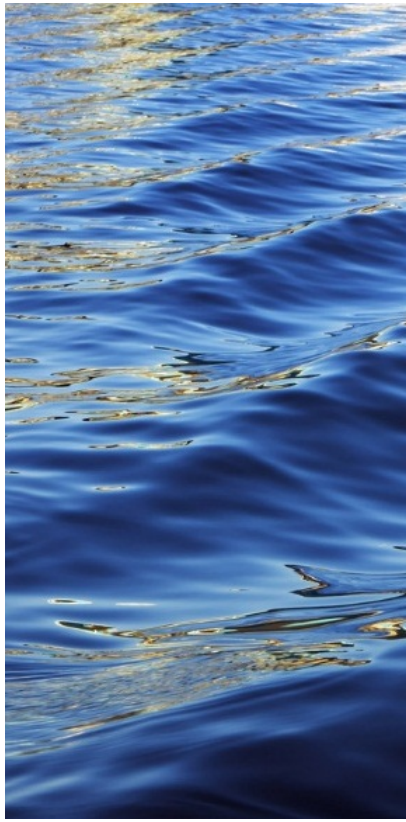
Optimizing Community Benefits with Shared Mobility



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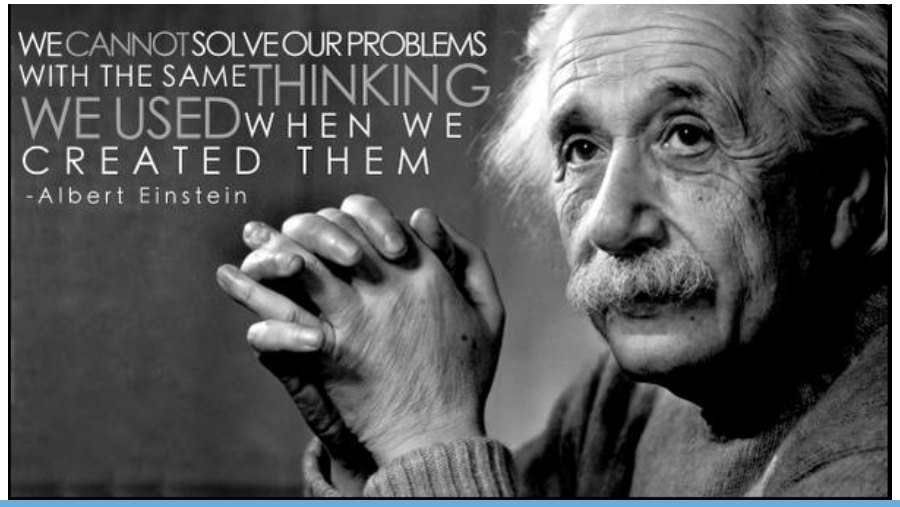
Overview

