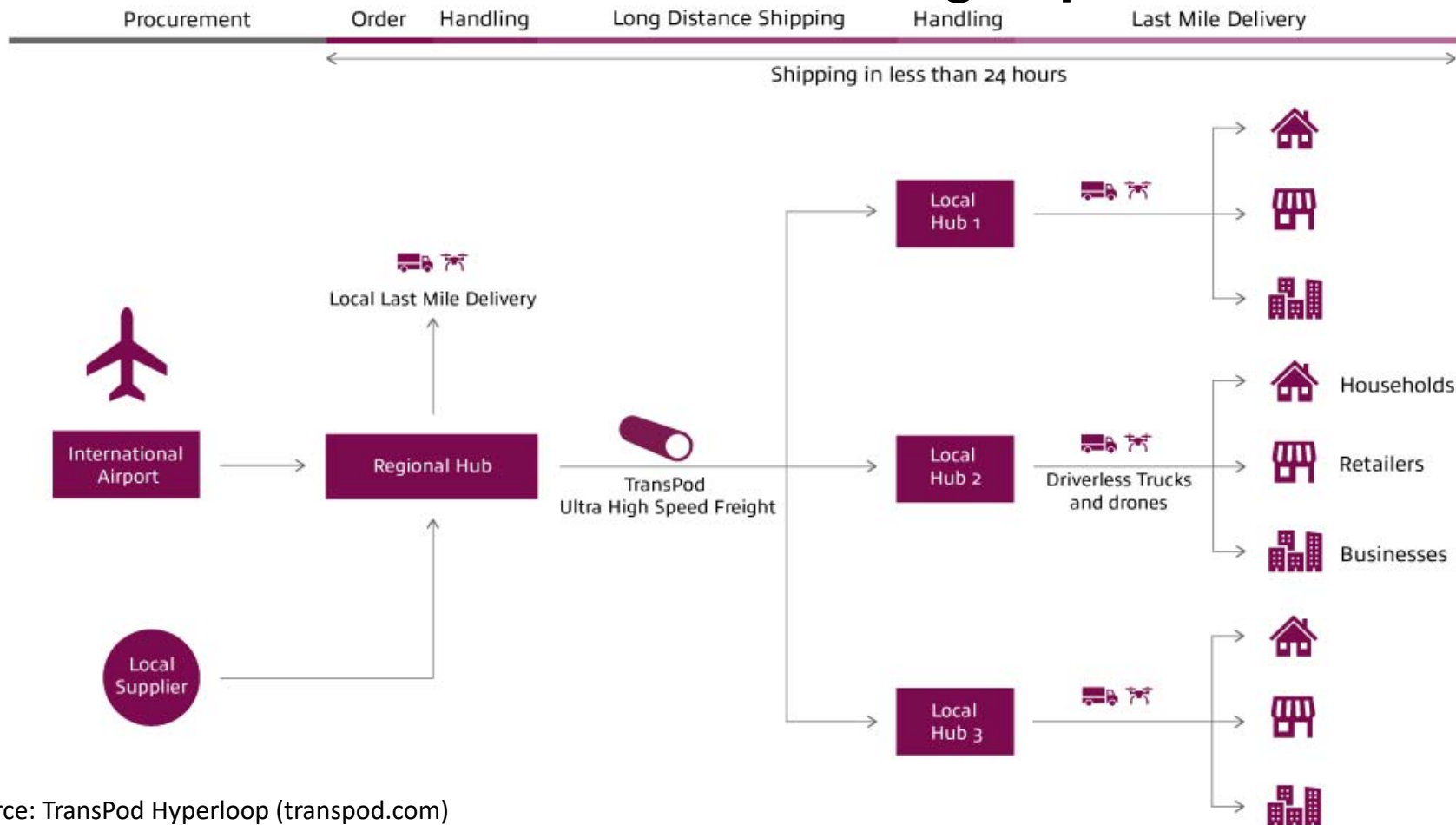


- ↔ Functional relationships between core areas
- ↔ Functional relationships between core area and areas of influence

Source: Ross (2009)

E-commerce < 24 Hours

E-commerce will be even faster with High-speed infrastructure

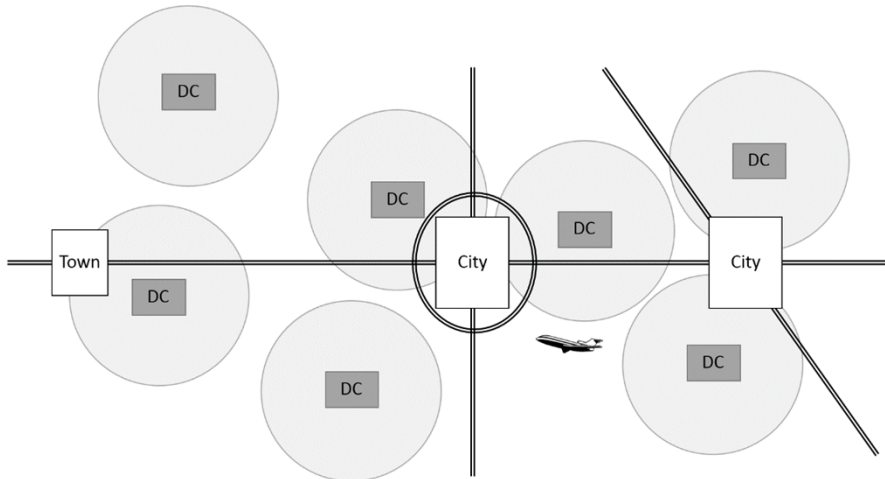


Source: TransPod Hyperloop (transpod.com)

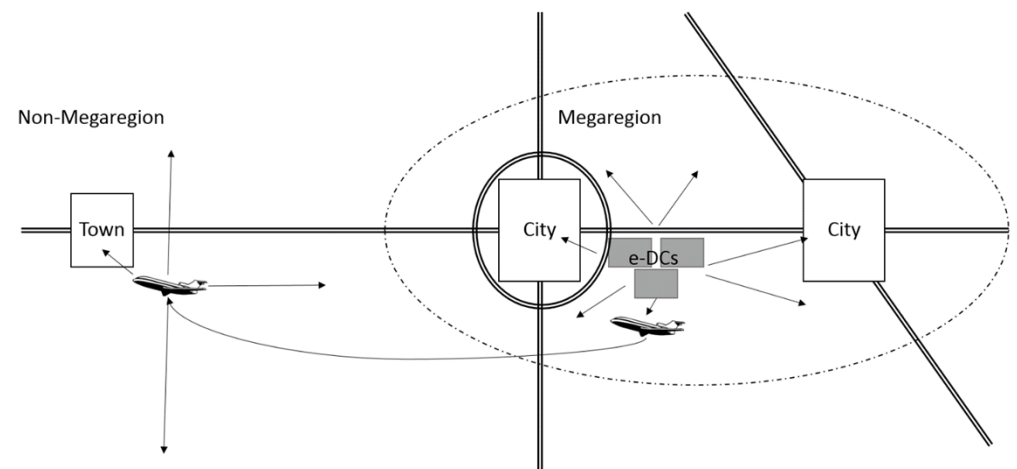
E-commerce and Regional Economy

E-commerce may reshape conventional spatial structure

Brick and Mortar Model



E-Commerce Model



Source: Ross and Hylton (in preparation)

Megaregions Shape Communities

- ❑ Create greater connectivity and smoother connections
- ❑ Manage natural resources, climate change, and transport planning
- ❑ Expand economic opportunity beyond jurisdictions
- ❑ Shape land use, economic activity and communities