Legislative Briefing

The Opportunities for Shared-Use Mobility to Help California Meet its Climate Goals

UNIVERSITY OF CALIFORNIA Berkeley
Transportation Sustainability
RESEARCH CENTER

TRENDS & IMPACTS IN SHARED MOBILITY

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WHAT IS SHARED-USE MOBILITY?

Shared-use mobility - ***the shared use of a motor vehicle, bicycle, or other low-speed mode*** - is an innovative transportation solution that enables users to gain short-term access to transportation modes on an "as-needed" basis

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

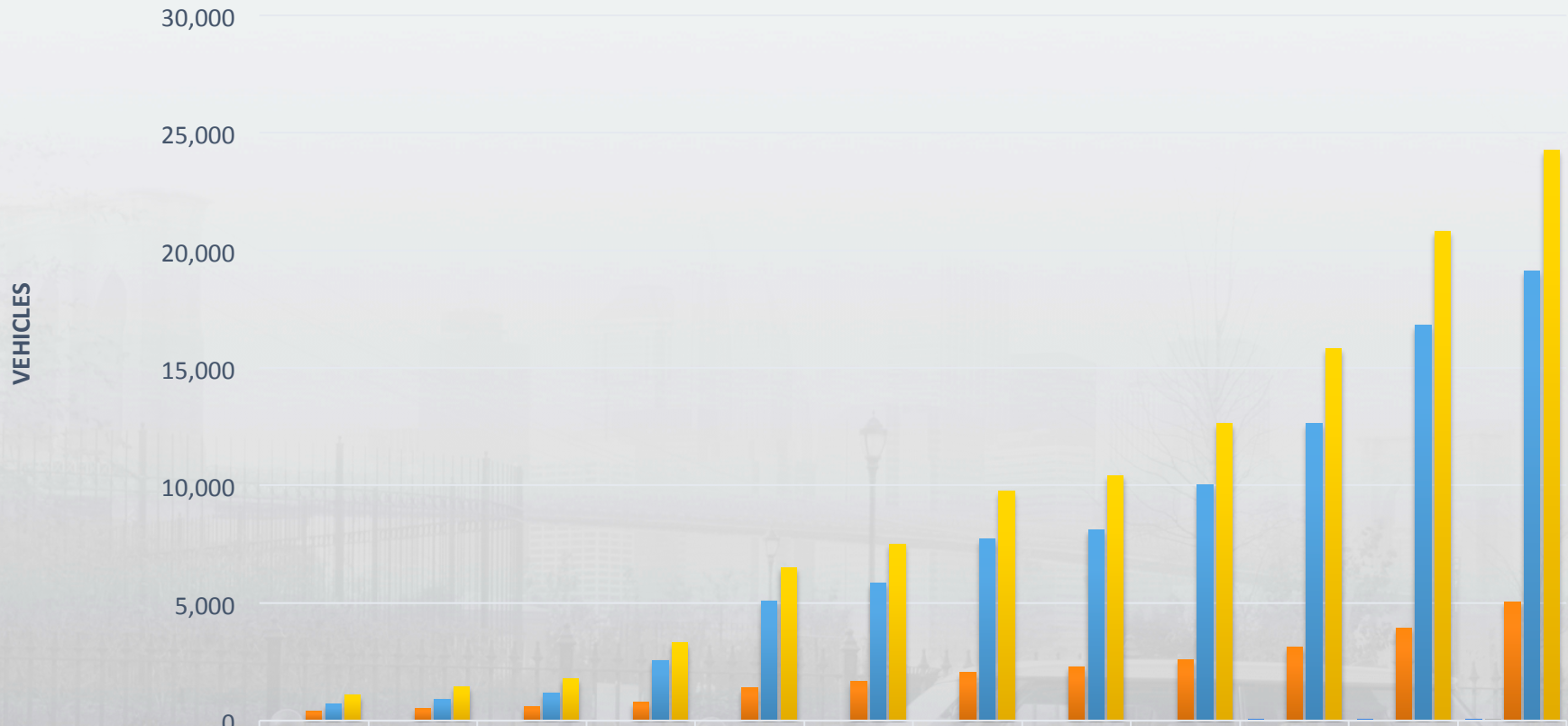
(Shaheen, 2015)

