



Rise of Collaborative Mobility: Americas Perspective

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Overview



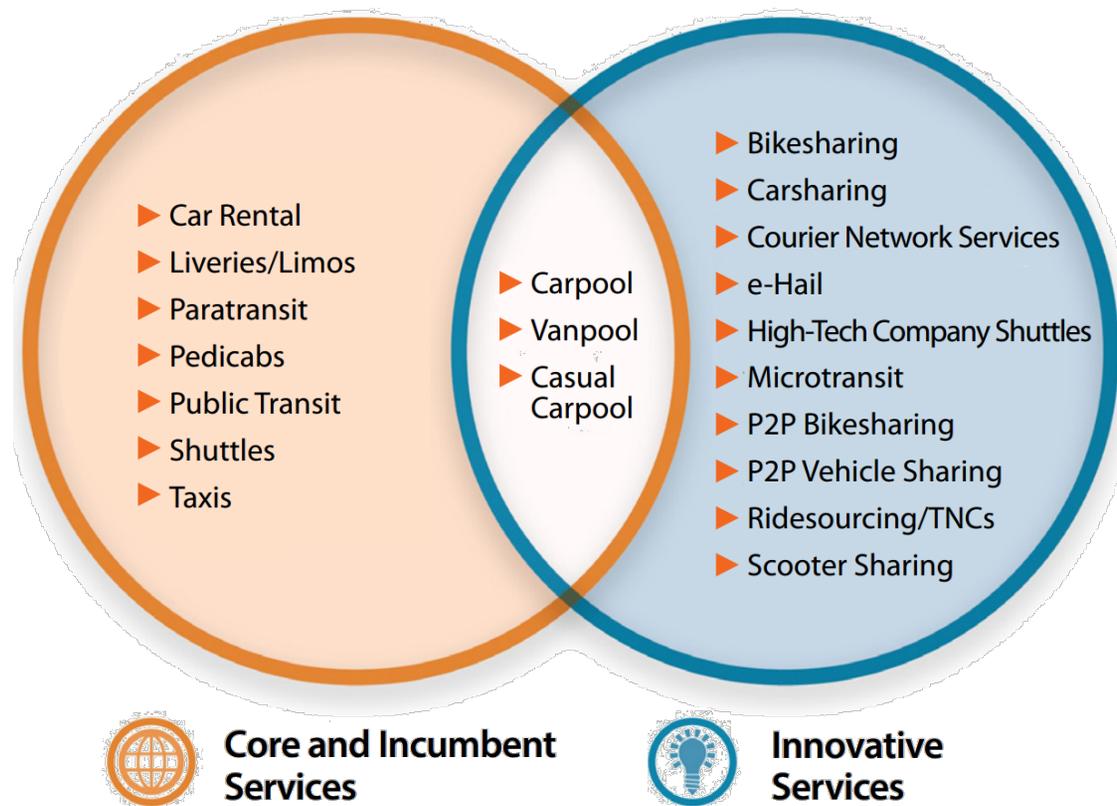
- Latest industry benchmarks
- Shared mobility research overview
 - One-way carsharing (car2go)
 - College/university carsharing (Zipcar)
 - P2P carsharing benchmarks: the Americas
 - Peer-to-peer (p2p) carsharing
- Upcoming research
- Concluding thoughts



Defining Shared Mobility



Shared mobility—the shared use of a vehicle, bicycle, or other low-speed travel mode—is an innovative transportation strategy that enables users to have short-term access to a mode of transportation on an as-needed basis.



Shared Mobility Impacts



Environmental Effects

- Can yield lower GHG emissions via decreased VMT, low-emission vehicles, carbon offset programs
- Can reduce vehicle ownership



Social Effects

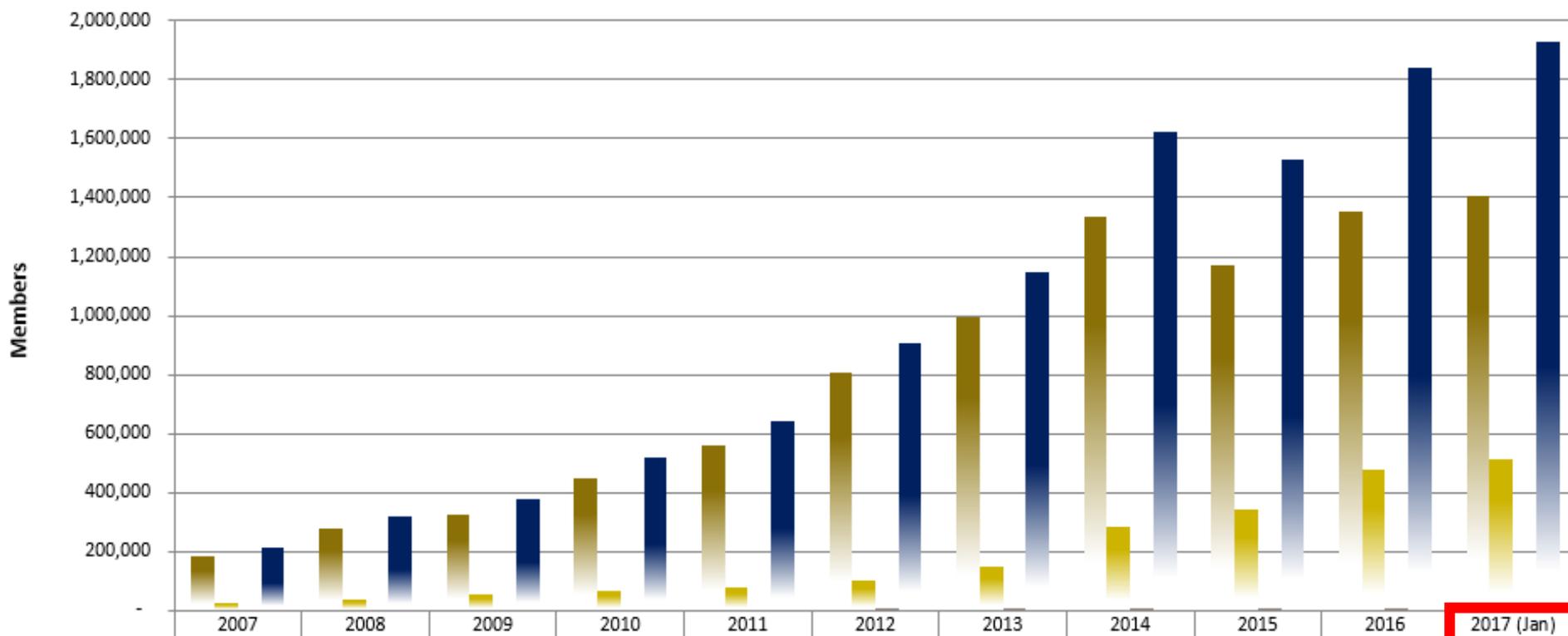
- Offers “pay-as-you-go” alternative to vehicle ownership
- Reasonable for college students and low-income households
- Can increase mobility of low-income residents, disabled, and college students
- Provides car use without bearing full ownership cost



