

Thank You for Sharing

Thoughts on Shared Mobility in the Years Ahead



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This is shared mobility, right?



Shared Mobility

- People with many different origins and destinations
- Coming together for at least part of their trip
- Sharing the same piece of transportation infrastructure

How about this?



Shared Mobility

- People with many different origins and destinations
- Coming together for at least part of their trip
- Sharing the same piece of transportation infrastructure

So what's shared about shared mobility?

- Share the same right of way?
 - Subways, freeways?
- Share the same terminal?
 - Airport terminal, parking lot?
- Share the same vehicle?
 - Serially?
 - Simultaneously?
 - With friends and family?
 - With strangers?

What are the benefits of shared mobility?

- Energy and environmental benefits
- Transportation system efficiency benefits
- Affordable mobility benefits

First the good news...

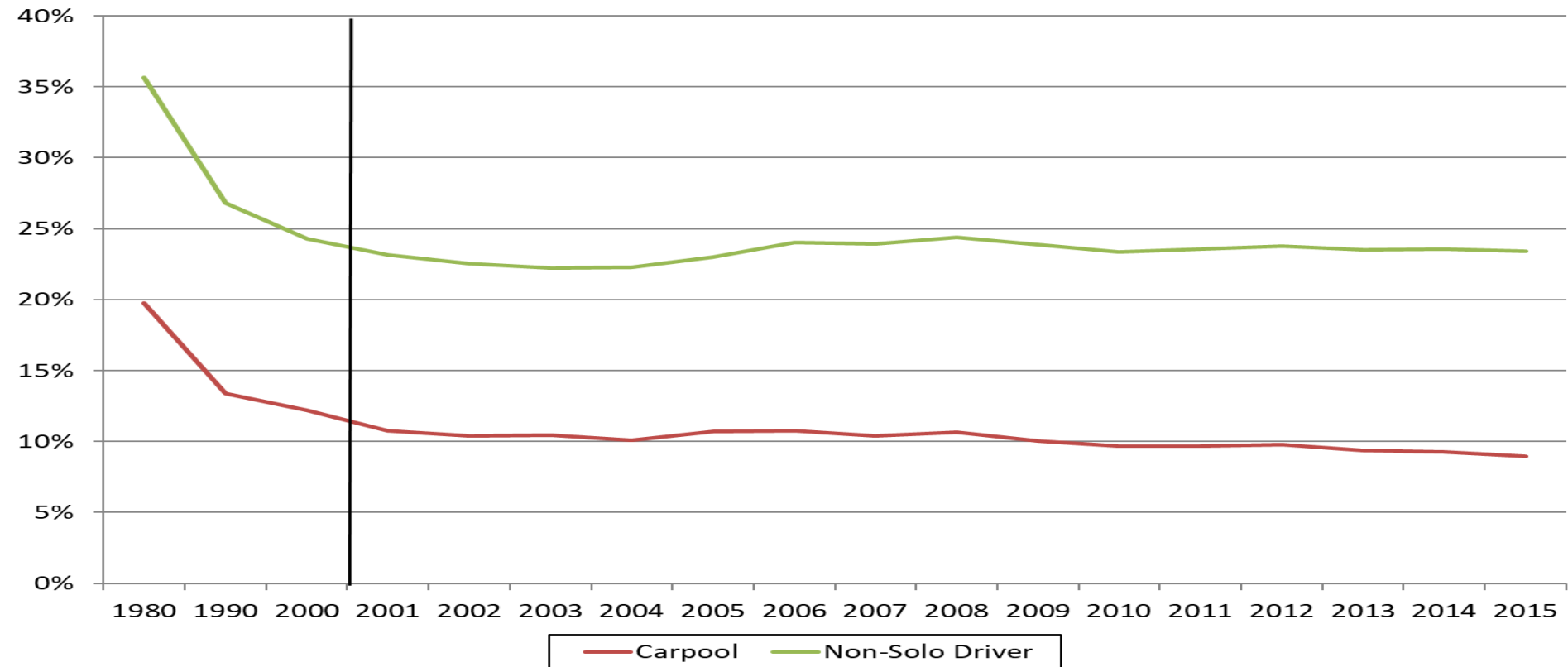
- Carpooled to or from work
 - 1980 = 20%
- Commuted by means other than driving alone
 - 1980 = 36%

Source: Steven Ruggles, Katie Genadek, Ronald Goeken, Josiah Grover, and Matthew Sobek (2015). Integrated Public Use Microdata Series: Version 6.0 [dataset]. Minneapolis: University of Minnesota. <http://doi.org/10.18128/D010.V6.0>.

