



# Shared Mobility: Reshaping America's Travel Patterns

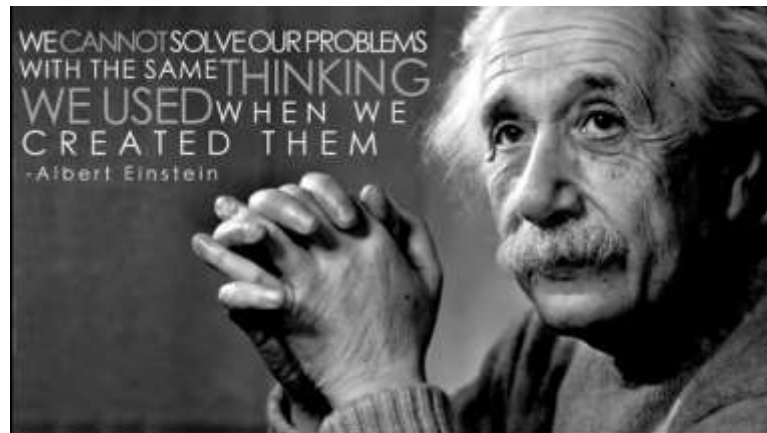
Susan Shaheen, Ph.D



UNIVERSITY OF CALIFORNIA Berkeley  
Transportation Sustainability  
RESEARCH CENTER

# Overview

- What is the Sharing Economy + Shared Mobility?
- Market Trends
- Impacts
- Summary
- Acknowledgements



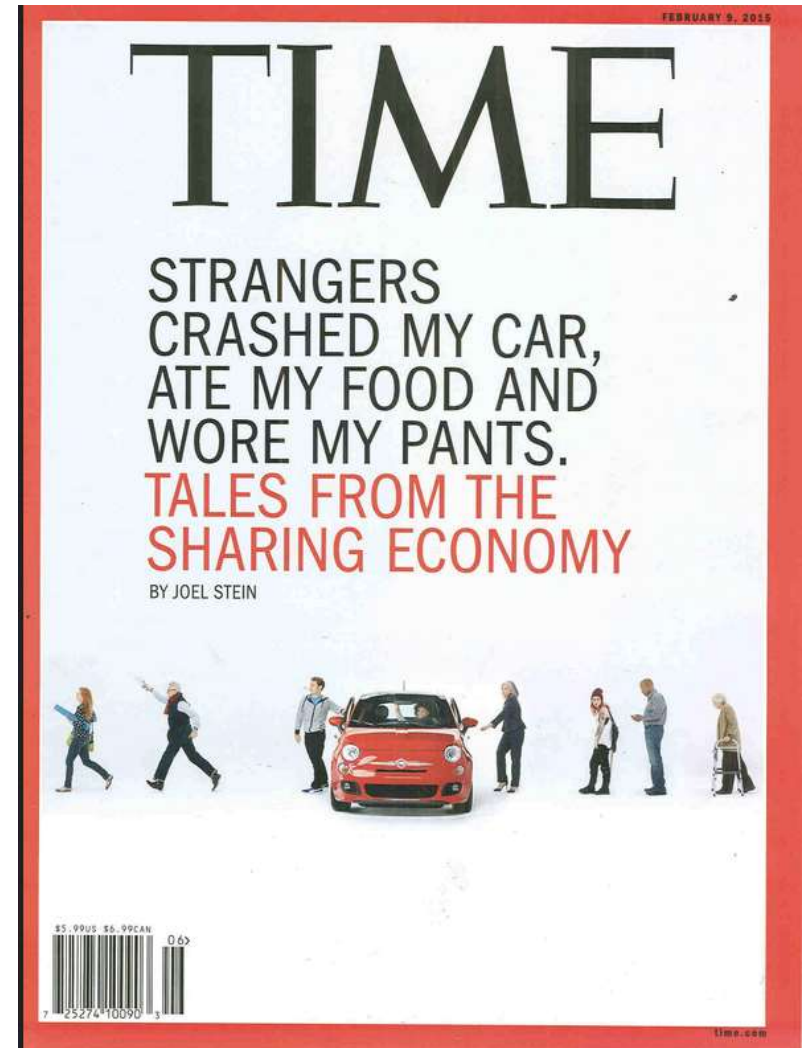
# Sharing Economy

Not New...