Transportation Network Effects

- Takes cars off the road via reduced VMT, forgone/delayed vehicle purchases or sale of vehicle
- Reduced parking demand
- Can complement/complete with alternative transportation modes, e.g., public transit, walking, biking, etc. , and can help address first and last mile issue

North American Membership Growth

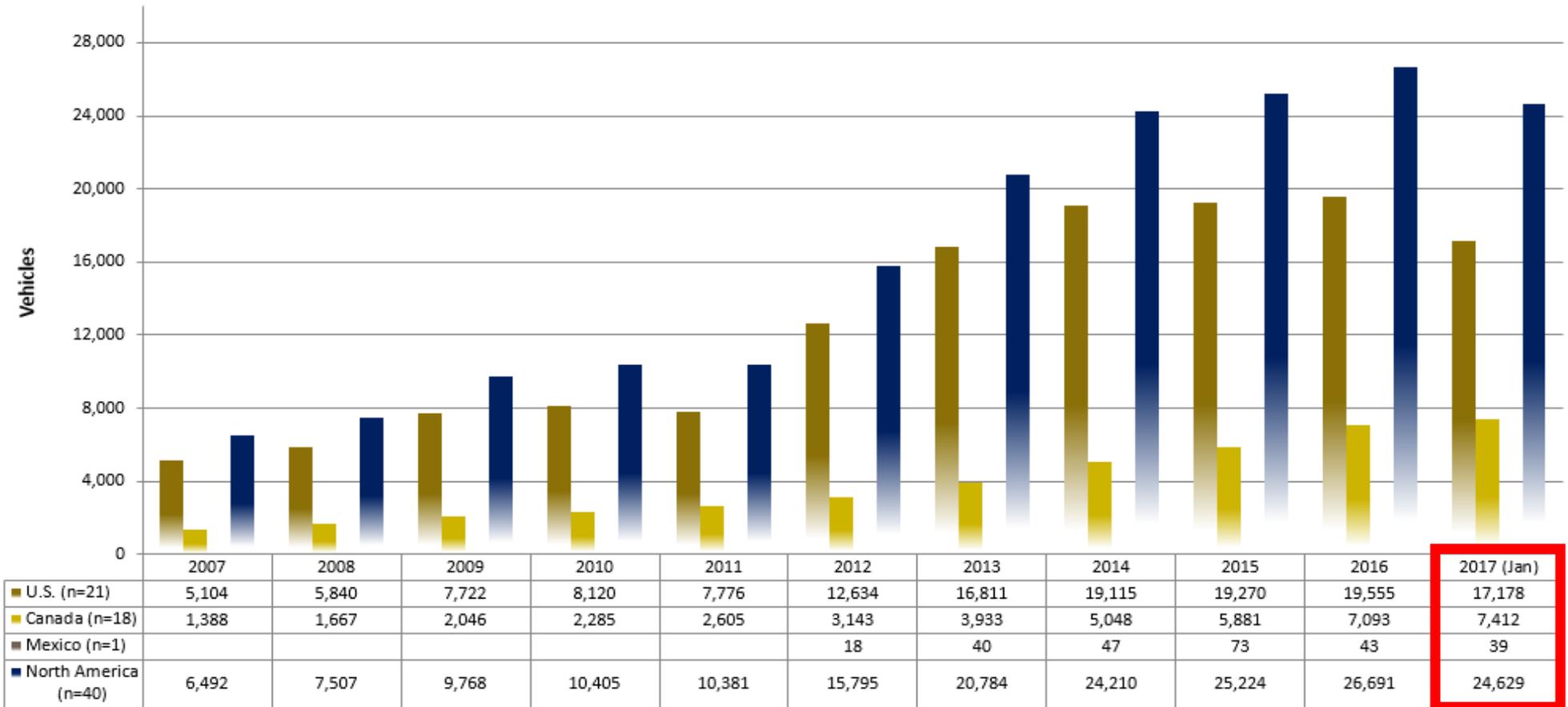


	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017 (Jan)
■ U.S. (n=21)	184,292	279,234	323,681	448,574	560,572	806,332	995,926	1,337,803	1,172,490	1,351,051	1,405,447
■ Canada (n=18)	26,878	39,664	53,916	67,526	78,856	101,502	147,794	281,675	344,403	477,528	511,654
■ Mexico (n=1)						750	2,654	6,174	9,639	9,275	10,127
■ North America (n=40)	211,170	318,898	377,597	516,100	639,428	908,584	1,146,374	1,625,652	1,526,532	1,837,854	1,927,228



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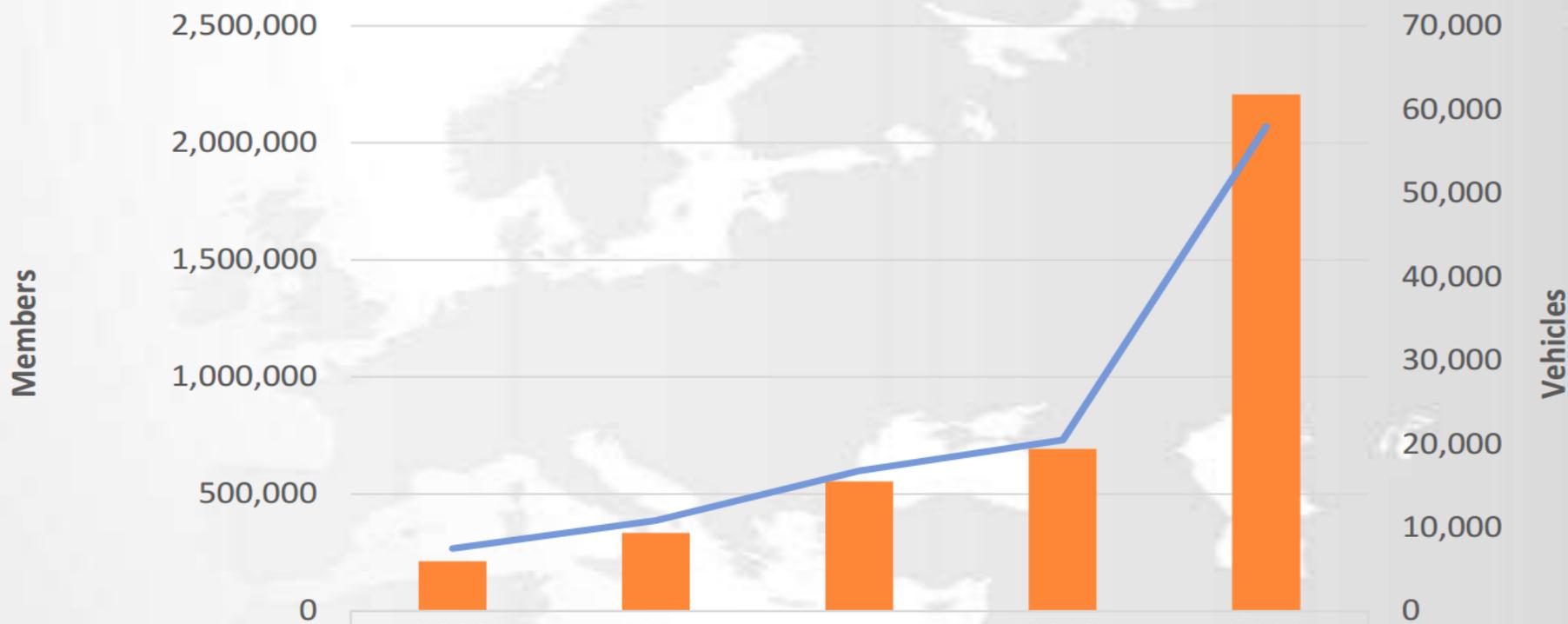
North American Vehicle Growth



