EVOLUTION OF MOBILITY:

FOUR PREDICTIONS FOR THE FUTURE



The Evolution of Mobility Study Series

Phase I

Consumer attitudes about the changing mobility landscape

Perceptions and perceived need for traditional vehicle ownership model are changing.

Phase II

Dealer attitudes about the changing mobility landscape

Dealers recognize that change is coming but don't feel equipped to offer consumers the alternatives they seek.

Phase III

A Look Into the Future

What factors impact consumers' transportation decisions?

How is share of miles traveled impacted by ownership alternatives?

Which consumers are likely to embrace alternatives first?

The Consumers to Whom We Spoke

Surveyed

2,145

consumers

Representative of the national population (by gender, ethnicity, and region)

Ages 16+

Used at least one method of transportation in the past month (other than walking)

Fielded July 20th – August 3rd, 2018





Choice Exercise Example

Imagine that the three transportation options below were all available to you and you could use any of them, for any occasion. Which of these options would you most prefer, generally speaking, to get around?

	Ride- Sharing/Hailing (e.g. Uber, Lyft)	Car Subscription (e.g. Clutch, Flexdrive)	Owned or Leased Vehicle
Driver	Driver	Self-driving (autonomous)	You
Duration of commitment	A ride	A month	Until you purchase/ lease a new one
Special Equipment	Yes, provided to you for an additional cost	Yes, you provide	Yes, you provide
Vehicle Type	Luxury vehicle (Audi, BMW, Porsche, etc.	Foreign Non-Luxury vehicle (Toyota, Nissan, Honda, etc.)	Domestic Non- Luxury vehicle (Ford, Chrysler, GM, etc.)
Ride Availability	15 minutes until pick up	Ready now	Ready now
Cost Per Month	\$975.00	\$600.00	\$375.00

TRANSPORTATION ATTRIBUTES:

Ownership Model = The type of transportation method (ride sharing, car sharing, ownership/leasing, subscription)

Cost = Monthly cost of transportation (including insurance, maintenance, etc. – if applicable)

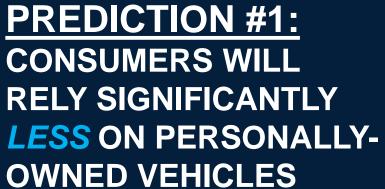
Vehicle Type = Luxury / Non-Luxury; domestic / import

Driver = The type of driver (owner, stranger, AV, etc.)

Ride Availability = The amount of time to wait for a ride to be available

Duration of Commitment = How long you are committed to the vehicle (per ride, per day, per month)

Special Needs/Equipment = Additional equipment available to use (e.g. car seat, bike rack, etc.)





Consumer Attitudes About Vehicle Ownership Are Changing

> "Having Transportation is **Necessary**, but Owning a **Vehicle is Not**"

> > % Agree

35%2015

39% ↑ 2018



1/3 of Consumers Are Open to New Mobility Options

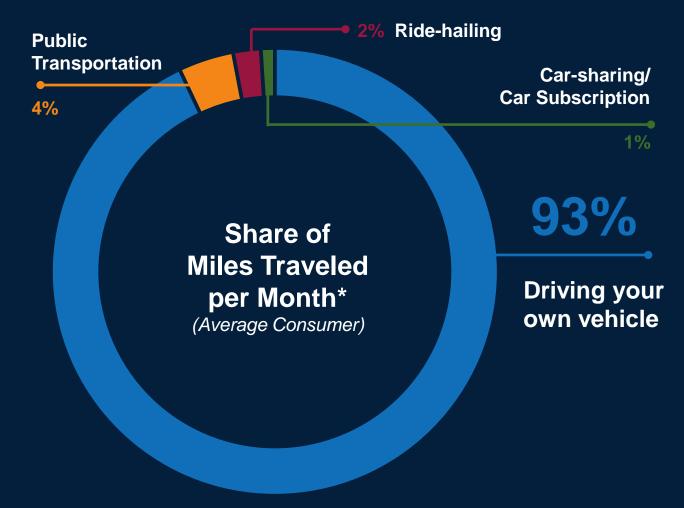
33%

"I'm open to exploring new transportation methods"

(vs. 67% I like to own)



Today, Transportation is Dominated by Consumer-Owned Vehicles

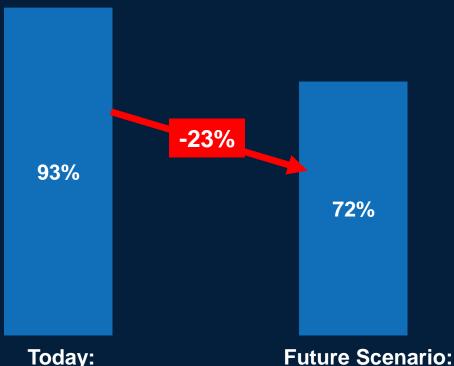


*only includes transportation methods shown on this slide (excludes other methods such as Taxi/cab, Car rental, Borrowing a vehicle, Carpooling, Motorcycle/scooter)