CARSHARING MEMBERSHIP GROWTH: AMERICAS

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Brazil (n=1)								98	347	910	2,884	2,857
Mexico (n=1)										750	2,654	6,174
Canada (n=20)	7,007	10,001	11,932	15,663	26,878	39,664	53,916	67,526	78,856	101,502	147,794	281,675
United States (n=23)	25,640	52,347	61,658	102,993	184,292	279,234	323,681	448,574	560,572	806,332	995,926	1,337,803
The Americas (n=45)	32,647	62,348	73,590	118,656	211,170	318,898	377,597	516,198	639,775	909,494	1,149,258	1,628,509

Shaheen and Cohen, 2014

CARSHARING VEHICLE GROWTH: AMERICAS



	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Brazil (n=1)								12	18	58	46	56
Mexico (n=1)											40	47
Canada (n=20)	397	521	599	779	1,388	1,667	2,046	2,285	2,605	3,143	3,933	5,048
United States (n=23)	696	907	1,192	2,561	5,104	5,840	7,722	8,120	10,019	12,634	16,811	19,115
The Americas (n=45)	1,093	1,428	1,791	3,340	6,492	7,507	9,768	10,417	12,642	15,835	20,830	24,266

Shaheen and Cohen, 2014

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

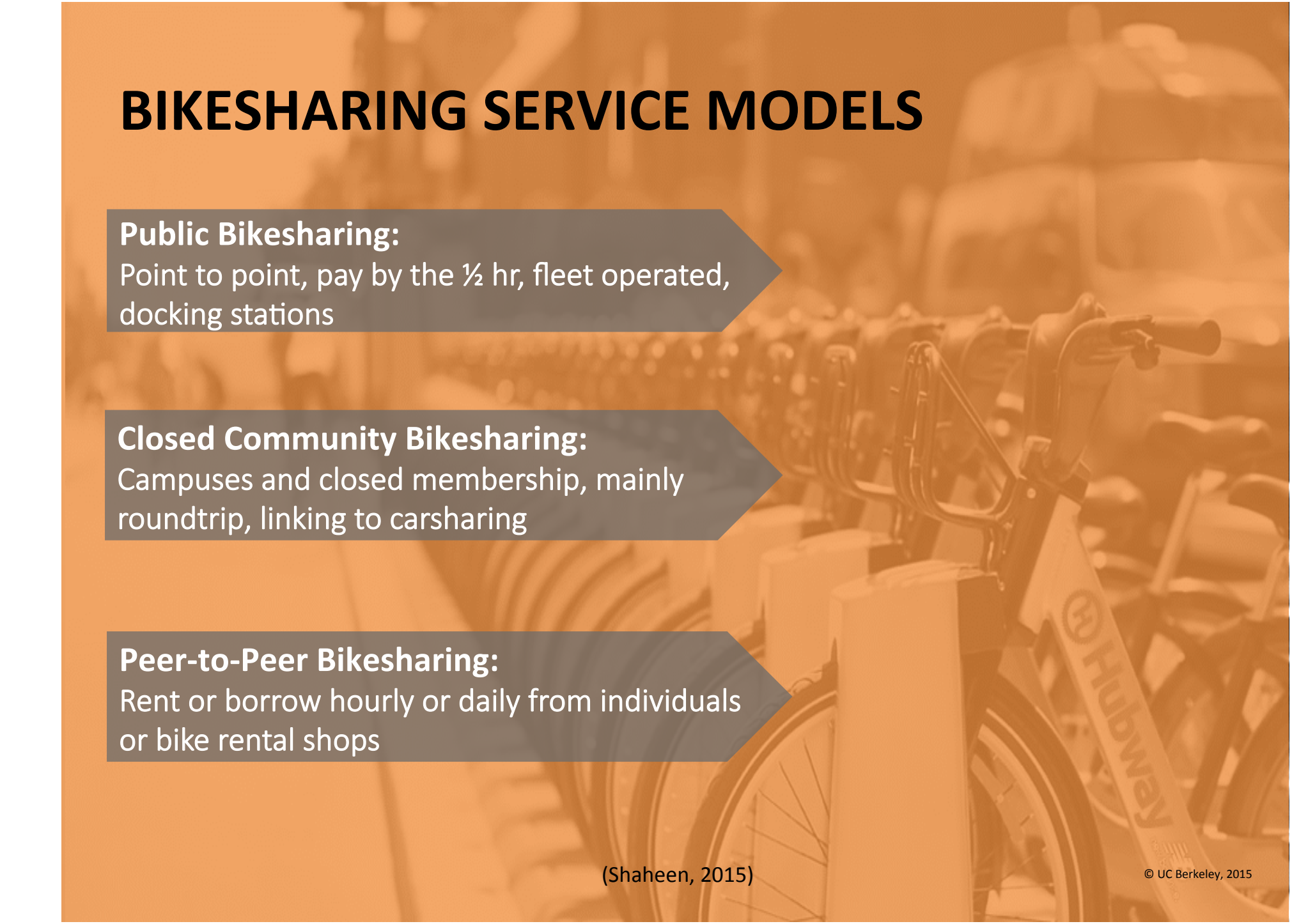
Martin et al. 2010

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



(Shaheen, 2015)

WORLDWIDE AND U.S. BIKESHARING: APRIL 2015

Worldwide: **868 cities** with IT-based operating systems

- **1,016,500 bikes**

  ~811,500 bikes in China (and 256 cities)

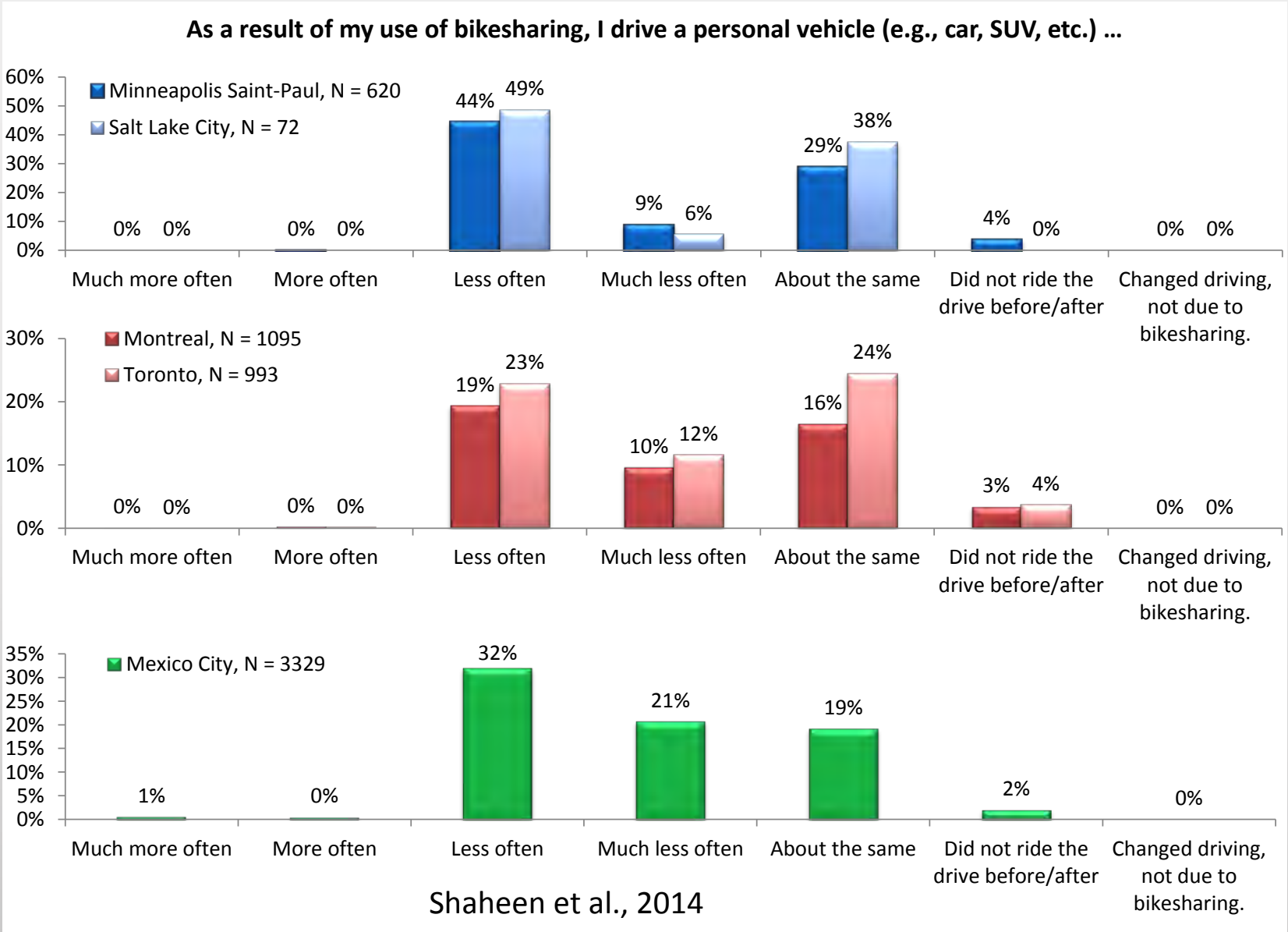
U.S.: **72 cities** with IT-based systems (52 programs)