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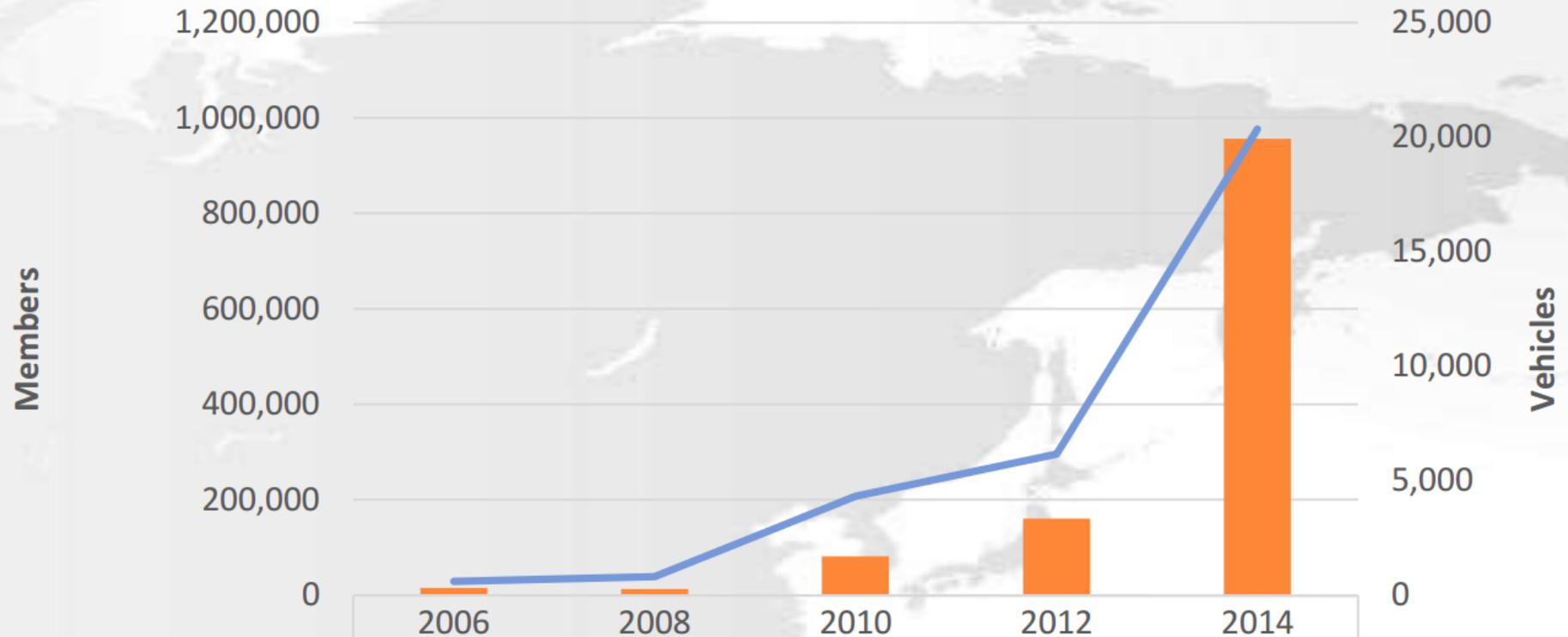
European Carsharing Growth

2016 Data Collection Ongoing



Asian Carsharing Growth

2016 Data Collection Ongoing



Members	15,700	12,546	81,817	160,500	955,880
Membership Growth Rate		-11%	155%	40%	144%
Vehicles	608	810	4,315	6,155	20,344
Fleet Growth Rate		15%	131%	19%	82%
Member-Vehicle Ratio	25.8	15.5	19.0	26.1	47.0

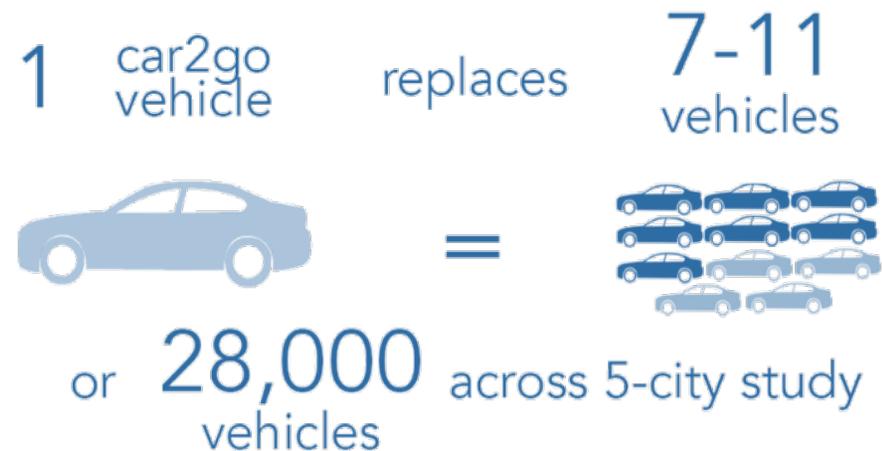
Recent Study of One-Way Carsharing



ONE-WAY CARSHARING IMPACTS

Member Vehicle Holdings

2% - 5%	sold a vehicle
1 - 3	vehicles sold per car2go vehicle
7% - 10%	postponed a vehicle purchase
4 - 9	vehicle acquisitions suppressed per car2go vehicle



Reduction of VMT and GHG emissions

↓	6% - 16%	Average reduction of VMT per car2go household
↓	4% - 18%	Average reduction of GHG emissions per car2go household

