



Economic, Technology and Mobility Trends Shaping Transport Modeling

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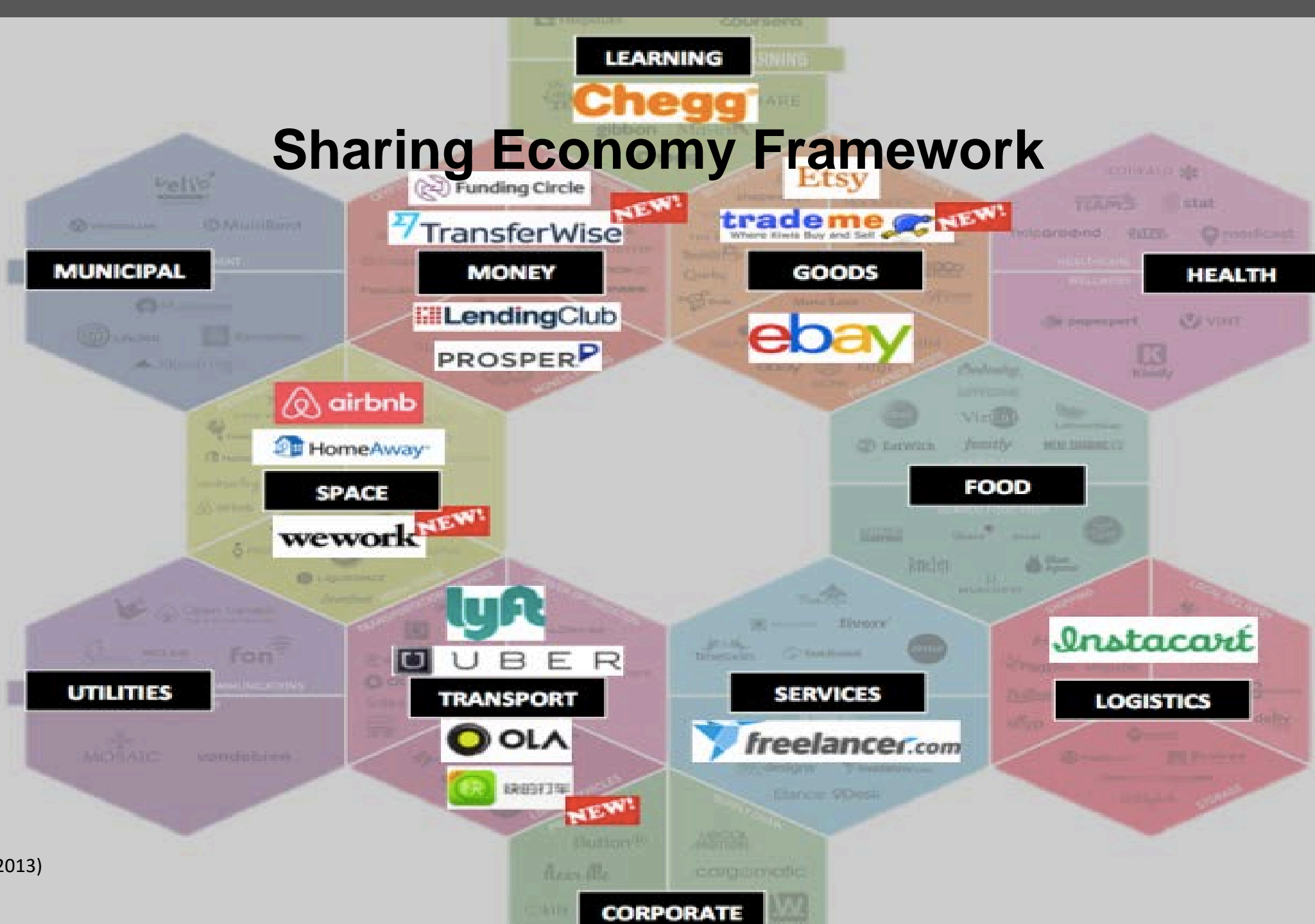
Global Transportation: Next Decades