# Lots of Coverage



# Lots of Confusion

## CONFUSED?

PEER ECONOMY. ACCESS ECONOMY. GIG  
ECONOMY. SHARED CAPITALISM.  
COLLABORATIVE CONSUMPTION.  
SHARING ECONOMY. ON-DEMAND  
ECONOMY. CIRCULAR ECONOMY. THE  
MESH. HIPPIENOMICS, PEOPLE  
ECONOMY. SHARING ECONOMY.  
ENABLING ECONOMY. EMPOWERING  
ECONOMY. INSTANT GRATIFICATION  
ECONOMY. COLLABORATIVE ECONOMY...



# The Sharing Economy

## Collaborative Economy Honeycomb Version 1.0

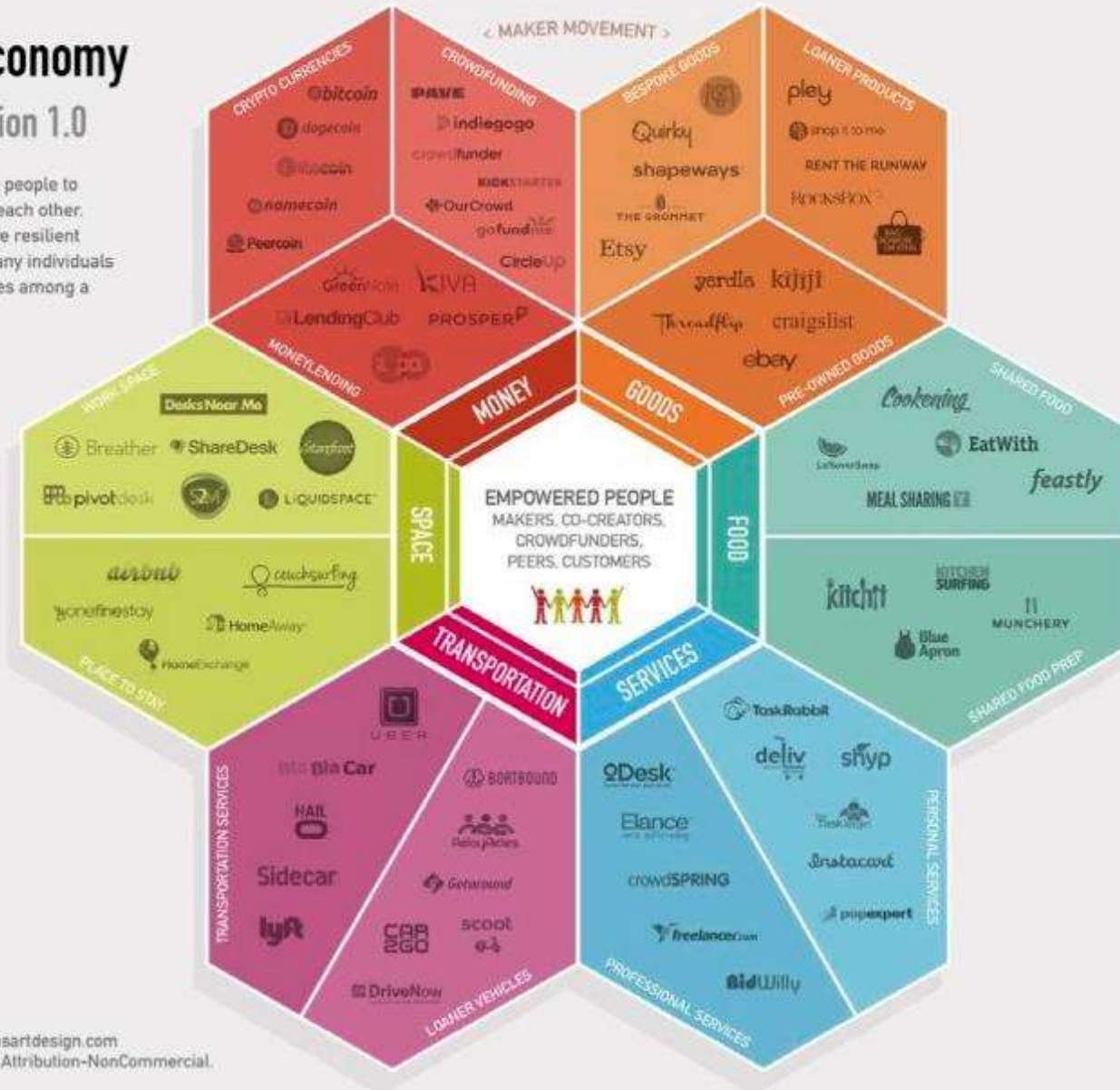
The Collaborative Economy enables people to efficiently get what they need from each other. Similarly, in nature, honeycombs are resilient structures that efficiently enable many individuals to access, share, and grow resources among a common group.