Vehicle and GHG Impacts from Free-Floating One-Way Carsharing



City	Vehicles Sold	Vehicles Suppressed (foregone purchases)	Total Vehicles Removed per Carsharing Vehicle	Range of Vehicles Removed per Carsharing Vehicle	% Reduction in VMT by Car2go Hhd	% Reduction in GHGs by Car2go Hhd
Calgary, AB (n=1,498)	2	9	11	2 to 11	-6%	-4%
San Diego, CA (n=824)	1	6	7	1 to 7	-7%	-6%
Seattle, WA (n=2,887)	3	7	10	3 to 10	-10%	-10%
Vancouver, BC (n=1,010)	2	7	9	2 to 9	-16%	-15%
Washington, D.C. (n=1,127)	3	5	8	3 to 8	-16%	-18%



Recent Study of Zipcar's College/University Market: Fall 2016

OWNING IT

80%
of uni Zipsters



**DON'T OWN
A CAR**

43%



**SOLD OR PUT OFF
BUYING A CAR**

40%

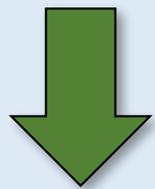


**ARE LESS LIKELY
TO BUY A CAR**

n=~10,000

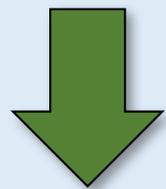


Recent Study of Zipcar's College/University Market: Fall 2016



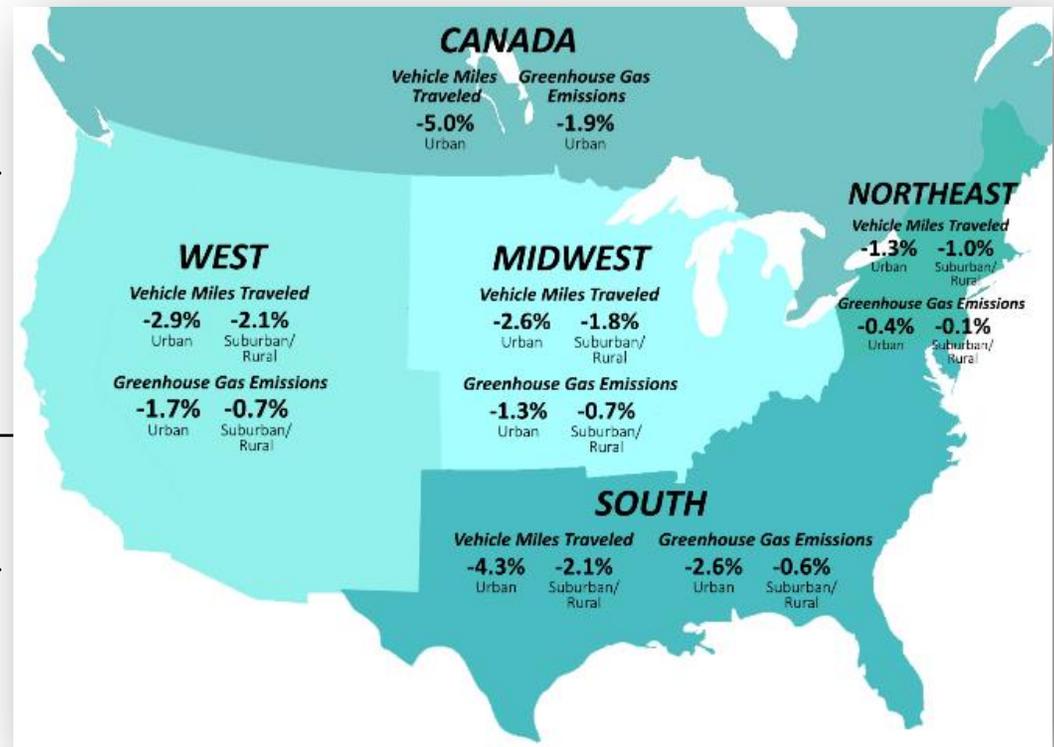
-0.1% to -2.6%

Reduction of **GHG emissions**



-1% to -5%

- Reduction of VMT
- VMT reductions are **greatest in urban land-use contexts**
- Members of **Southern and Canadian** campuses have the **greatest VMT reductions**



P2P Carsharing: Study Methodology



- Two focus groups in April 2013
- Online survey in Spring 2014
 - n = 1,151
 - 3 U.S. P2P carsharing operator
- Six stakeholder interviews between mid-2013 and early-2014





P2P Carsharing: The Americas (as of January 2017)

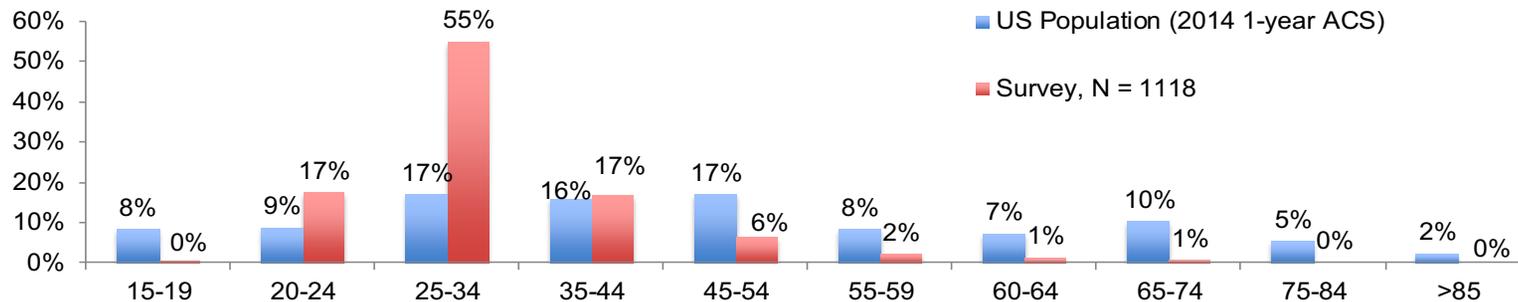
- Operator census collected between January and July 2017
- The Americas (U.S., Canada, Mexico, and Brazil):
 - 7 P2P Operators
 - 2.9 million members
 - 131,336 estimated vehicles



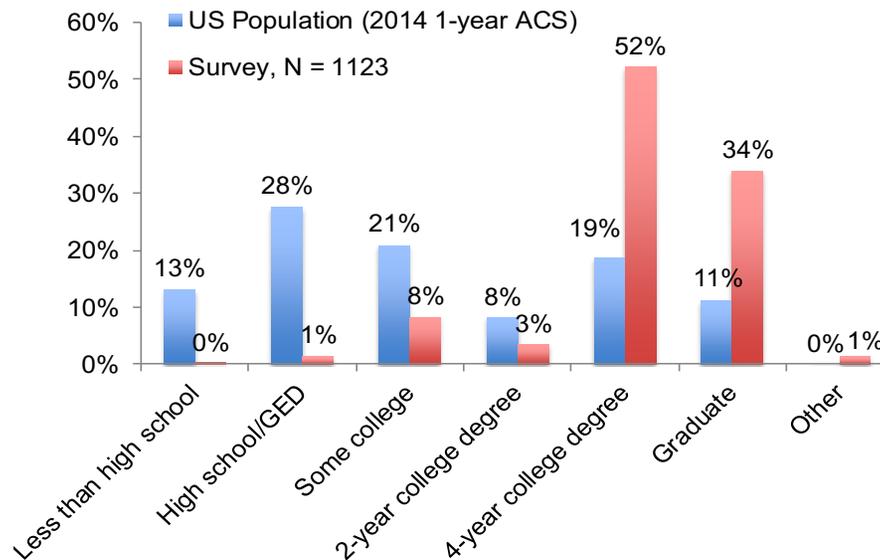
P2P Carsharing User Survey: Demographics