Now the not so good news...

- Carpooled to or from work
 - 1980 = 20%
 - ...and after the rise of the shared economy and shared mobility...*
 - 2015 = 9%
- Commuted by means other than driving alone
 - 1980 = 36%
 - 2015 = 23%

National shared mobility commuting trends



Source: Steven Ruggles, Katie Genadek, Ronald Goeken, Josiah Grover, and Matthew Sobek (2015). *Integrated Public Use Microdata Series: Version 6.0 [dataset]*. Minneapolis: University of Minnesota. <http://doi.org/10.18128/D010.V6.0>.

So is shared mobility dying?



So is shared mobility dying?

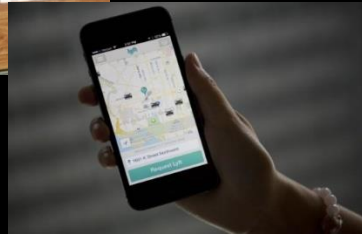
- Maybe, but it certainly doesn't have to
- Technology is unlikely to save the day on its own
- But there are lots of developments on the horizon that point to an increased role for ridesharing – technology among them

Shared mobility has historically faced an information problem

- What do I want to do?
 - Trip purpose (Trip generation)
- Where might I go?
 - Mapping opportunities (Trip distribution)
- How might I get there?
 - Knowledge of travel options (Mode choice)
- When and where should I travel?
 - Activity sequencing and path analyses (Traffic assignment)

The Evolution of Shared Mobility

- Hitchhiking
 - High information costs across the board
- Public transit
 - Information costs lowered dramatically, but at the substantial cost of flexibility
- Street Hail Taxis
 - Reduced upfront information costs, imposed higher prices on riders
- Dispatch taxis
 - Information costs fell for riders, but required large upfront costs for drivers/firms
- TNCs
 - Information costs fell significantly for both drivers and riders



How does sharing mobility complicate this already complicated set of nested decisions?

- In 1917, with essentially no information technology?
 - Hitchhiking, streetcars, and taxis
- In 2017, with lots of information technology
 - Hitchhiking, light rail, taxis, buses, carshare, bikeshare, TNCs
 - Potential for modal integration (e.g. TNCs & transit)

The shared mobility information problem

- When do I want to go?
 - Is anyone else going at that time?
- Where do I want to go?
 - Is anyone else going there?
- By what means do I want to go?
 - Is that service available?
- By what route will I travel?
 - Where do I start and end my journey?
- This all requires **A LOT** of coordination

In addition to all of this coordination,
Trust, Terms, and Transactions are critical as well



Getting a ride from someone else requires lots of information

- Coordination
 - When/where will the rider & driver meet up, where will they go?
- Negotiation
 - Can the rider & driver agree on terms?
- Trust
 - Will the rider and driver be safe sharing a ride?

So what exactly are transportation
network companies?

The classically described triad of any transportation system

1. Vehicles
2. Terminals
3. Way

Air Travel?

1. Vehicles
 - Airplanes
2. Terminals
 - Airports
3. Way
 - Air traffic controlled skies

Transportation Network Companies?

1. Vehicles

- Millions of privately owned autos shifted into commercial service

2. Terminals

- Parking

3. Way

- Streets and roads

No cars, no terminals, no way...

- What parts of this system do TNCs own?
 1. Vehicles - no
 2. Terminals - no
 3. Way - no
 4. **Information? - yes**

No cars, no terminals, no way...

1. Vehicles

- Owned by drivers

2. Terminals

- Publicly provided

3. Way

- Publicly provided

4. Information – *may be the key to the future of shared mobility*

- Requires all drivers and customers to have high-powered, high-capacity mobile information and communication devices, supported by enormous communications networks with near universal coverage
- Matches and payments controlled by TNCs

A shared revival?

- Travelers trade off the transactions costs of sharing with the monetary costs of travel
- Only time will tell whether solving the information problem will result in TNCs and other shared ride platforms operating at scale to turn the tide on the decline of shared mobility

Promise for a more shared mobility future?

- Is *this* the Question?
 - *Are people really going to give up their cars and share auto trips with others,*
 - *Or will they own their autonomous vehicles to keep all of that privacy, their stuff in the trunk, great sound system, and temperature just they way they like it?*

Promise for a more shared mobility future?

- Or is *this* the question?
 - *Given the modest means of a growing share of people in both the developed and developing world...*
 - *Will people increasingly seek to buy their automobility via subscription or a trip at a time, because most of them won't be able to afford their own car – autonomous or not?*

My two cents anyway

Now on to the presentations



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