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



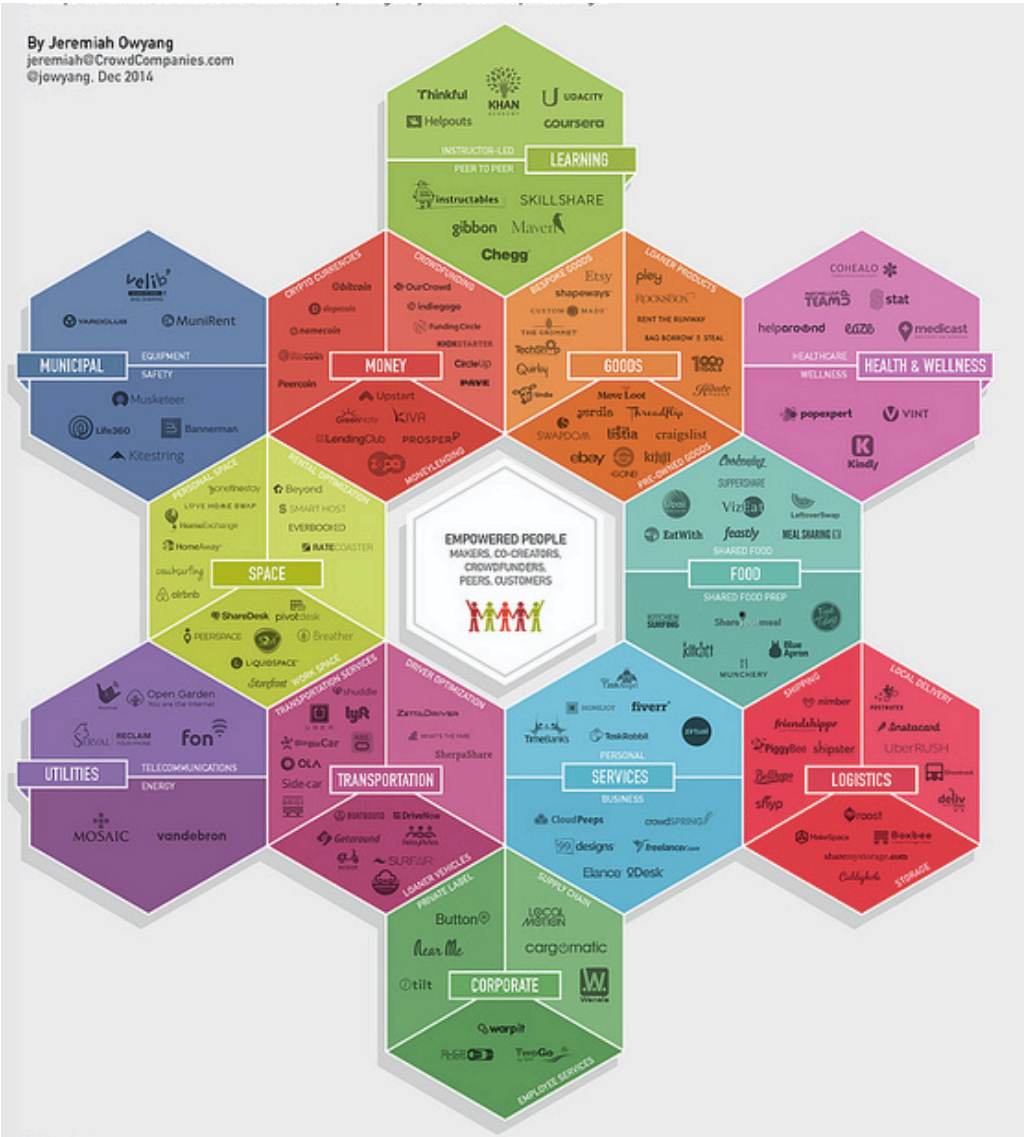
Sharing Economy

Not New....