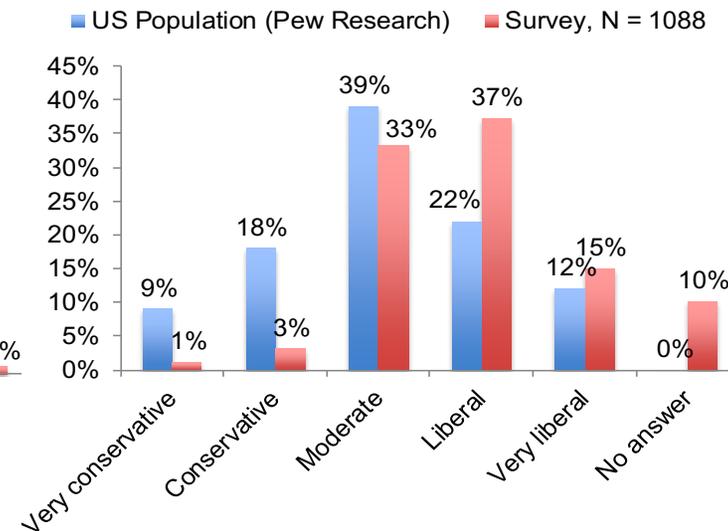
Age



Education



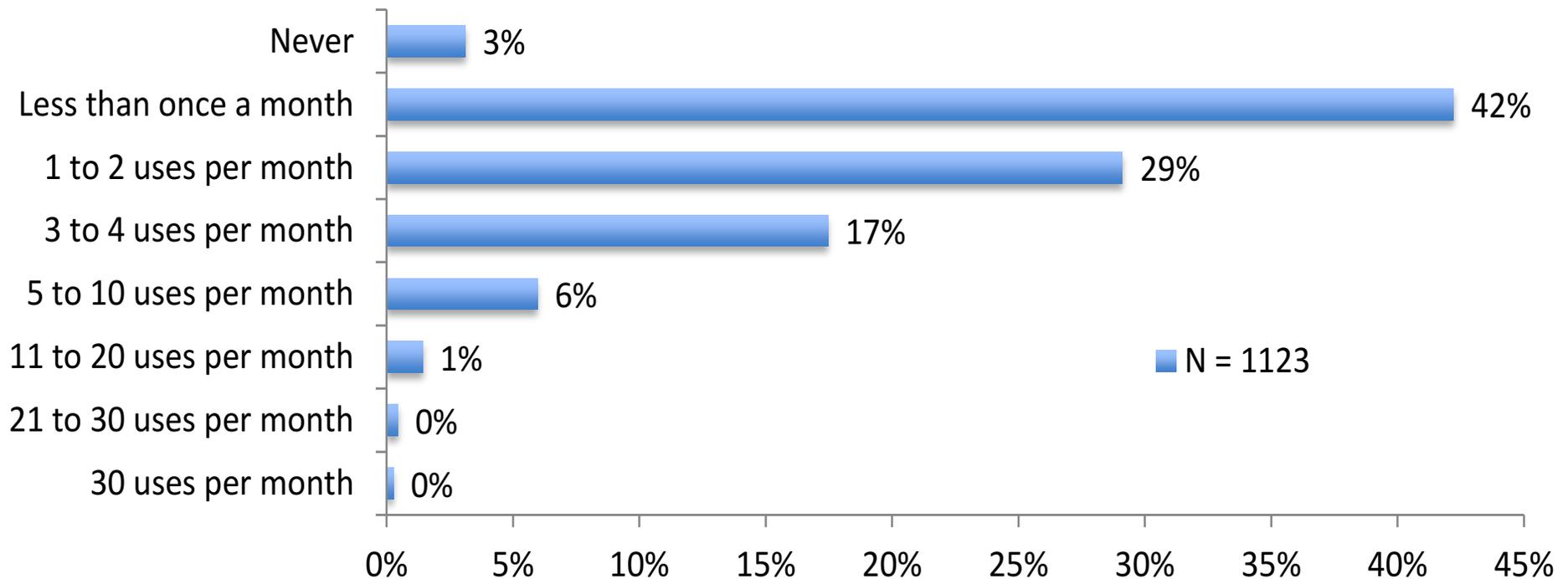
Political Opinion



P2P Carsharing User Survey: Usage Frequency



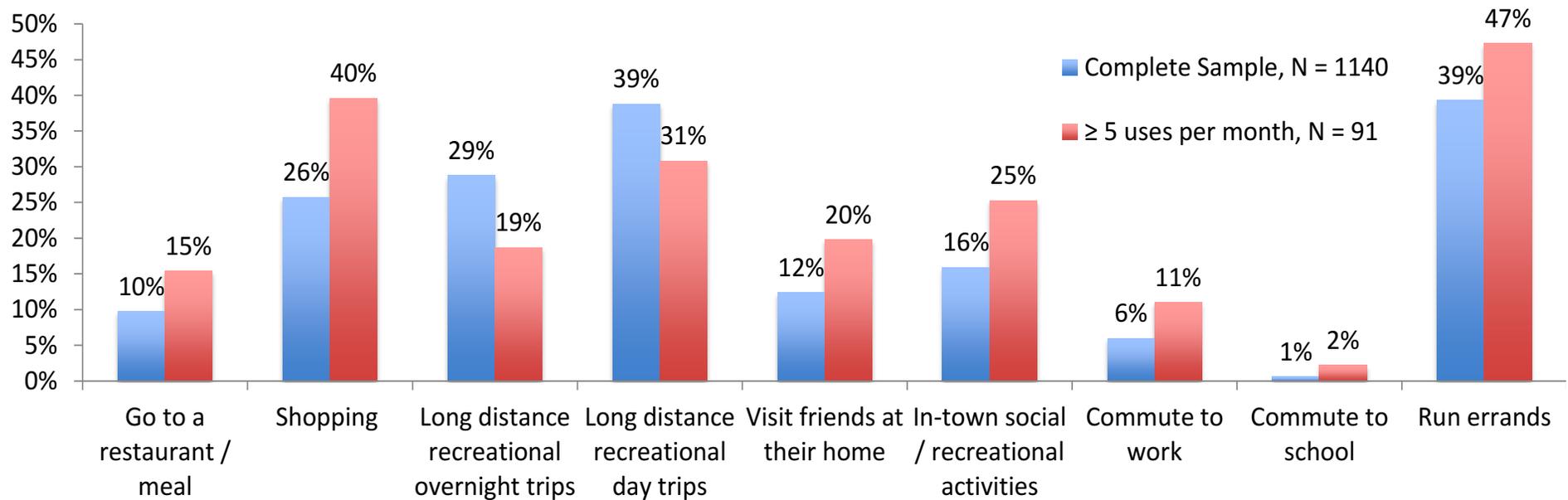
Frequency of Usage of P2P Carsharing



P2P Carsharing User Survey: Trip Purpose



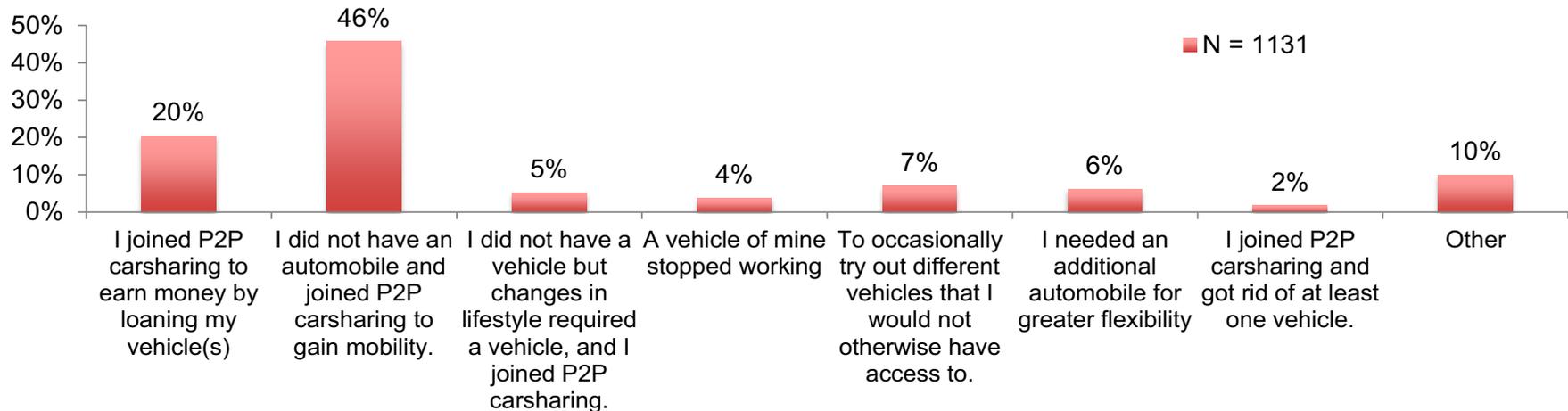