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

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

Source: Russell Meddin, 2015

CHANGE IN DRIVING



BIKESHARING IMPACTS

- Studies have shown bikesharing members in larger cities ride the bus less, attributable to reduced cost and faster travel associated with bikesharing

- Rail usage increased in small cities (Minneapolis-St. Paul) and decreased in larger cities (Mexico City, Montreal, and Washington D.C.) – all larger regions with denser rail networks
  - Shifts away from public transit in urban areas are often attributed to faster travel times and cost savings from bikesharing use

Shaheen et al. 2015

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

(Shaheen, 2015)

CLASSIC 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

BLURRING LINES

- Sharing a ride no longer requires prearrangement or street hails
- Mobile technology and social networking can facilitate finding a ride in real-time (e.g., app-based taxi dispatch or "e-hail")
- Companies testing ridesplitting within ridesourcing: Lyft Line, Sidecar Shared Rides, uberPOOL
- Less distinction among classic ridesharing, ridesourcing, and commercial transportation

(Shaheen, 2015)

FOR-HIRE VEHICLE ACCESS MODELS

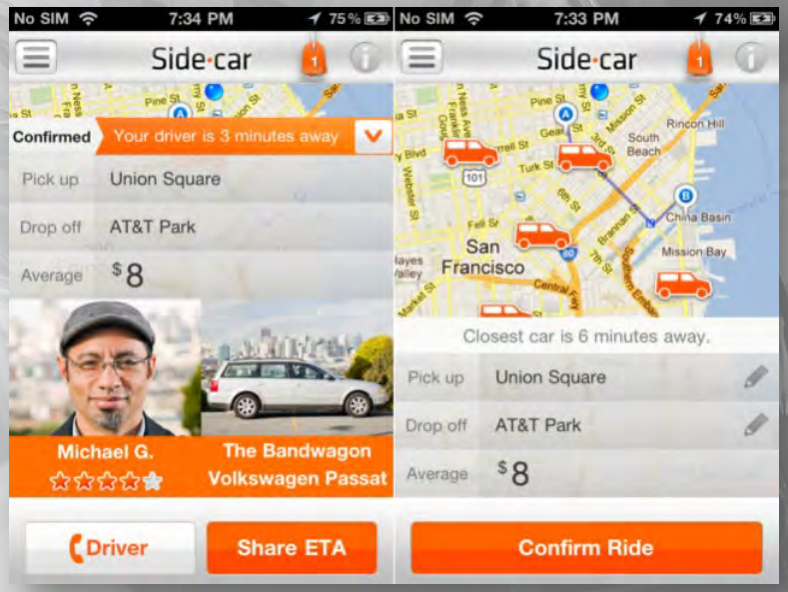
Ridesourcing/TNCs: Service that allows passengers to connect with and pay drivers who use their personal vehicles for trips facilitated through a mobile application