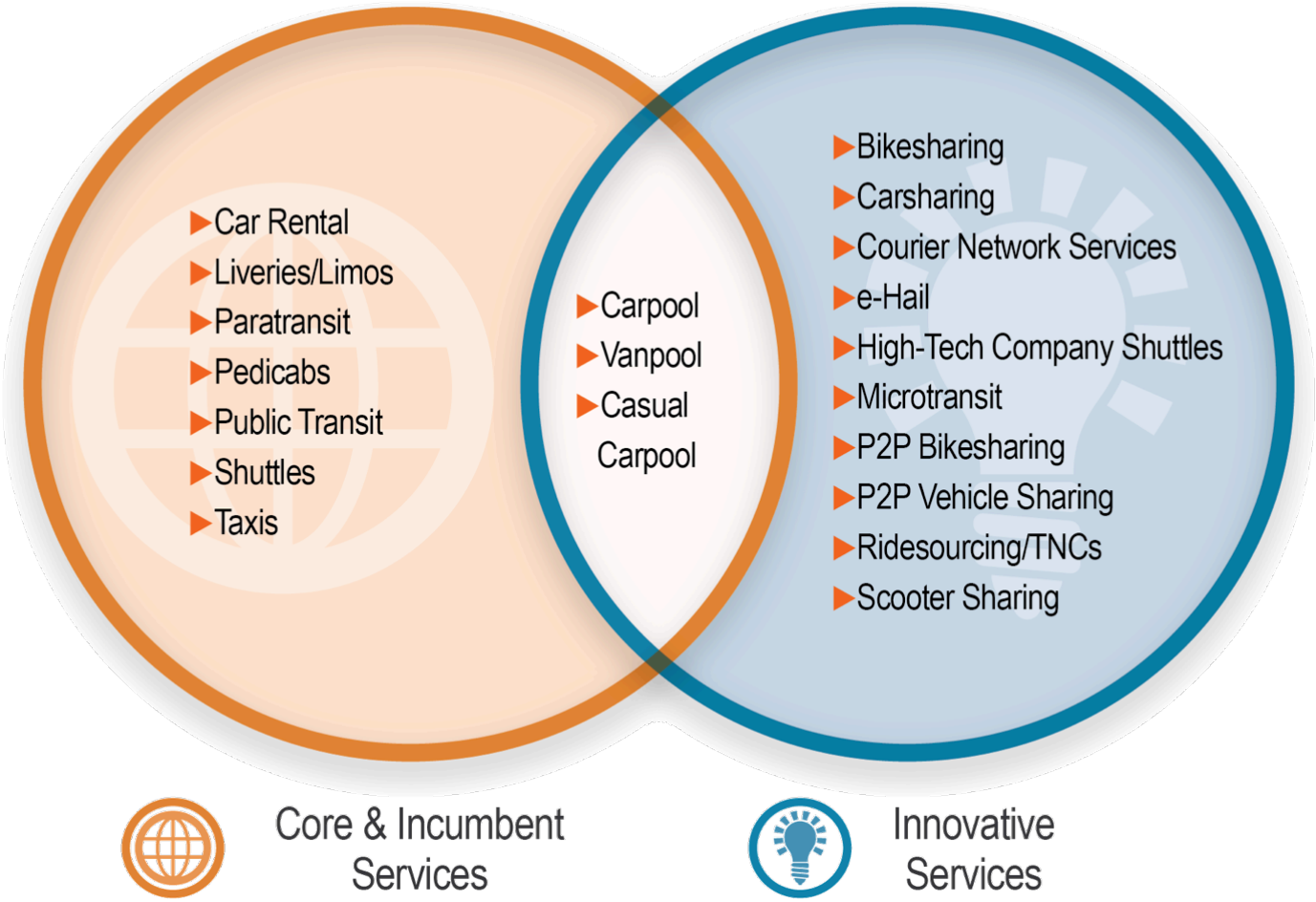
Lots of Coverage

Lots of Confusion

The Sharing Economy



Shared Mobility Ecosystem



FHWA, Forthcoming

Carsharing Service Models

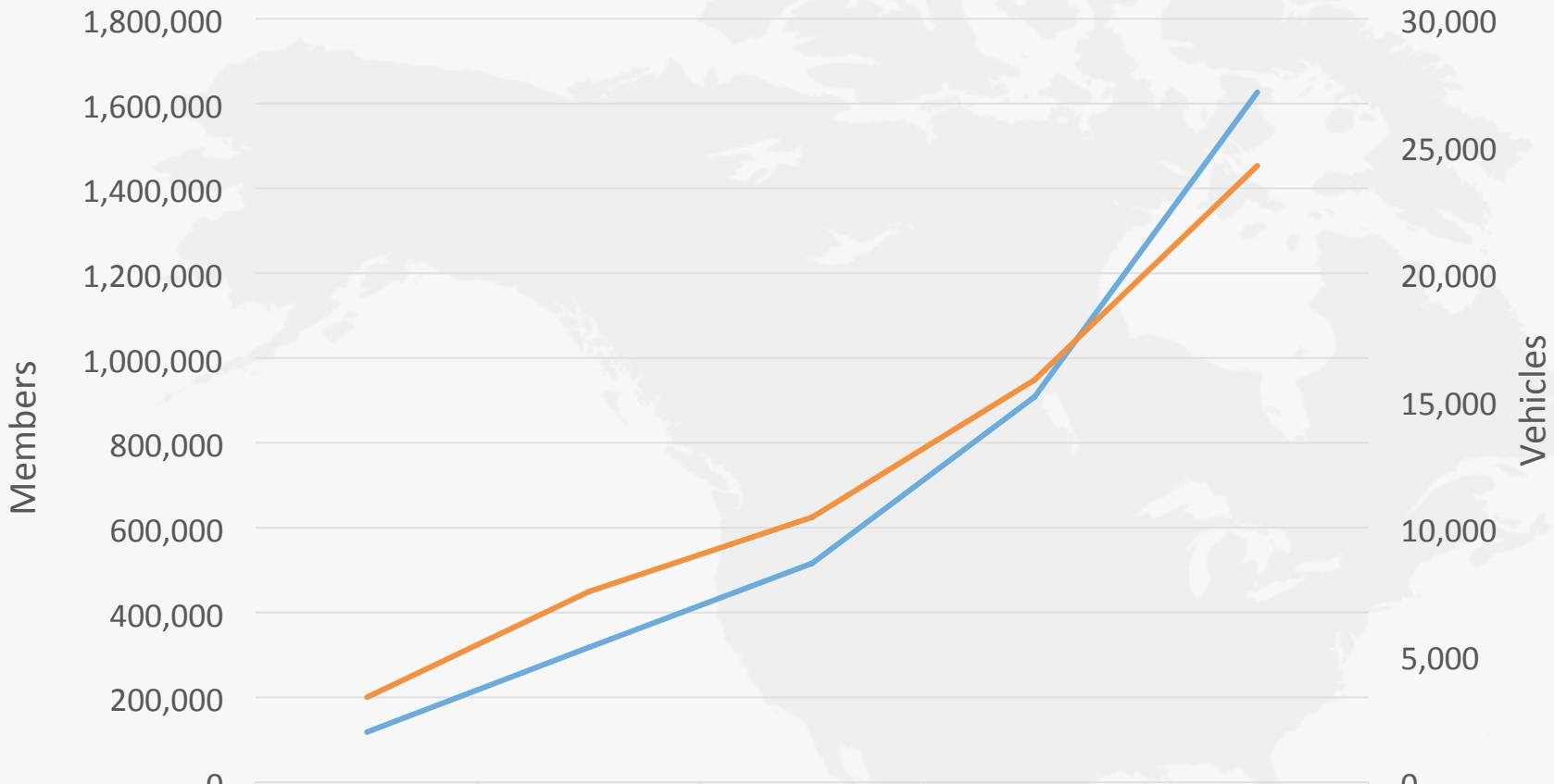
Roundtrip Carsharing:
Round trip, pay by the hour/mile, non-profit and for profit fleet models