Introduction

Connect Everything to Everything

Sharing Economy Framework



Planning in Context

NEEDS

Economy

- Fast
- Efficient
- Reliable

Environment

- Energy efficient
- Mitigate pollution
- Renewable resources

Equity

- Balance across hierarchies
- Continuing collaboration

TRANSPORTATION SYSTEM

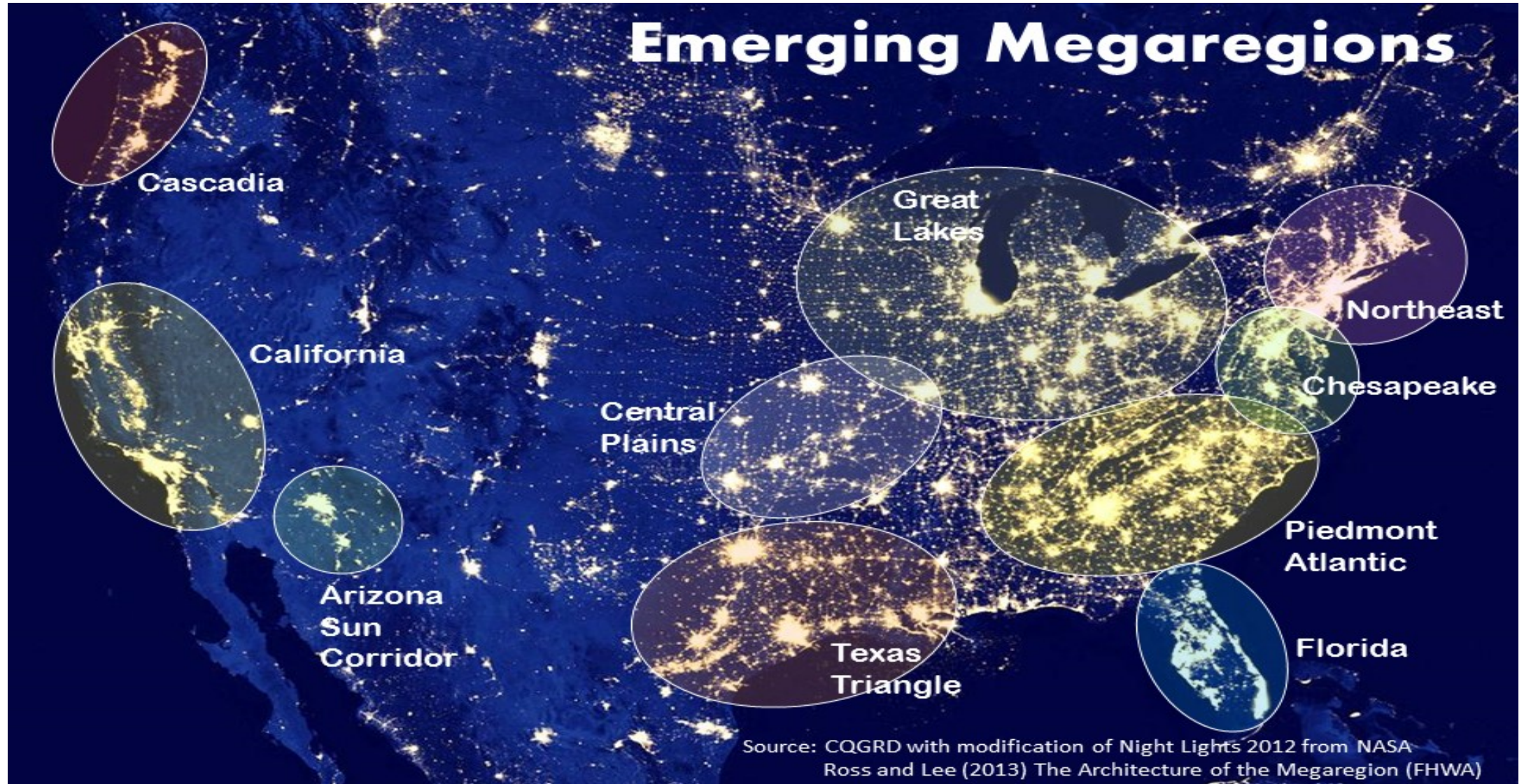
Governance and Management

- Coordination among jurisdictions, sectors
- Fast decision making
- Integration of multiple systems
- Safeguarding infrastructure

Technology

- Many potential O/D pairs
- Real-time management
- Resilient to disruptions
- Renewable energy sources
- Scalability