Assuming All Transportation Alternatives Were 100% Accessible, Share of Miles Driven by Personal Vehicles Would Drop Significantly

Share of Miles Traveled by Personally-Owned Vehicle*



Limited Accessibility

of Alternatives**

(current pricing)

*personal vehicle ownership (\$0.50/mile)

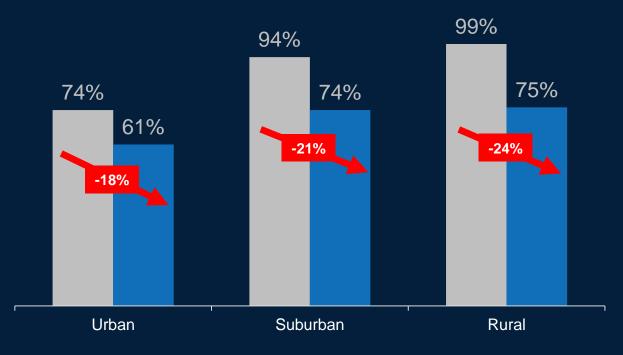
Future Scenario:
Wide Accessibility
of Alternatives**
(current pricing)

^{**}transportation alternatives: public transportation (\$0.25/mile), ride-hailing (\$1.30/mile), car-sharing (\$1.50/mile), car subscription (\$0.80/mile)

Increased Accessibility to Alternatives Can Cause a Large Shift Away from Personal Vehicles for Those in Suburban & Rural Areas

Share of Miles Traveled by

Personally-Owned Vehicle*



- Today (Limited Accessibility of Alternatives** at current pricing)
- Future (Wide Accessibility of Alternatives** at current pricing)

personal vehicle ownership (\$0.50/mile)

^{**}transportation alternatives: public transportation (\$0.25/mile), ride-hailing (\$1.30/mile), car-sharing (\$1.50/mile), car subscription (\$0.80/mile)



Increased Accessibility of Alternatives Impacts New Vehicle Retail Sales

When Personally-Owned Vehicles Drop To 72% of Miles Traveled...

...New Vehicle Retail
Units Sold Are Expected to
Drop by 6%



A Third of Consumers Want to Own Less Vehicles in the Future

of consumers say they will reduce the numb of vehicles they own will reduce the number within the next 5 years

interested in retainers of

of consumers are interested in reducing vehicles they own



The Cost Benefit of Ownership is Eroding

"Owning/Leasing a Vehicle is Becoming Too Expensive"

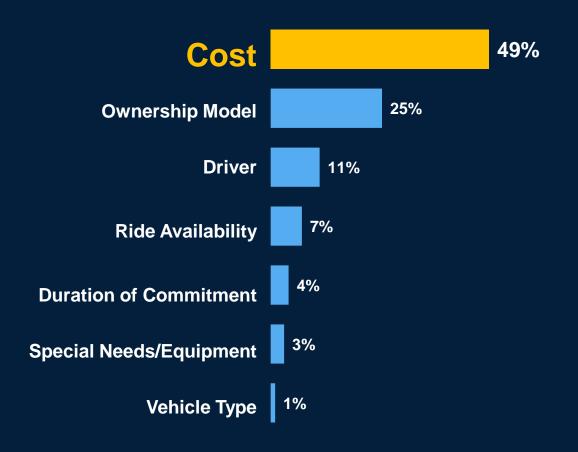
% Agree

42%2015

48% 1 2018

Price is the Biggest Influencer Affecting Consumers' Preferred Transportation Mode

Factors Impacting Transportation Choice



Share of Miles Traveled by Personal Vehicle Declines as Average Price of Alternative Ownership Models Drop



*Personal Vehicle Ownership cost held constant at current cost (\$0.50)

**Alternative Ownership includes Car Subscription, Car-sharing, and Ride-hailing. The Alternative Ownership (Net) is comprised of their optimal solutions, with Autonomous driver used for Ride-hailing.

Assuming 100% Accessibility and \$0.60 cost-per-mile of Alternatives, Share of Miles Driven by Personal Vehicles Would Drop to 61%

Share of Miles Traveled by Personally-Owned Vehicle*



*Personal Vehicle Ownership cost held constant at current cost (\$0.50)

Today:
Limited Accessibility
of Alternatives**
(current pricing)

Future Scenario:
Wide Accessibility
of Alternatives** AND \$0.60
CPM for Alternatives

^{**}Alternative Ownership includes Car Subscription, Carsharing, and Ride-hailing. The Alternative Ownership (Net) is comprised of their optimal solutions, with Autonomous driver used for Ride-hailing

Retail Sales Are Further Suppressed When Alternative Ownership Costs Drop

> When Personally-Owned **Vehicles Drop To 61% of Miles Traveled...**

...New Vehicle Retail **Units Sold Are Expected to Drop by 29%**



Tipping Point = Alternative Ownership Costs \$0.35/Mile

> When Personally-Owned Vehicle & Alternative Ownership **Both Account for** 46% of Miles Traveled...