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

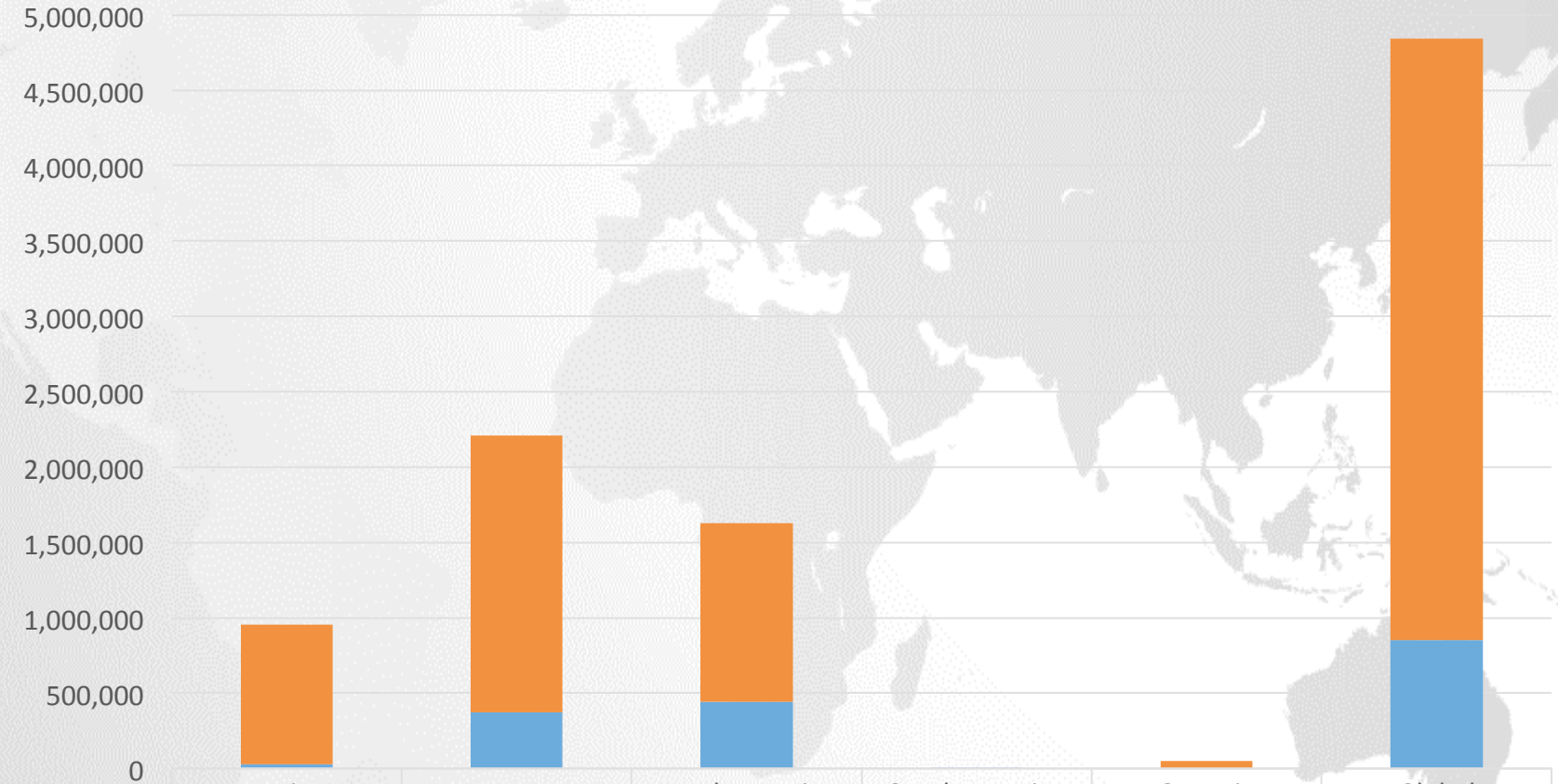
Fractional Ownership Carsharing:
Individuals sublease or subscribe to a vehicle owned by a third party

North American Longitudinal Trends



	2006	2008	2010	2012	2014
Members	117,656	318,898	516,100	908,584	1,625,652
Vehicles	3,337	7,505	10,420	15,795	24,210