Megaregions Drive Wealth – USA



**Georgia
Tech**

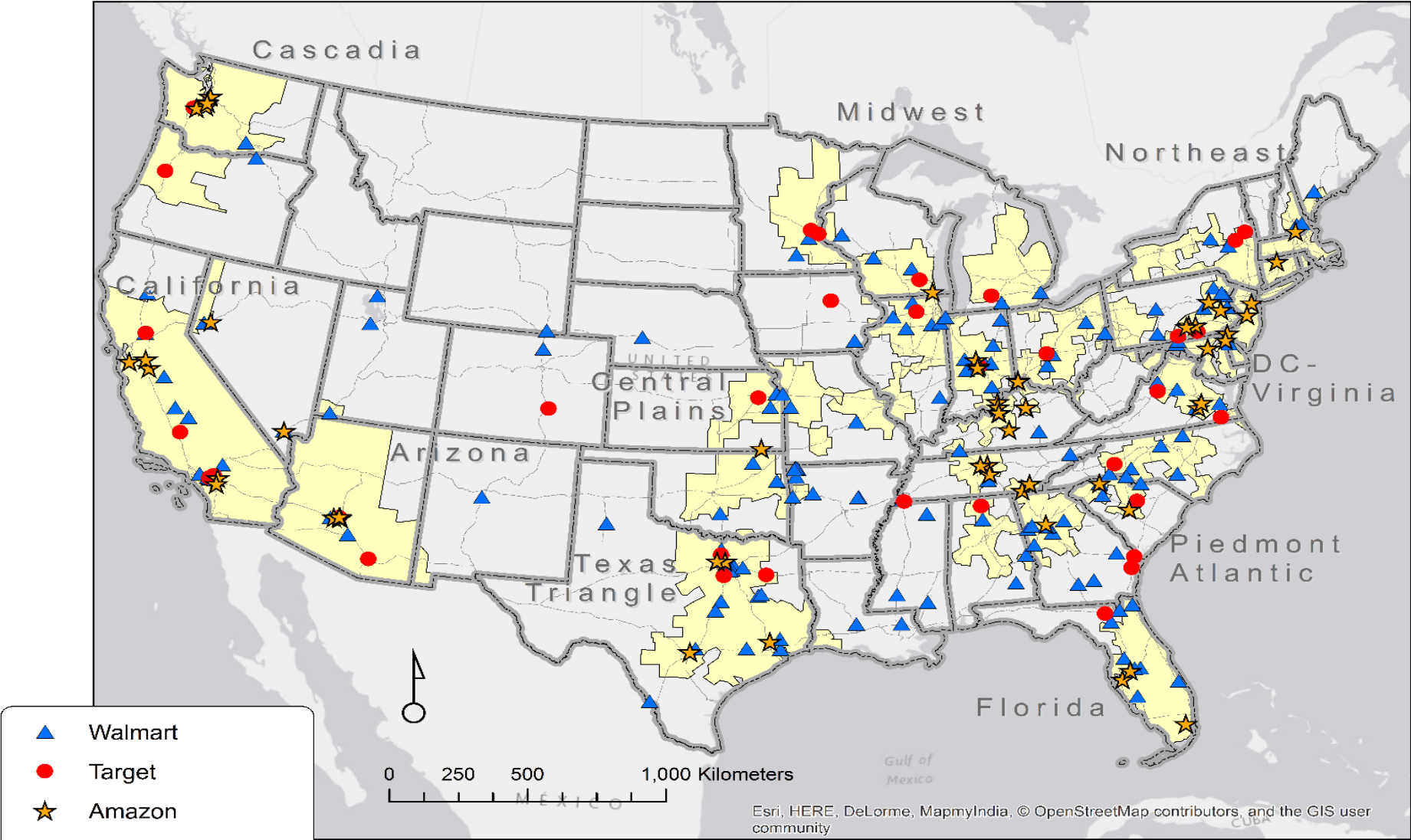


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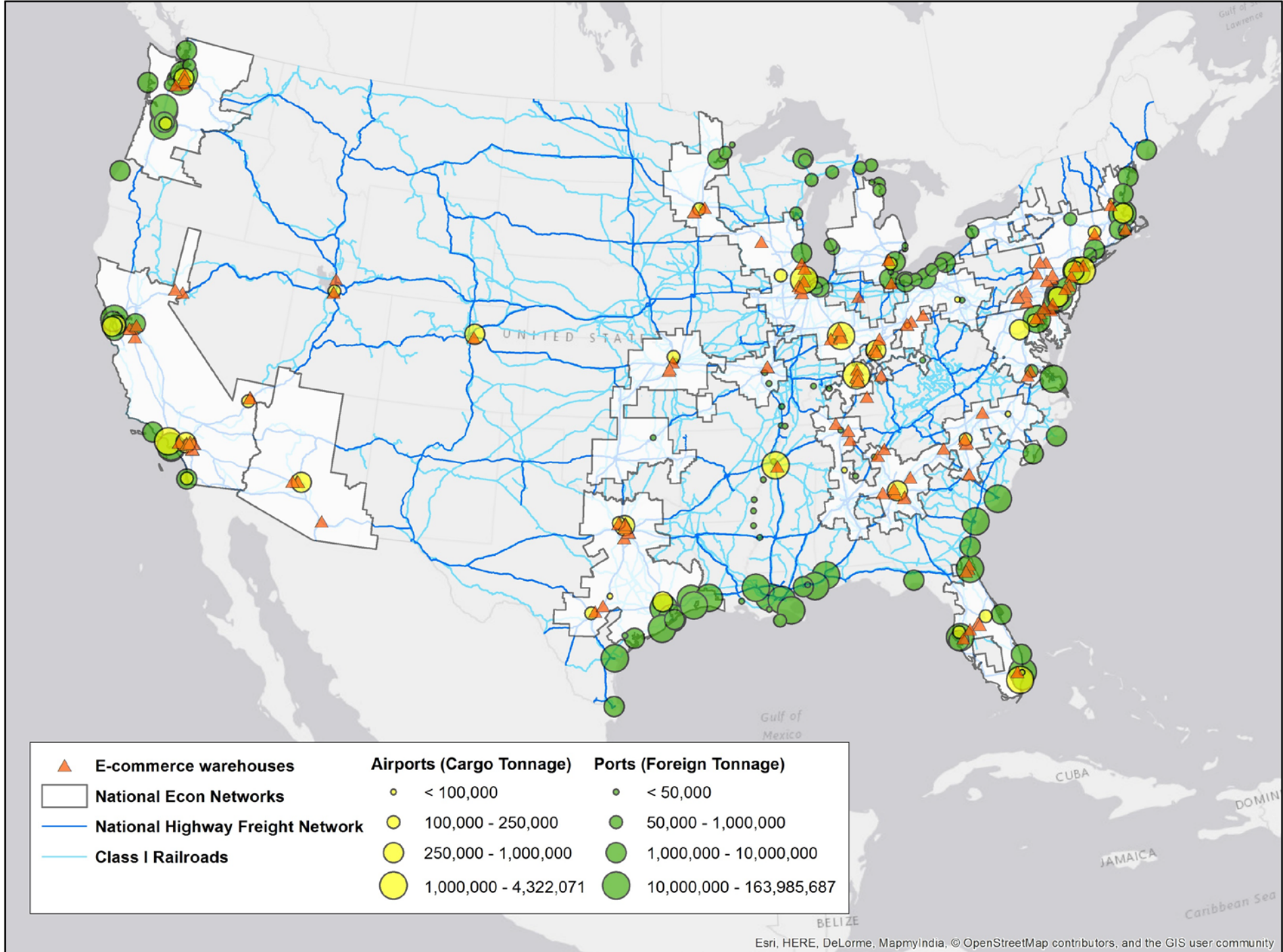
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E-Commerce A Leader



Source: Ross and Hylton (in preparation)

Esri, HERE, DeLorme, MapmyIndia, © OpenStreetMap contributors, and the GIS user community