For what trip purposes do you use P2P carsharing vehicles?



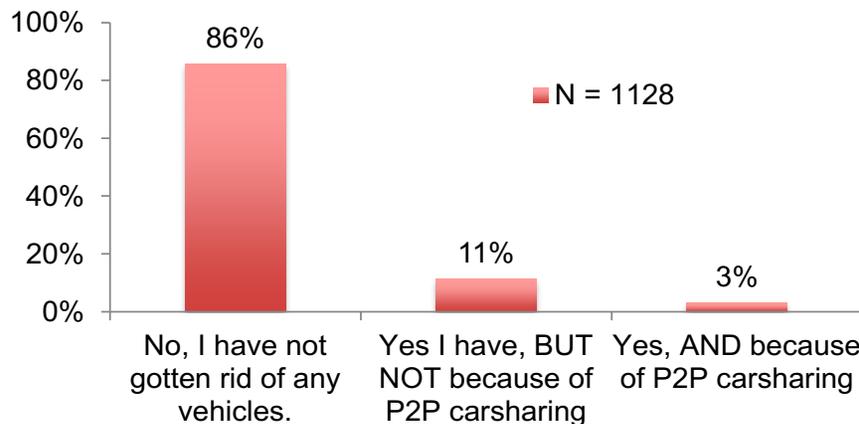
P2P Carsharing User Survey: Reasons for Joining & Vehicle Impact



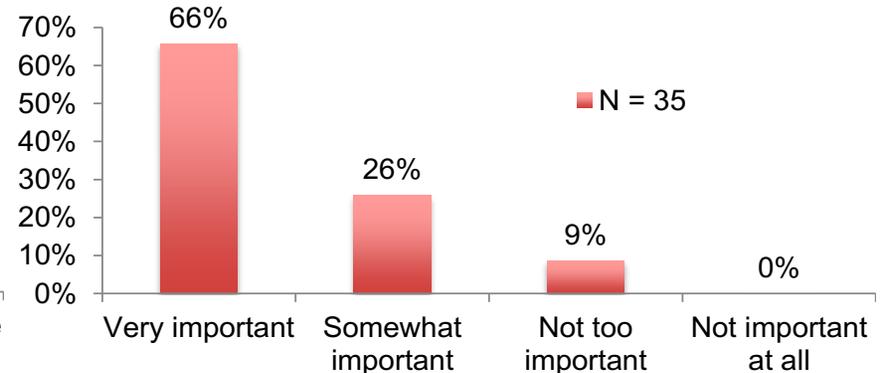
Please select the statement that best characterizes the circumstances under which you joined P2P carsharing



Have you gotten rid of vehicles since joining P2P carsharing?