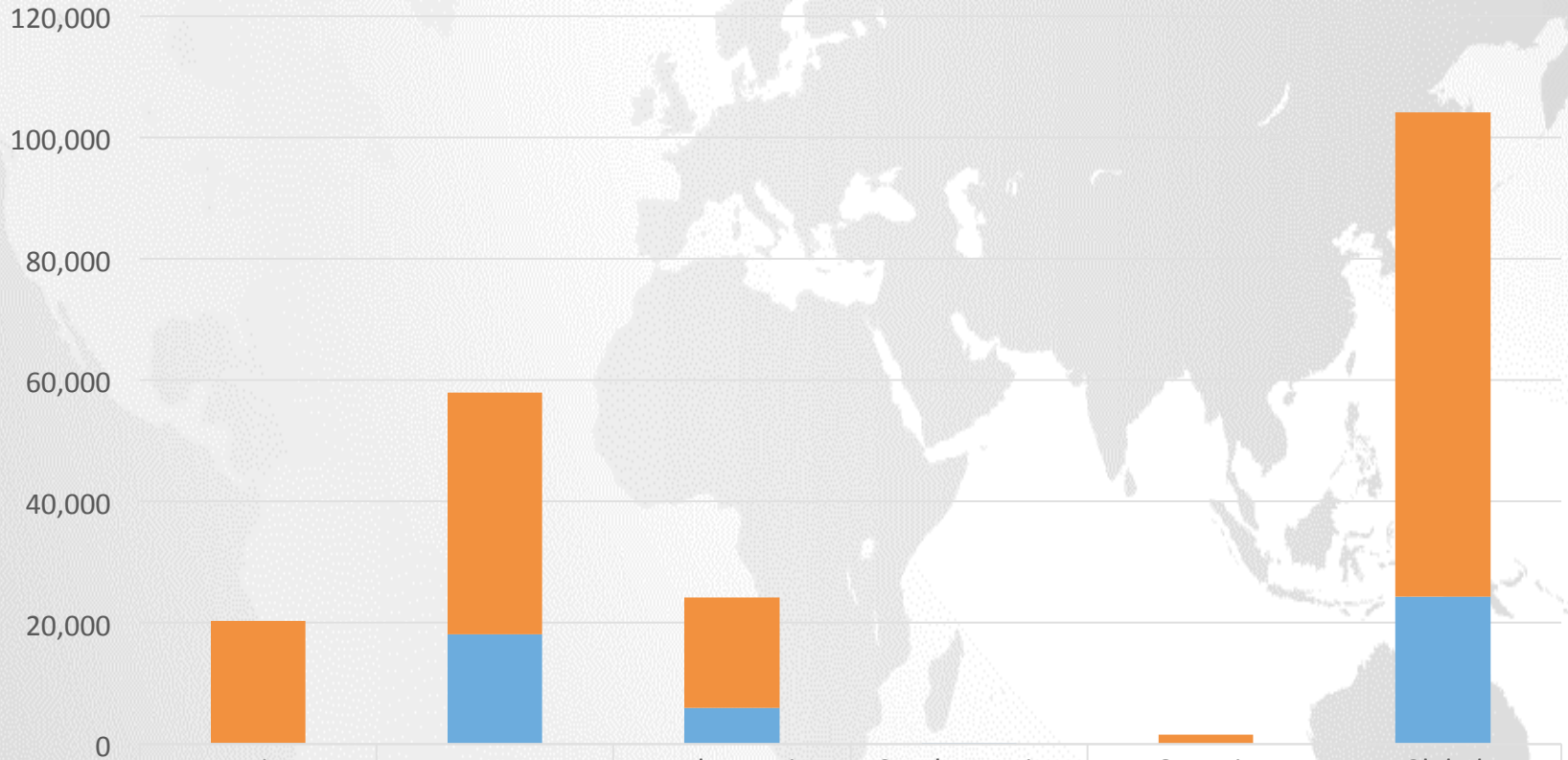
2014 Membership: One-Way & Roundtrip



	Asia	Europe	North America	South America	Oceania	Global
Round-trip	926,280	1,834,418	1,179,930	0	50,000	3,990,628
One-way	29,600	372,466	445,722	3,500	700	851,988