In this visual representation, this economy is organized into discrete families, sub-classes, and example companies. To access the full directory of 9000+ companies visit the Mesh Index, at [meshing.it/companies](http://meshing.it/companies) managed by Mesh Labs.

By Jeremiah Dwyang  
@Jowyang

With input from:  
Neal Gorenflo (@gorentlo),  
Lisa Gansky (@instigating),  
Shervin Pishervar (@sherpa),  
Mike Walsh (@mwalsh),  
Brian Solis (@briansolis),  
Alexandra Samuel (@awsamuel),  
and Vision Critical (@visioncritical).

Design by Vladimir Mirkovic [www.transartdesign.com](http://www.transartdesign.com)  
May 2014. Creative Commons license: Attribution-NonCommercial.



### KEY MARKET FORCES

- SOCIETAL DRIVERS**
  - DESIRE TO CONNECT
  - SUSTAINABLE MINDSET
  - POPULATION INCREASE
- ECONOMIC DRIVERS**
  - FINANCIAL CLIMATE
  - UNTAPPED IDLE RESOURCES
  - STARTUPS HEAVILY FUNDED
- TECHNOLOGY ENABLERS**
  - INTERNET OF EVERYTHING
  - MOBILE TECHNOLOGIES
  - SOCIAL NETWORKS

# Shared Mobility: Services shared among users including:



Core public transportation services, such as buses and trains;



Vanpools, carpools, shuttles, microtransit, ridesourcing/TNCs, e-Hail taxis;