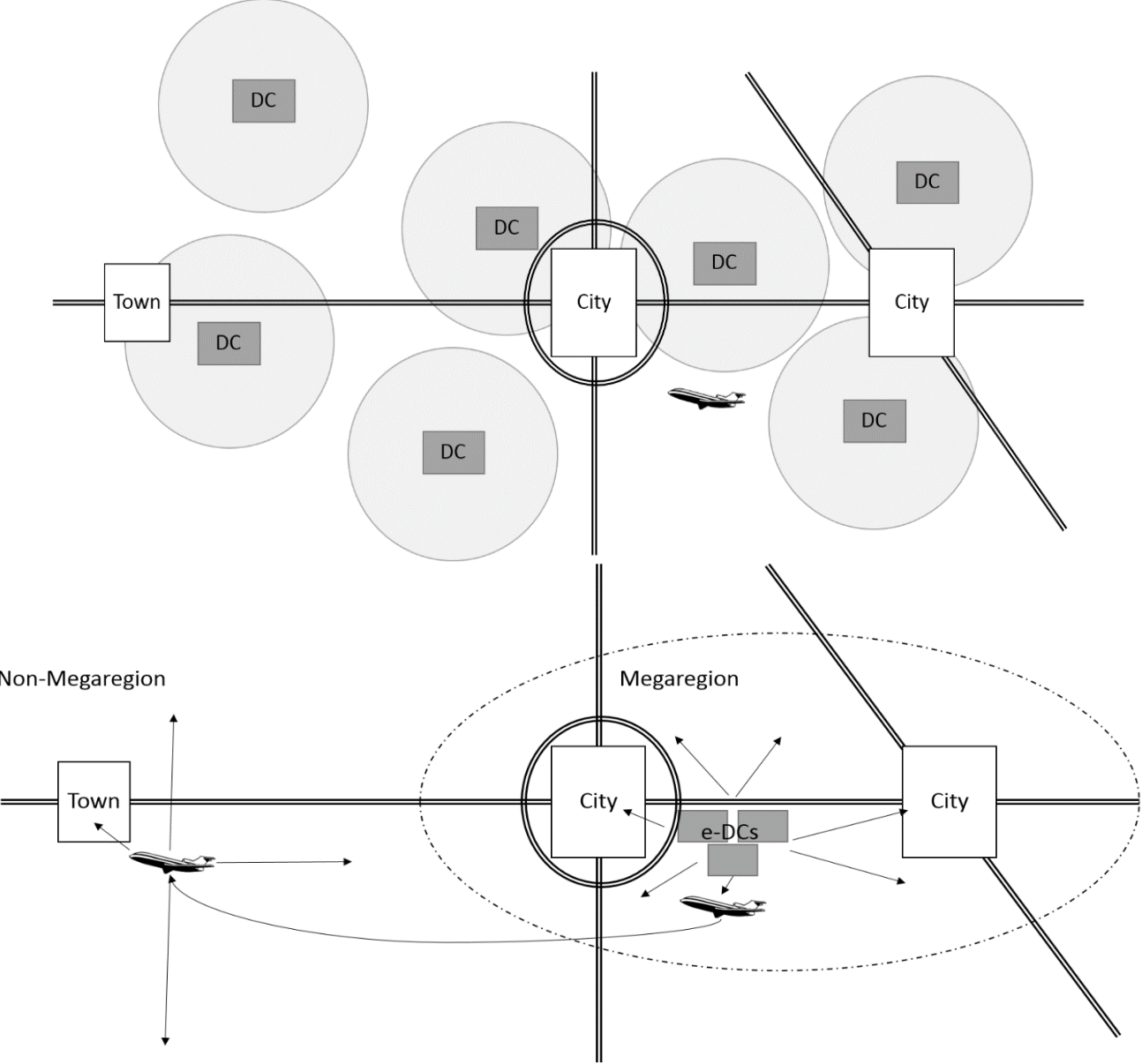
E-Commerce



Dave Simonds

Image source: The Economist (2013)

E-Commerce



Brick and
Mortar Model

E-Commerce Model

E-COMMERCE AND AIRPORTS

Our current large-scale forecasts do not account for e-retail. We do not know how the e-retail air cargo market affects airport volume or should be split among airports.

Air Cargo Forecasting Approaches

- Cargo-insensitive approaches
- Time-series trend extrapolation
- Market share analysis
- Regression-based econometric models
- Scenario planning

E-RETAIL AND AIRPORTS

“E-commerce, whether B-to-B or B-to-C, has had a significant impact on the growth of air freight” (ACRP 143).

Yusen targets intra-Asian e-commerce with Hong Kong cool center

New cargo terminal at Mumbai to meet e-commerce growth

New Schiphol program a boon for e-commerce shippers



APRIL 28, 2016
BY CHARLES
KAUFFMAN

JUNE 9, 2016
BY LEWIS KING

SEPTEMBER 14, 2016
BY LEWIS KING



Amazon Prime Air

Source: Josh Kaiser, Airliners.net

Memphis: Incomparable Reach



How many ,
what kind,
what cost,
how many
destinations
and services
can we
reach? Equity

Reachability

Image source:
<http://www.inboundlogistics.com/cms/article/memphis-incomparable-reach/>

Real-Time is Not New

Early 2002 The Economist published an article “[How about now?](#)”. It talks about the digitization efforts at General Electric and the views of its CIO Gary Reiner.