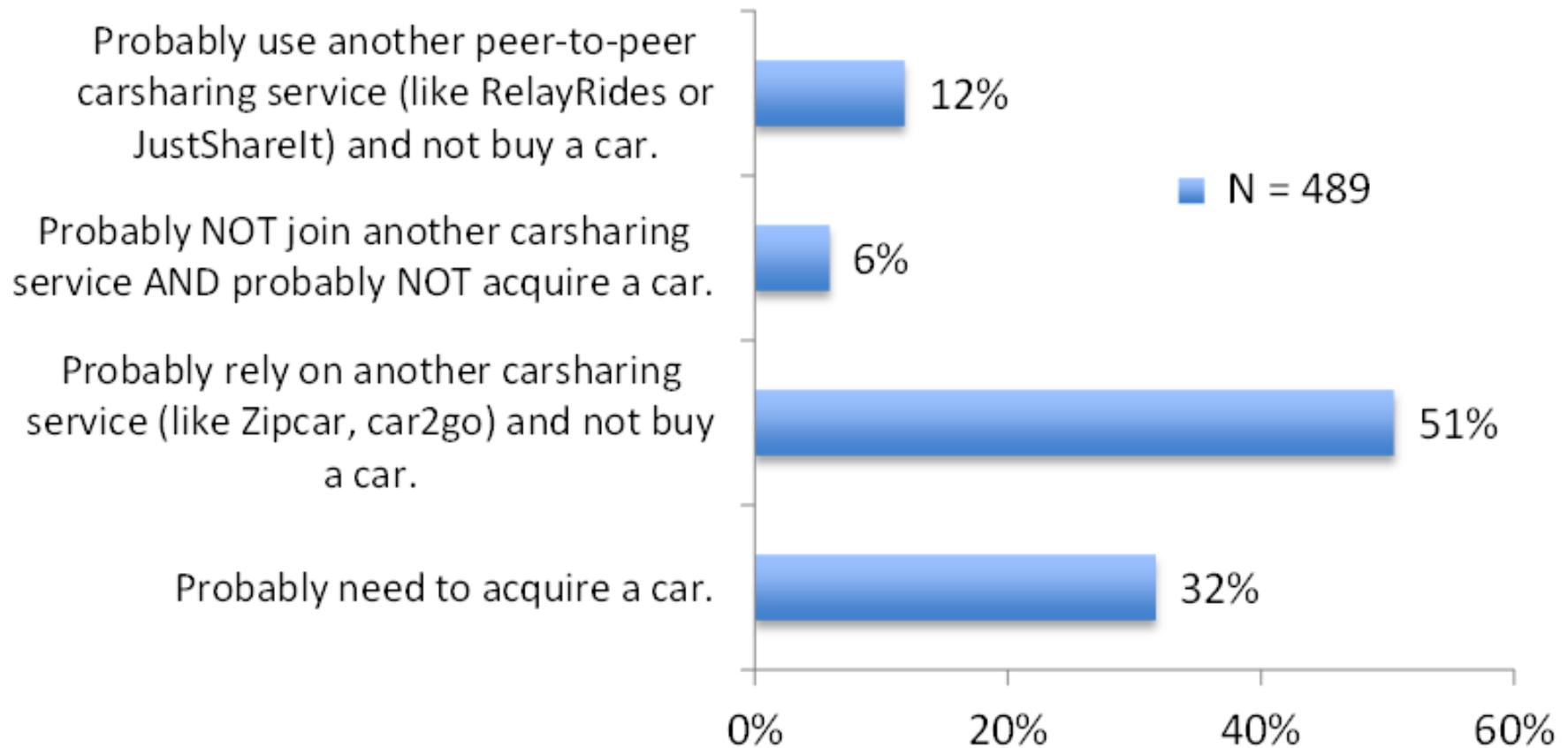
How important was P2P carsharing in facilitating a reduction in the number of vehicles within your household?



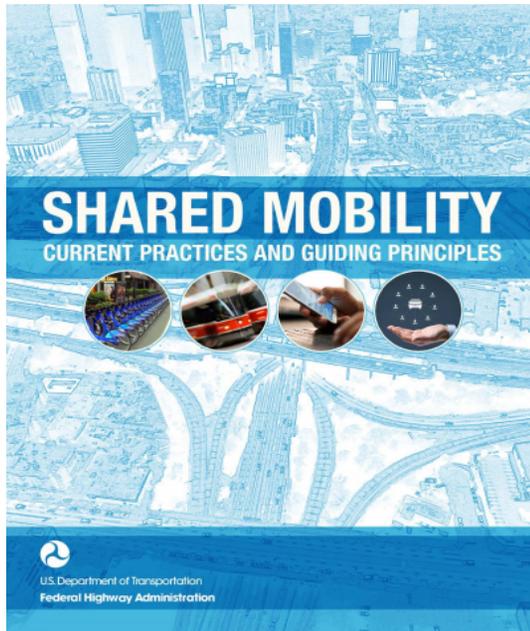
P2P Carsharing User Survey: Avoided Vehicle Purchase



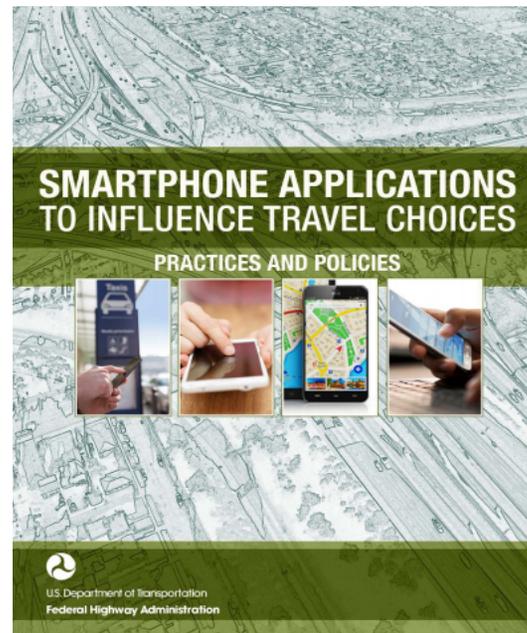
**If the P2P carsharing program disappeared
from my region, I would:**



Recent Reports



<https://ops.fhwa.dot.gov/publications/fhwahop16022/fhwahop16022.pdf>

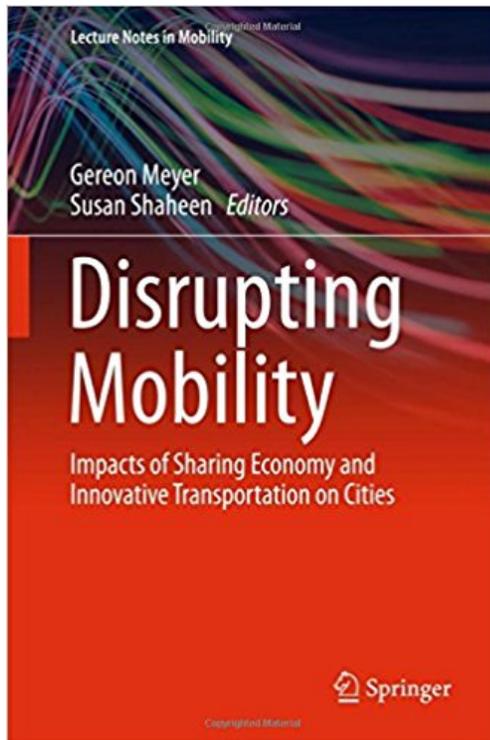


<https://ops.fhwa.dot.gov/publications/fhwahop16023/fhwahop16023.pdf>



<https://www.planning.org/publications/report/9107556/>

Recent Book: Disrupting Mobility



Available at:

<https://www.amazon.com/Disrupting-Mobility-Impacts-Innovative-Transportation/dp/3319516019>



Upcoming Research (cont'd)



- North American and International Carsharing Market Outlooks (Fall 2017)
- Impacts Study of Lyft and Uber (Winter 2017)
 - Study will assess the impacts of travel behavior, vehicle ownership, VMT, modal shift, and GHG emissions
- Bikesharing GHG Study (Fall 2017)



Upcoming Research (cont'd)