Carsharing, bikesharing, scooter sharing in all its forms; and



Courier network services

→ Can be b2c and p2p

# Carsharing Service Models

## Roundtrip Carsharing:

Round trip, pay by the hour/mile, non-profit and for profit fleet models

## Peer-to-Peer Carsharing:

Shared use of private vehicle typically managed by third party

## One-Way Carsharing:

Pay by the minute, point to point, fleet operated, street parking agreements

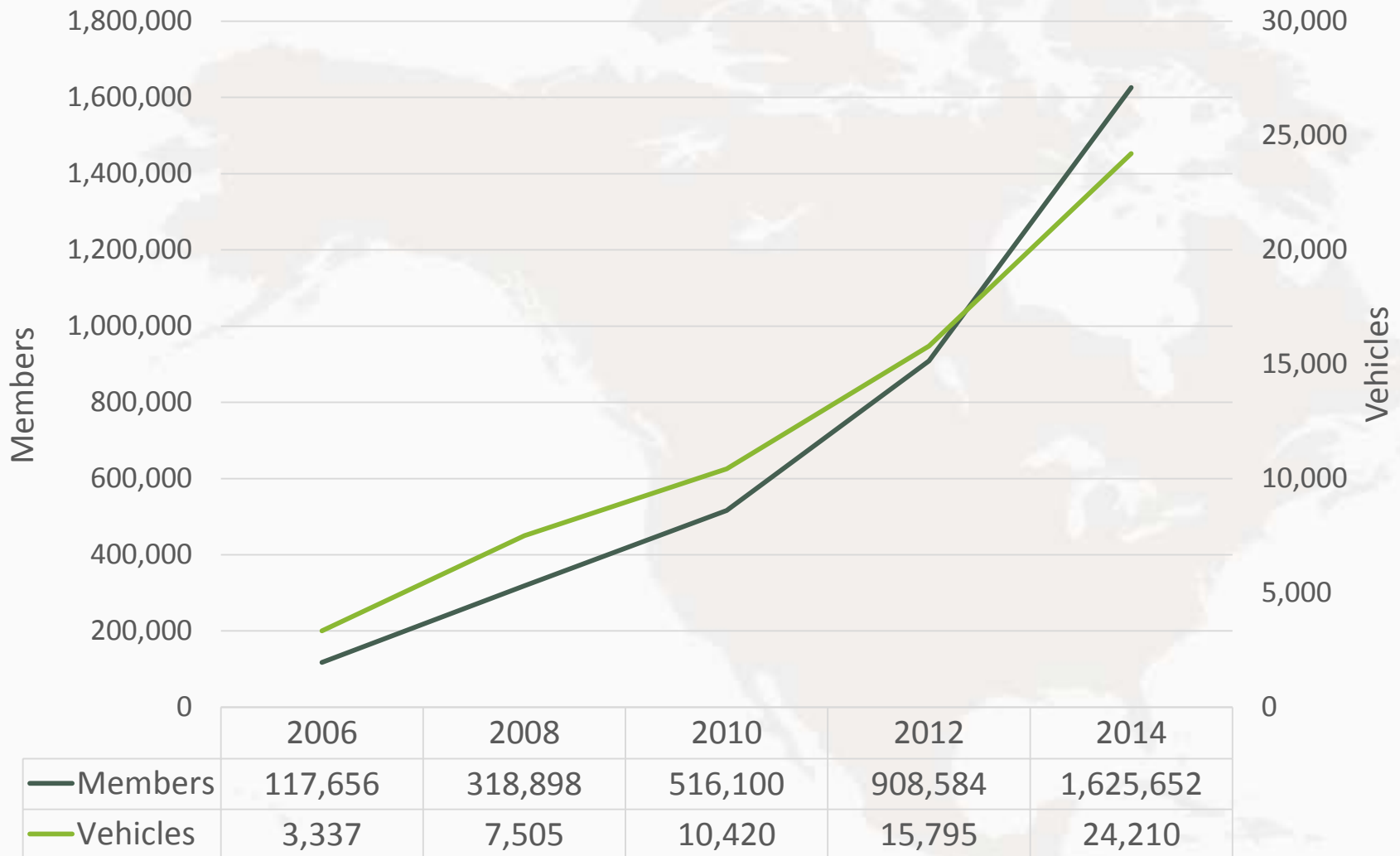
## Fractional Ownership Carsharing:

Individuals sublease or subscribe to a vehicle owned by a third party

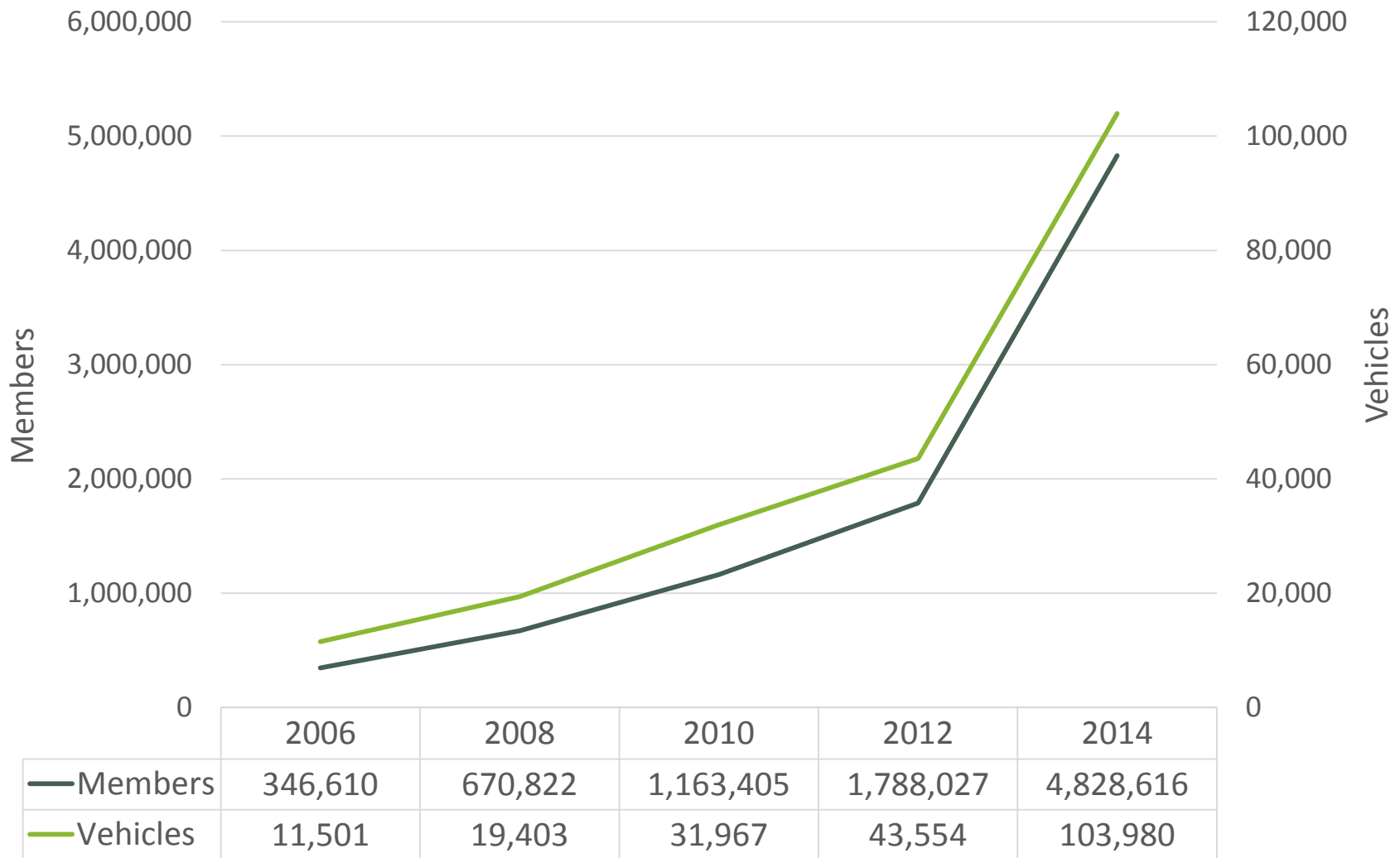




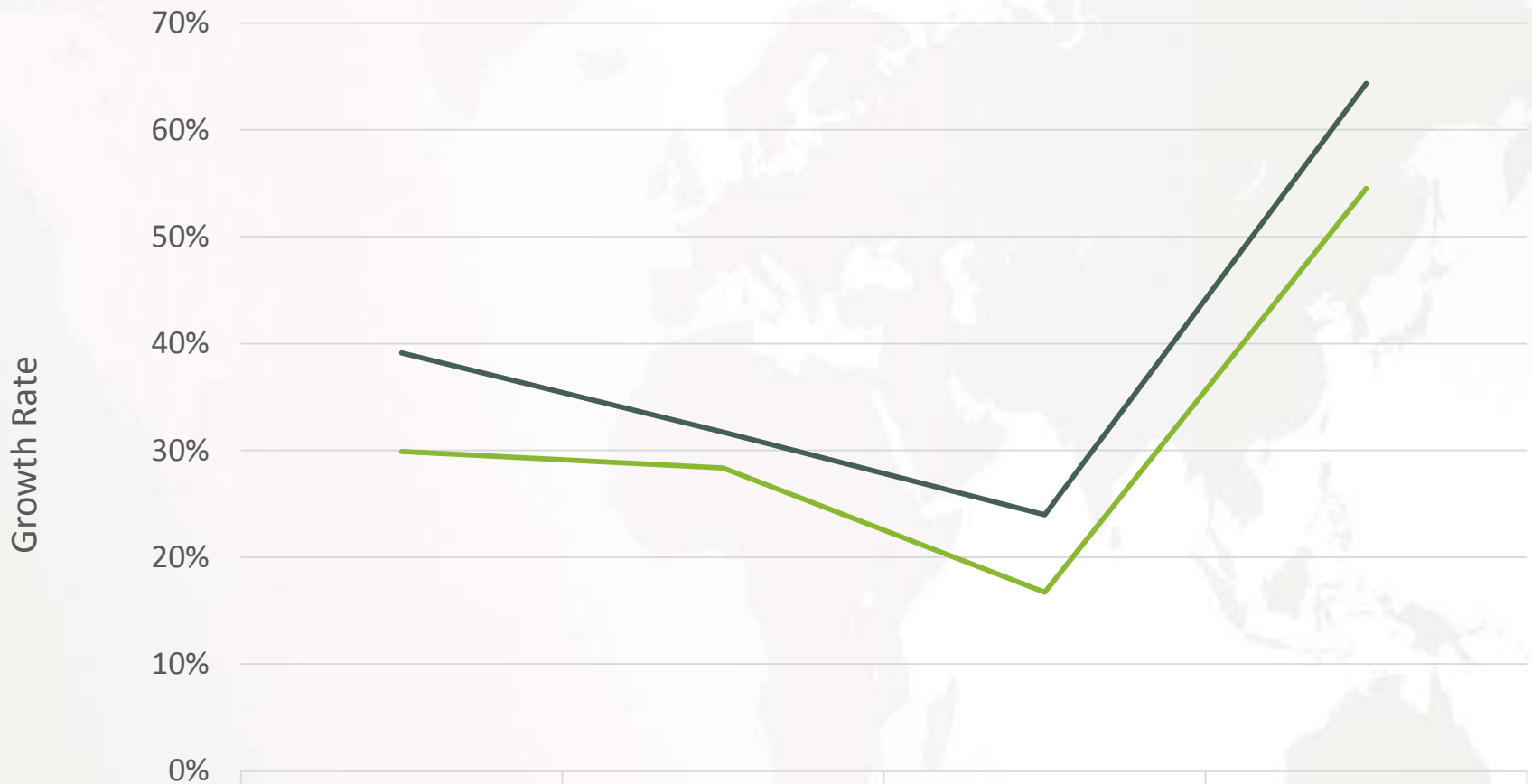
# North American Longitudinal Trends



# Growth of Worldwide Carsharing



# World Carsharing Growth Rates



— Members

39%

32%

24%

64%

— Vehicles

30%

28%

17%

55%



# Bikesharing Service Models

## Public Bikesharing:

Point to point, pay by the ½ hr, fleet operated, docking stations

## Closed Community Bikesharing:

Campuses and closed membership, mainly roundtrip, linking to carsharing

## Peer-to-Peer Bikesharing:

Rent or borrow hourly or daily from individuals or bike rental shops



# WORLDWIDE AND U.S. BIKESHARING: May 2015

Worldwide: **880 cities** with IT-based operating systems

- **1,036,000 bikes**