“Companies will use information technology to react instantaneously to changes in their business”.

Mobility Trends

Nearly sixty per cent (58.3 per cent) of executives foresee that the increasingly mobile lifestyle of employees and customers will become the number one driver within the next two years – with ubiquitous real-time access to data and applications.

Originally posted on the blog of [BT Let's Talk](#) and adapted.

Adaptability

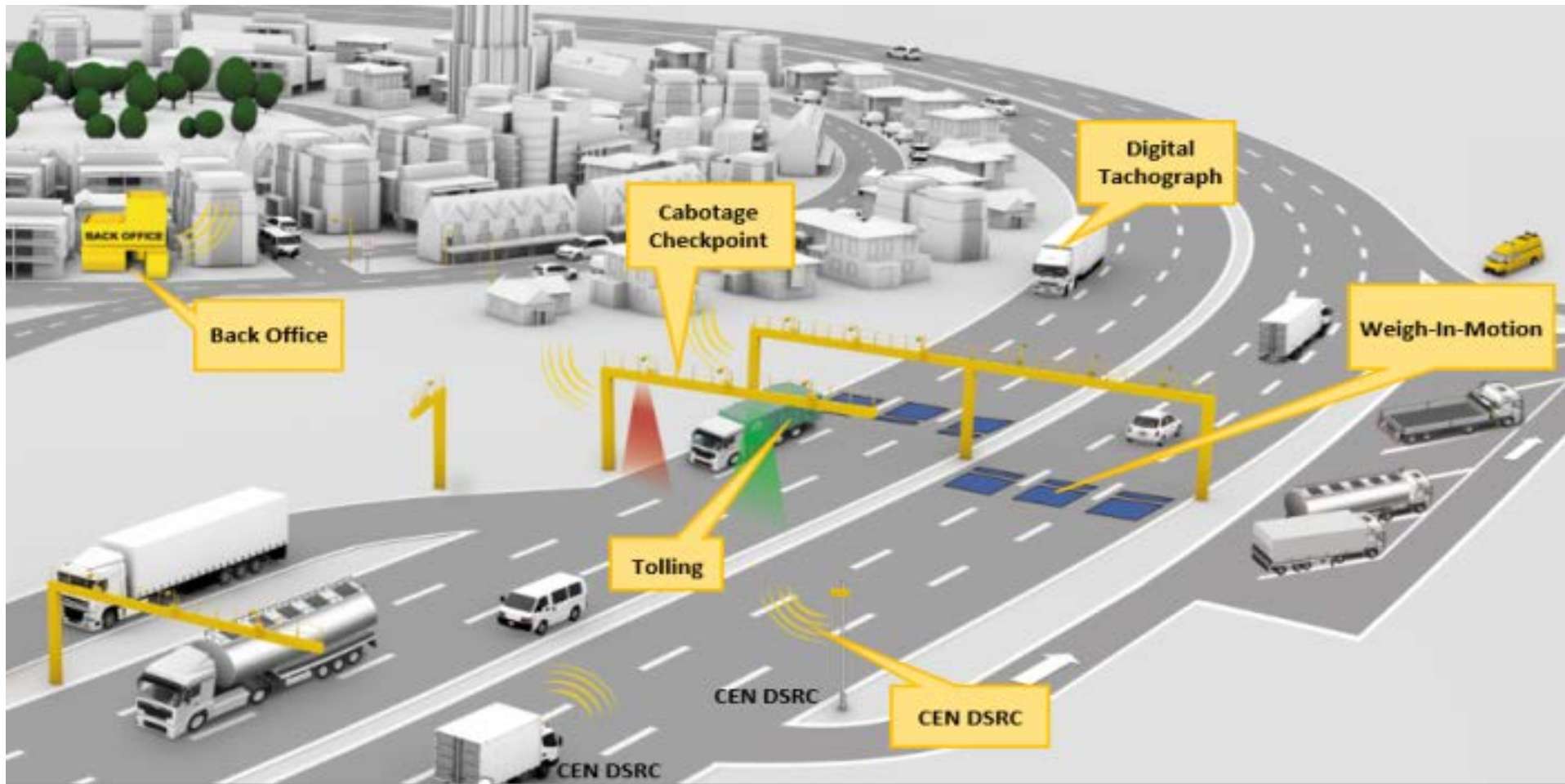
- Focus on the scale of the street which everyone intuitively experiences. We need data about sidewalks and pedestrian infrastructure.
- Analytics needs to move from being retrospective and become projective, applied to synthetic and normative design solutions of the future, shaping decisions about potential built environments.