Shaheen and Cohen, 2015

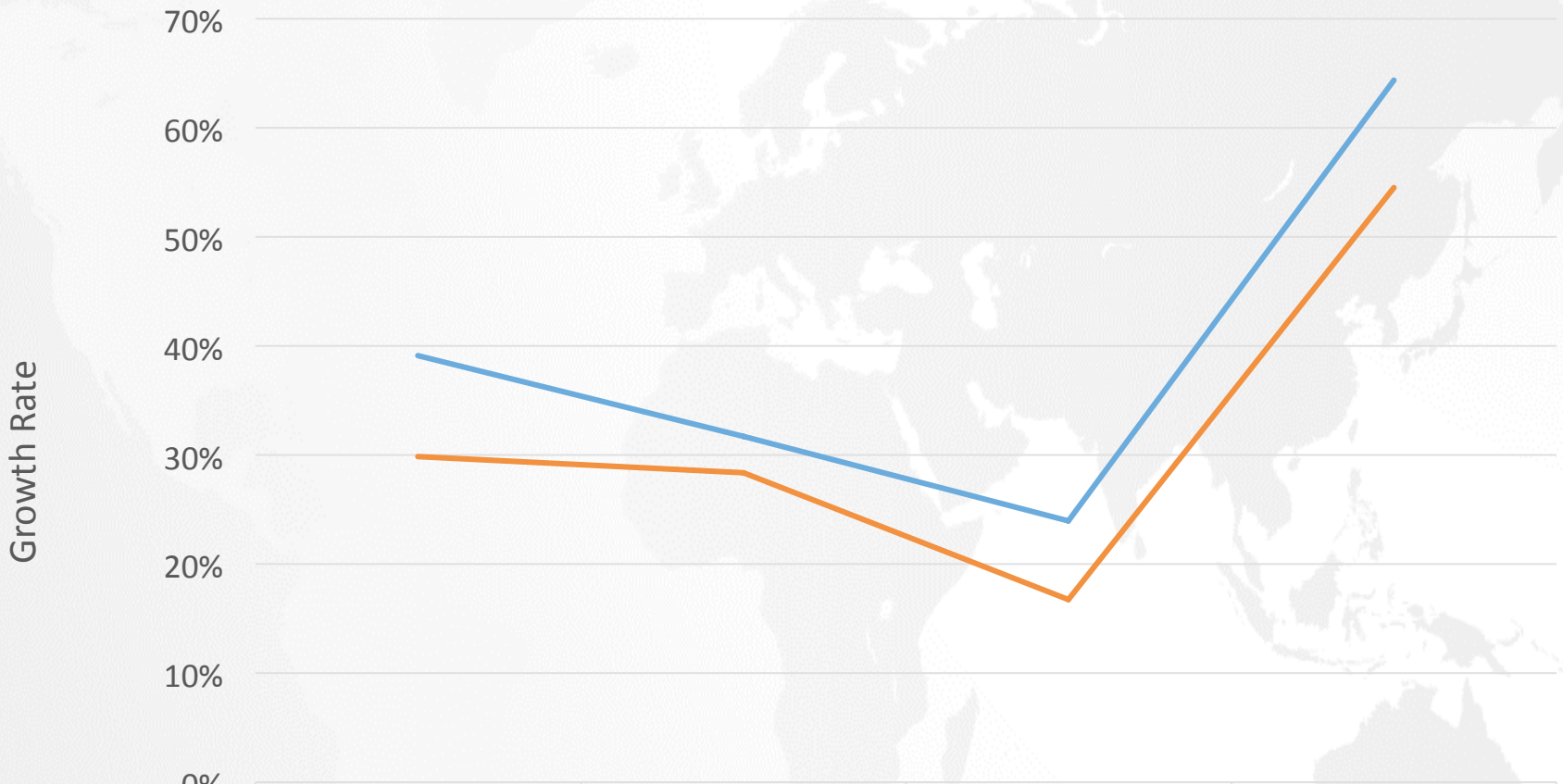
2014 Vehicles: One-Way & Roundtrip



	Asia	Europe	North America	South America	Oceania	Global
Round-trip	20,199	39,904	18,267	0	1,500	79,859
One-way	145	18,043	5,943	100	24	24,266

Shaheen and Cohen, 2015

World Carsharing Growth Rates



	2006-08	2008-10	2010-12	2012-14
Members	39%	32%	24%	64%
Vehicles	30%	28%	17%	55%

Shaheen and Cohen, 2015

2008 North American Carsharing Survey: Key Findings

- Between **9 to 13 vehicles removed**, including postponed purchase
- **4 to 6 vehicles**/carsharing vehicle **sold** due to carsharing
- 25% sell a vehicle; 25% postpone purchases
- **27 - 43% VMT/VKT** reduction per year, considering vehicles sold and purchases postponed
- More users increased **overall** public transit and non-motorized modal use (including bus, rail, walking, and carpooling) than decreased it

Martin et al. 2010

2008 North American Carsharing Survey: Key Findings

- Reduction of **0.58-0.84 metric tons** of **GHG** emissions per year for one household (mean observed and full impact)
- 34% - 41% reduction of **GHG** emissions per year for one household.
- $154 - $435 monthly household savings per U.S. member after joining carsharing

Martin et al. 2010

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: Oct. 2015

Worldwide: **955 cities** with IT-based operating systems

- **1,165,200 bikes**
- 940,850 bikes in China (and 390 cities)

U.S.: **87 cities** with IT-based systems (61 programs)