  - ~811,500 bikes in China (and 256 cities)

U.S.: **72 cities** with IT-based systems (52 programs)

- **~24,700 bikes**
- **2,440 stations**

In 2015, 21 new programs to begin operating in world: 13 are in China and 8 in US



# Scooters: Fill Niche Between Bikes and Cars



**Scooter Sharing:**  
An operator-owned fleet of motorized scooters made available to users by the hour or minute





# Ridesharing Service Models

## **Carpooling:**

Grouping of travelers into a privately owned vehicle, typically for commuting

## **Vanpooling:**

Commuters traveling to/from a job center sharing a ride in a van

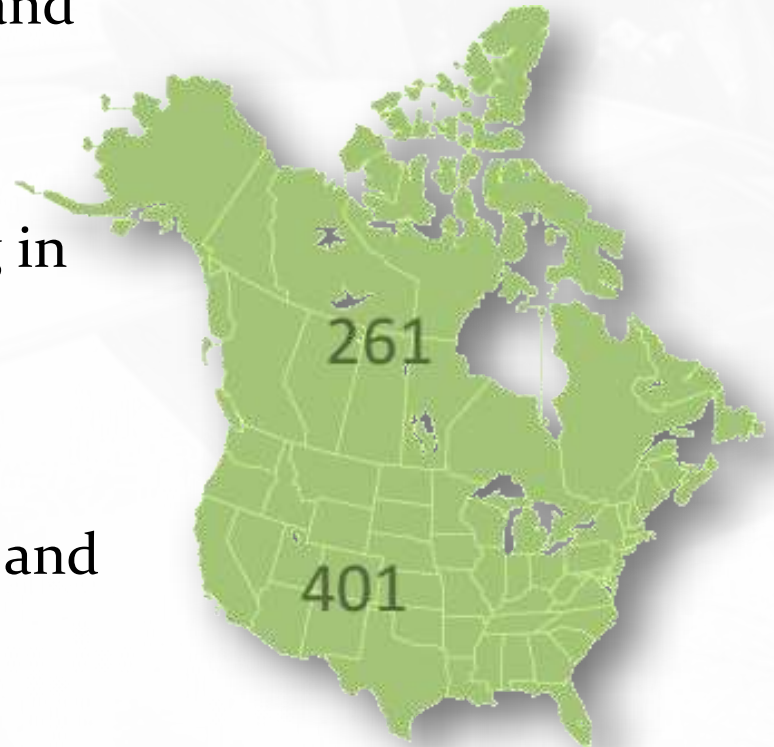
## **Real-Time Ridesharing Services:**

Match drivers and passengers, based on destination, through app before the trip starts