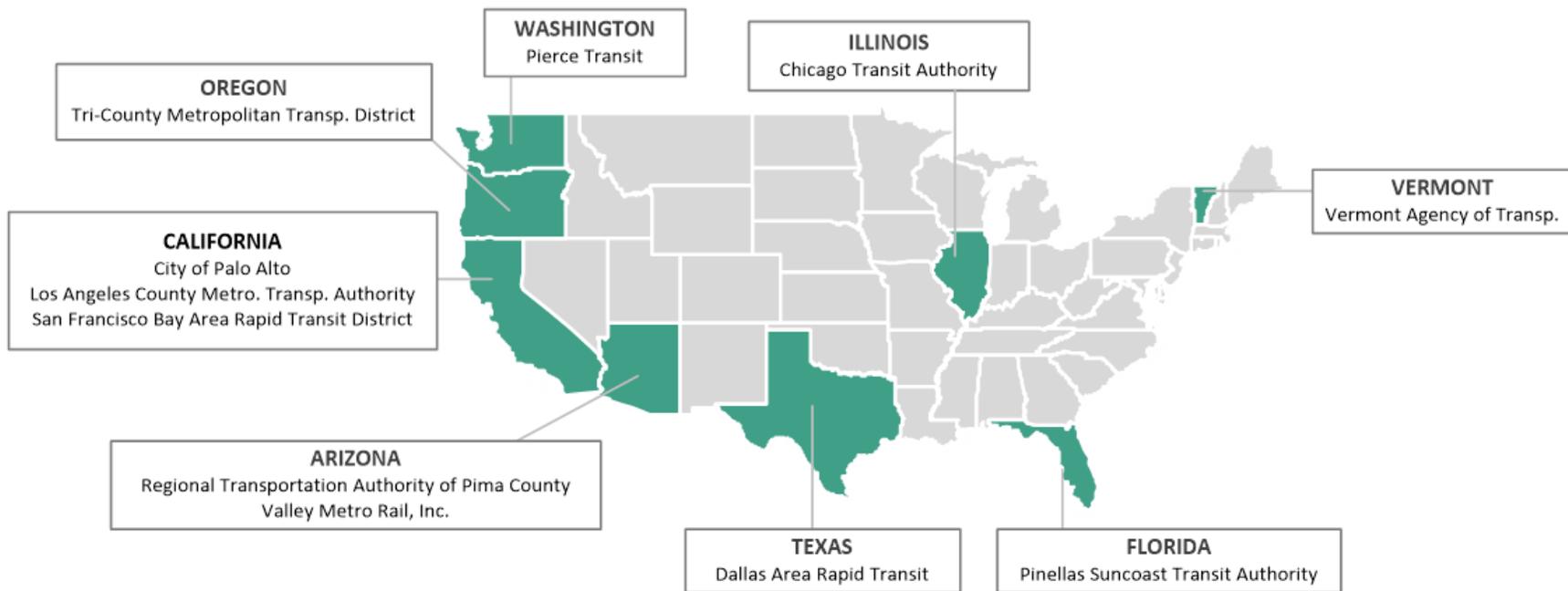
- Mobility on Demand (MOD) Concept of Operations (forthcoming)
 - Defines Mobility on Demand
 - Reviews the state of the industry, key trends, ecosystem, and enablers
 - Provides a framework for analyzing MOD and shared mobility based on varying types of urbanization
 - Discusses policies, standards and performance measures impacting MOD



Upcoming Research: FTA Sandbox



MOD Sandbox Awardees (FY16)



**11 Selected Projects:
\$7,931,080**



Upcoming Research: MOD Sandbox Independent Evaluation



- U.S. Federal Transit Administration Mobility on Demand Sandbox (2018-19)
 - \$8 million funding for an array of mobility pilots with 11 partners (12 locations)
 - Booz Allen Hamilton and TSRC leading the independent evaluation for all sites
 - Measure project impacts and identify factors that may support or impede innovative transportation service models



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LAST WEEK IN INNOVATIVE MOBILITY

May 1st - May 7th, 2017

VEHICLES

Intel partners with BMW to develop and test an autonomous driving platform for automobile manufacturers. Intel's end-to-end software development kit simulates millions of driving miles to optimize autonomous driving algorithms. Intel's recent acquisition, Mobileye, will contribute its computer vision and high definition mapping technology to the platform.

VEHICLES

Electric bus maker Proterra begins testing autonomous technology on its Catalyst bus in Reno, Nevada. Created by the University of Nevada, Reno's Autonomous Robotics Lab, the Catalyst collects data using LiDAR, cameras, and other sensors while a human drives the vehicle. A simulation engine will use the sensor data to train algorithms for future autonomous public transit vehicles.

MICROTRANSIT

Microtransit startup Bridj shuts down after a potential buyer pulls out of negotiations. Bridj offered on-demand rides in 14-seat vans that were routed based on real-time demand. Bridj launched in Boston in 2014 and was operating in limited capacity in Austin and Washington, D.C. It had also completed a one-year trial in Kansas City.

CARSHARING

GM expands its carsharing service, Maven, to provide weekly car rentals specifically for on-demand service contractors. Called Maven Gig, the service is launching in San Diego with a fleet of 100 Chevrolet Bolt electric vehicles. Rentals will be available to drivers working for GrubHub, Instacart, Roadie, Uber, and Lyft for the cost of \$230 per week, with insurance, unlimited miles, charging, and maintenance included.

RIDESHARING

French ridesharing startup BlaBlaCar launches a carpooling app for daily, short-distance commuters in select French cities, called BlaBlaLines. The service matches commuters making similar trips and assigns a location along the driver's route, at which the rider must wait to be picked up. BlaBlaLines does not charge commission on fares, which are paid in cash.

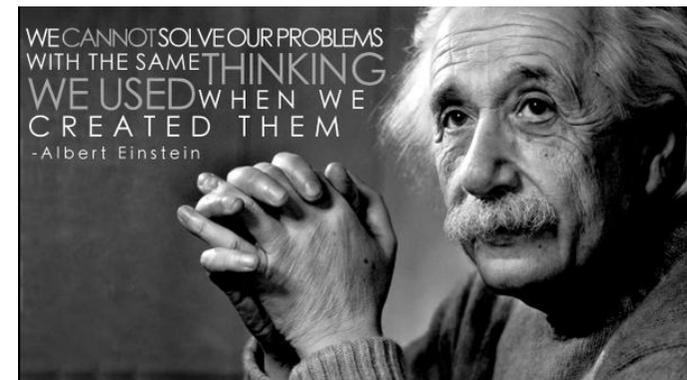
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Innovative Mobility Research (IMR) is based at the Transportation Sustainability Research Center (TSRC) at the University of California, Berkeley

Created By: Jessica Lucero

Final Thoughts

- Change is now very fast, although may feel incremental; is disruption now a constant?
- Ultimately, will people care less about driving and more about connecting with media in vehicles?
- Future something we are creating now. We have ability to forecast what is coming and create preferred outcomes.
- Need more emphasis on social engineering (e.g., machine learning)
- Need more data and research understanding (e.g., pilots)



Acknowledgements



- Shared mobility operators, experts, and industry associations
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