- **30,750 bikes**
- **3,200 stations**

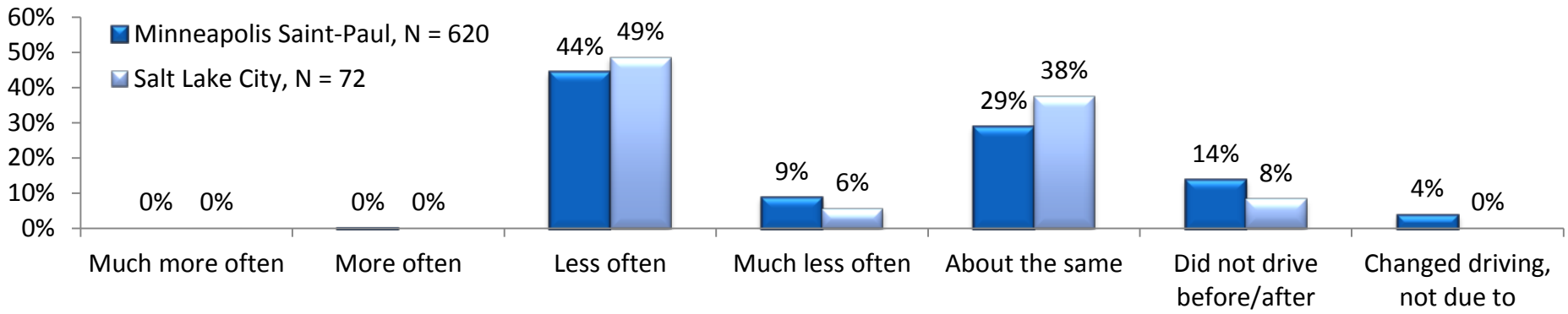
Source: Russell Meddin, 2015

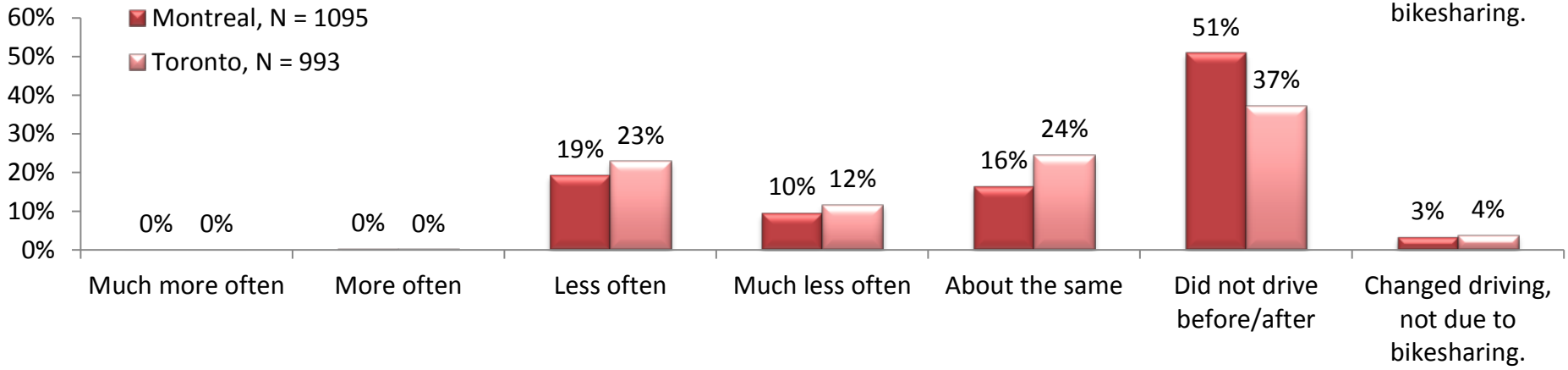
Member Understanding: Five Bikesharing Cities Across Three Nations

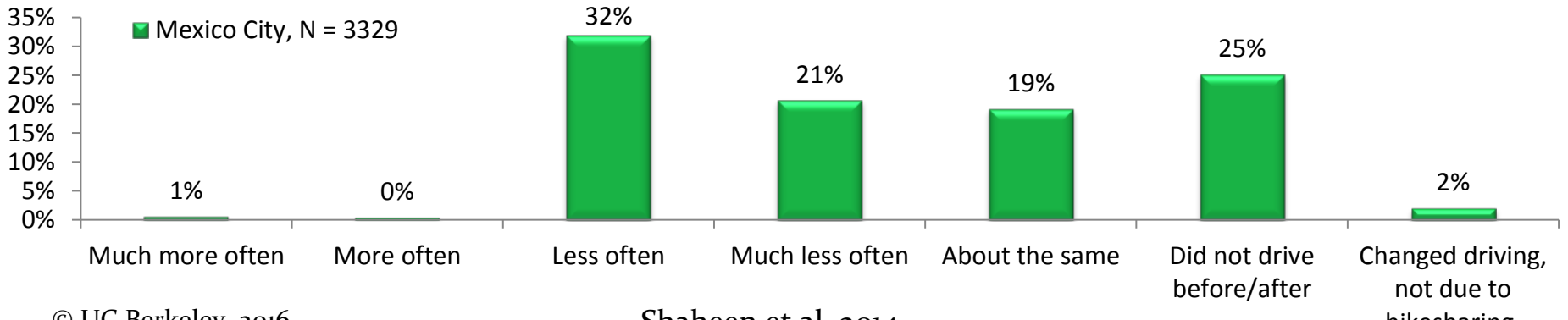
Operator	City	Responses	Members (annual/seasonal)	Bikes	Stations
BIXI Montreal	Montreal	1102	49217	5000	400
BIXI Toronto	Toronto	1015	4185	1000	400
Nice Ride Minnesota	Minneapolis-St Paul	630	3500	1325	145
GreenBIKE SLC	Salt Lake City	72	N/A	65	12
EcoBici	Mexico City	3349	70100	3530	261
Total		6168			

Change in Personal Vehicle Driving

As a result of my use of bikesharing, I drive a personal vehicle (e.g., car, SUV, etc.) …







Shaheen et al. 2014

What is the primary reason that you are using the rail LESS because of bikesharing?