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

RIDESOURCING/TNCS

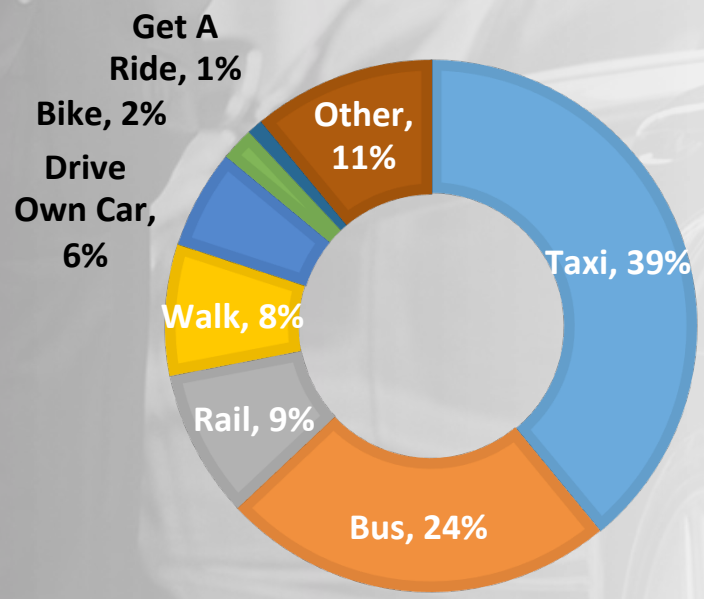
- Platform used to “source” rides from a driver pool
- App-based, on-demand ride services
- Transportation Network Companies (TNCs)
  - Uber (uberX and uberXL)
  - Lyft
  - Shuddle
  - Sidecar
  - Summon
  - Wingz



(Shaheen, 2015)

RIDESOURCING: SOME EARLY UNDERSTANDING

How would you have made this trip if Uber/ Lyft/Sidecar were not available?



- 92% would have still made this trip
  - 8% induced travel effect
- 33% would have taken public transit (bus or rail)
- 4% named a transit station origin/destination, suggesting some ridesourcing usage to access public transportation
- 20% avoided driving after drinking.

Rayle et al. 2014

KEY FINDINGS: WAIT TIMES

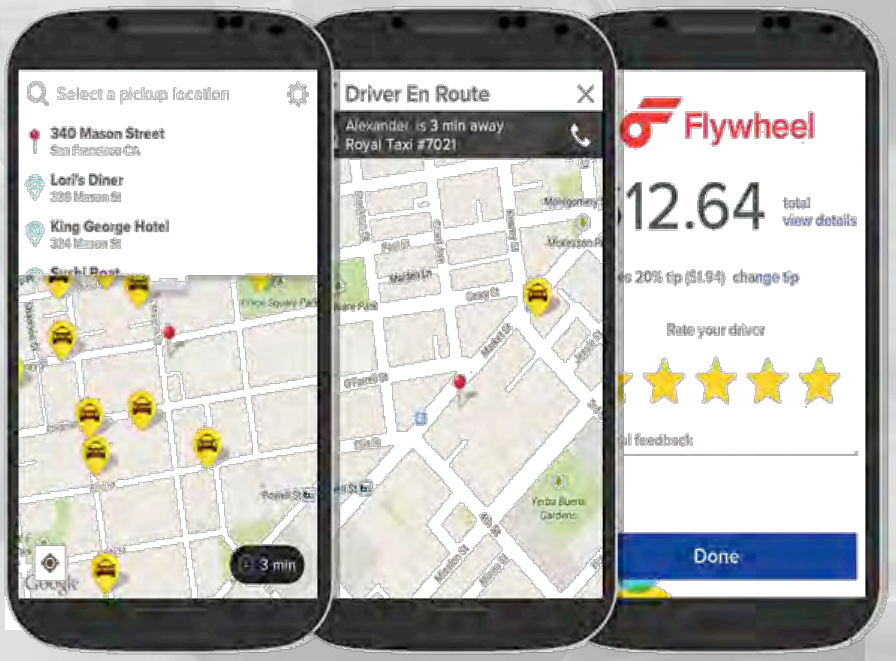
About how long did you wait for your ride (from the time you made the request to the time the vehicle arrived)?
Percentages of wait times less than or equal to 10 minutes:

Wait Times	Ridesourcing	Taxi (Phone)	Taxi (Street Hail)
M-F 4am-6pm	93%	35%	39%
M-F (6pm-4am)	92%	16%	33%
S-Su	88%	16%	25%

Rayle et al, 2014

INDUSTRY DEVELOPMENTS: TAXIS

- **Taxis** starting to compete with TNCs/ ridesourcing
  - E-Hail apps (e.g., Curb, formerly Taxi Magic, Flywheel)
  - Employ peer-to-peer drivers (e.g., Yellow Z)
  - Potential for less regulation from municipalities (e.g., lift limits on taxi permits)



(Shaheen, 2015)

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