# Traditional Ridesharing

- Grouping of travelers into common trips by private auto/van (e.g., carpooling and vanpooling)
- Historically, differs from ridesourcing in financial motivation and trip origin/destination
- 662 ridematching services in the U.S. and Canada (24 span both countries)
  - 612 programs offer carpooling
  - 153 programs offer vanpooling
  - 127 programs offered carpooling and vanpooling



Chan and Shaheen, 2011

# For-Hire Vehicle Access Models

## Ridesourcing/TNCs:

Service that allows passengers to connect with and pay drivers who use their personal vehicles for trips facilitated through a mobile application

## Street Hail:

Hailed with a raised hand or by standing at a taxi stand or specified loading zone

## E-Hail:

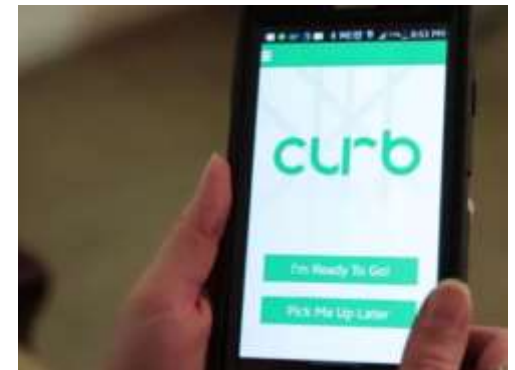
Hailed by dispatching a for-hire driver using a smartphone application





# Some Ridesourcing/E-hail: Market Trends

- Lyft: 60 cities; over 100,000 drivers
- Uber: 58 countries; 311 cities; over 162,000 drivers in U.S.
- Sidecar: 10 cities; ~10,000 drivers
- Flywheel: 6 cities, over 5,000 drivers
- Curb: 60 cities; 35,000 cabs



# For-Hire Vehicle Delivery Services

## Courier Network Services (CNS):

By sharing vehicles and combining point-to-point private user trips with delivery, opportunity for quicker and more efficient deliveries



# Mass Transit Services

Flexible Transit Services/Microtransit: Flexible transit services include dial-a-ride and shuttle services (also known as paratransit) to supplement fixed-route bus and rail services.



# Shared Mobility: Impacts



- Typically reduces car ownership/use and increases walking/cycling
  - e.g., 50% auto reduction in carsharing
- Can complement & compete with public transit
  - Depending on model and location
- Why?
  - Time savings
  - Cost savings
  - Mobility benefits (e.g., health)

# Shared Mobility: Impacts (Cont'd)

- Typically used by:
  - Younger
  - Well educated
  - Upwardly mobile
  - Caucasian individuals
  - Living in urban areas
- How to scale this to other populations & land uses (accessibility, paratransit)?
- More research needed on mobility ecosystem and collective impacts
- Data critical to understanding innovative services





# Summary

- Growing ecosystem of services in mobility + sharing economy
- Long history of shared mobility – dating to as early as 1940s with ridesharing and carsharing
- Over 1.6 M members and 24,210 carsharing vehicles in the US as of October 2014
- Bikesharing: 72 cities in the U.S. 24,700 bikes and 2,440 stations as of May 2015
- Ridesharing: ~662 vanpool/carpool services in U.S. and Canada
- Ridesourcing/TNCs and e-hail growing in the U.S.
- Shared mobility services: more understanding needed

# Acknowledgements

- Mineta Transportation Institute, San Jose State University
- California Department of Transportation
- Adam Cohen, Elliot Martin, Nelson Chan, and Matt Christensen, TSRC, UC Berkeley
- Special thanks to the worldwide shared mobility operators and experts who make our research possible including Timothy Papandreou and Russell Meddin



[www.tsrc.berkeley.edu](http://www.tsrc.berkeley.edu)

Email: [sshaheen@berkeley.edu](mailto:sshaheen@berkeley.edu)

Twitter: SusanShaheen1