Focus on the network, not
the boundary.

Air passenger traffic could double in 15 years; air freight could triple in 20 years; and port handling of maritime containers worldwide could quadruple by 2030.

There needs to be a new strategic infrastructure category that includes the major international gateways and their key inland connections

A unified geographic entity with the combined assets of its sub-regions can rise to greater global prominence

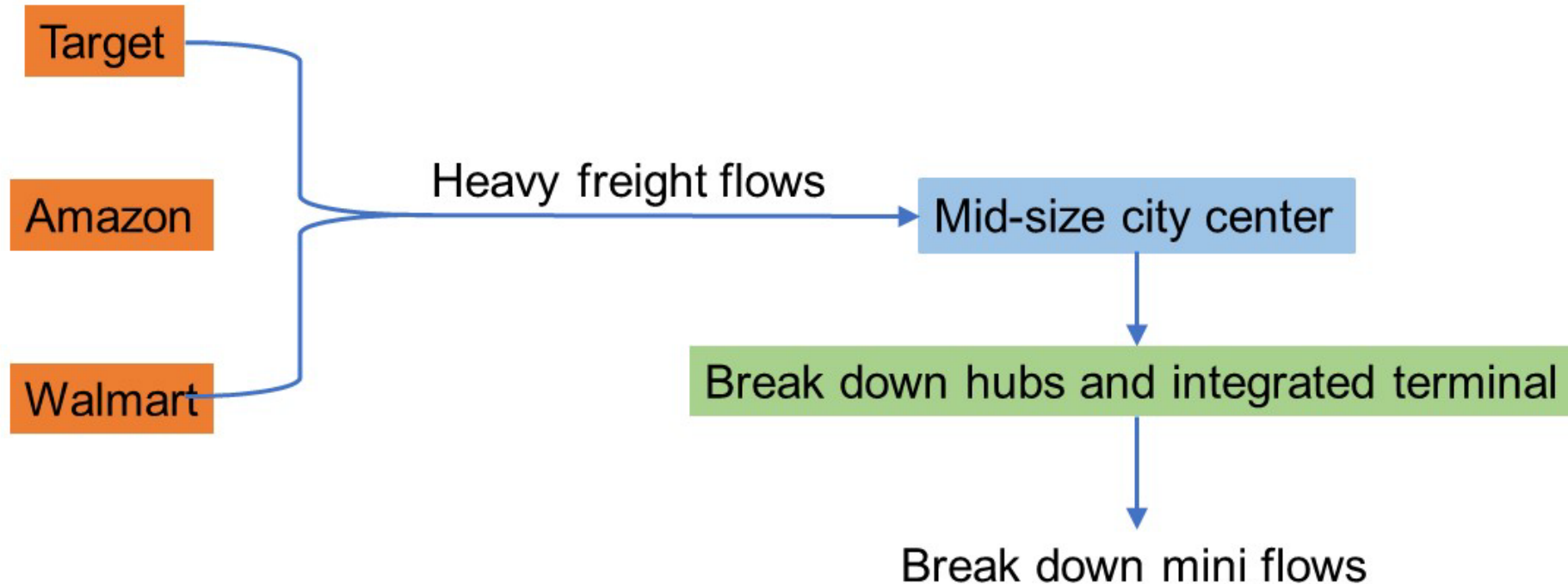


On-board units and receivers built into the infrastructure used by trucks can benefit enforcement, safety etc. Only around 5% of the 6.2 million trucks [in the EU](#) and 11.2m truck [in the US](#) are ever checked for compliance with existing rules

<https://transportpolicymatters.org/tag/its/>

A Big Surprise

Next Generation Urban Terminal



Early adapters:

- UPS/Amazon partnership
- Craft local food distribution networks

Thank You!