Response Categories	Montreal	Toronto	Minneapolis-Saint Paul	Salt Lake City	Mexico City
Lower cost and faster travel	25%	48%	0%	0%	28%
Just lower cost	5%	9%	7%	0%	2%
Too many connections (not have to transfer)	3%	2%	7%	0%	6%
Just faster travel	14%	14%	14%	40%	12%
Improve travel time reliability	4%	7%	0%	60%	6%
Want to get exercise	31%	8%	50%	0%	17%
Public transit vehicle is crowded	6%	6%	0%	0%	18%
No space for my bike, which I use to connect	0%	0%	0%	0%	2%
I consider it safer to travel with bikesharing	1%	0%	7%	0%	2%
Not applicable	1%	2%	0%	0%	3%
Other, please specify:	8%	5%	14%	0%	3%
Total N	631	491	14	5	577

Shaheen et al., 2014

Bikesharing Impacts: Summary

- Member survey indicates modal shift away from most modes (auto and public transit); impacts vary across cities by city size
  - Shifts from public transit occur more prominently in downtown core of larger cities.
  - In cities with less transit intensive infrastructure, bikesharing appears to facilitate modest increase in public transit.
- Evidence also suggests that bikesharing provides better access and egress to transit in the less dense urban periphery of larger cities.
- Limited bikesharing helmet use

Shaheen et al., 2014

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

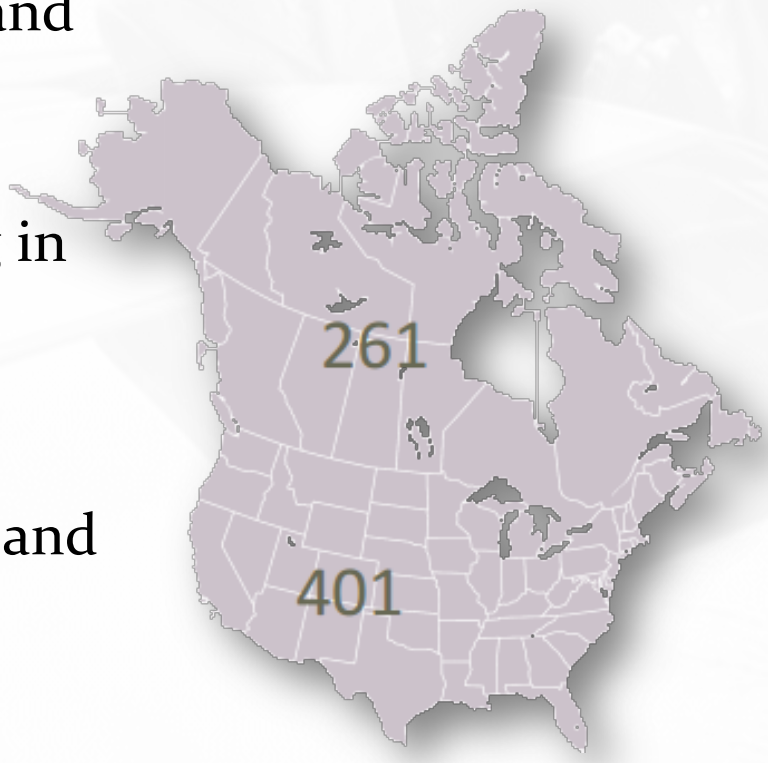
Carpooling:
Grouping of travelers into a privately owned vehicle, typically for commuting

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

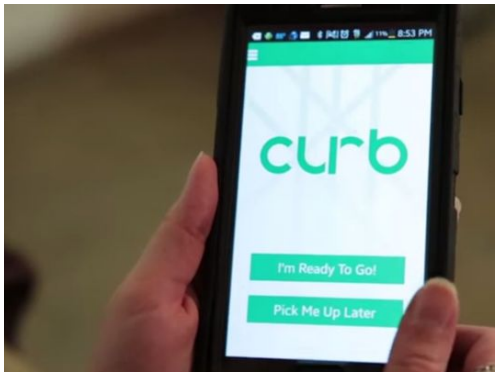
Ridesourcing/TNCs:
Service that allows passengers to connect with and pay drivers who use their personal vehicles for trips facilitated through a mobile application

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

- Sidecar ceases operations
- Lyft: 195 cities; over 315,000 drivers
- Uber: 68 countries; over 360 cities; hundreds of thousands of drivers signing up globally per month
- Easy Taxi: 18 countries; 400 cities
- Veriphone (formerly Curb): 60 cities; 90 cab companies; over 35,000 taxis
- mytaxi: 5 countries; 20 cities
- Flywheel: 6 cities; over 5,000 drivers



Shared Mobility Partnerships with Public Transit

- Uber/Lyft and DART (Dallas) – Public transit riders access Uber and Lyft through the "Events and Offers" section of DART's GoPass mobile ticketing app
  - Promotion offering new DART users $20 ride credit
- Uber and MARTA (Atlanta) – Transit riders access Uber through MARTA mobile app
  - Promotion offering new MARTA users $20 ride credit
- VTA (Silicon Valley) - VTA launched FLEX pilot, a fleet of flexible route shuttles dispatched using a smartphone app

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

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: 86 cities in the U.S. 30,750 bikes and 3,200 stations as of October 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

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