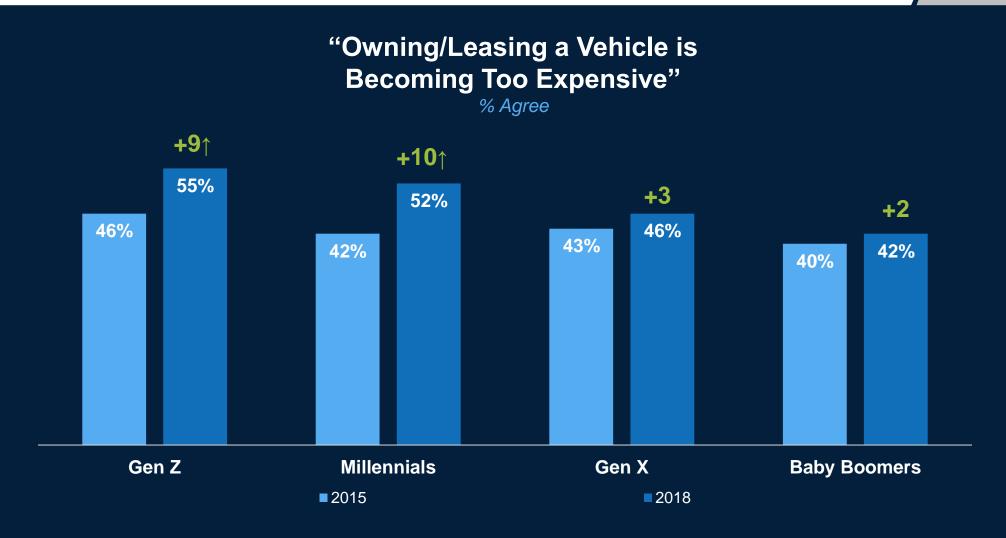
...New Vehicle Retail **Units Sold Are Expected to Drop by 42%**



PREDICTION #3:
GEN Z & MILLENNIALS
WILL BE THE FIRST TO
ADOPT ALTERNATIVE
OWNERSHIP MODELS



Gen Z & Millennials are Most Likely to Say Ownership is Becoming Too Expensive





Average Cost Per Mile For Ownership

(Among those who use/own vehicle once a month or more)

Generation Z **\$0.71**

Millennials \$0.79

Generation X \$0.56

Baby Boomers \$0.50

Silent Generation \$0.45



Gen Z & Millennials Leading the New Way of Thinking about Ownership

"Having Transportation is Necessary, but Owning a Vehicle is Not"

% Agree

55%

Gen Z

45%

Millennials

34%Gen X

28%

Boomers



Gen Z and Millennials Are Also Less Reliant On Their Vehicle

Share of Miles Traveled by

Personally-Owned Vehicle*

(if Alternatives** Are Widely Accessible at Current Pricing)

64%

Gen Z

65%

Millennials

71% Gen X 82%

Boomers

*personal vehicle ownership (\$0.50/mile)

^{**} transportation alternatives: public transportation (\$0.25/mile), ride-hailing (\$1.30/mile), car-sharing (\$1.50/mile), car subscription (\$0.80/mile)





Gen Z / Millennial Tipping Point is Higher than General Population

Share of Miles Traveled is EQUAL for Personally-Owned Vehicle & Alternative Ownership

When Alternative Ownership Costs...



Gen X = \$0.40; Boomers/Silent Generation = \$0.25

*Personal Vehicle Ownership cost held constant at current cost (\$0.50)

**Alternative Ownership includes Car Subscription, Car-sharing, and Ride-hailing. The Alternative Ownership (Net) is comprised of their optimal solutions, with Autonomous driver used for Ride-hailing





Accessibility is Top Barrier to Adoption, Especially for Car Subscription

Barriers To Adoption: "Accessibility"

#1 Barrier for Car Subscription (42% of consumers)

#3 Barrier for Car-sharing (34% of consumers)

#8 Barrier for Ride-hailing (13% of consumers)



Accessibility is the Biggest Barrier to Subscription Services Adoption

Top Barriers For Car Subscription Adoption

"Not Available in My Area"

"I Like Riding in a Vehicle That is Completely My Own"

"It's Too Expensive"



When All Alternative Ownership Models Are Fully Accessible, Car Subscription Claims the Greatest Share of Miles Traveled

Share of Miles Traveled by Alternative Ownership Models*

Today:
Limited Accessibility
of Alternatives
(current pricing)

Future Scenario:
Wide Accessibility
of Alternatives
(current pricing)

Future Scenario:
Wide Accessibility
of Alternatives With Multiple
Subscription Offerings

Car subscription¹: **0.2**%

Car subscription¹: 9.5%

Car subscription²: 23.9%

Multi-vehicle Luxury (6%) Single-vehicle Luxury (8%) Single-vehicle Non-Luxury (10%)

Ride-hailing: **2.1%**

Ride-hailing: 1.3%

Ride-hailing: **1.0%**

Car sharing: **0.5%**

Car sharing: 1.1%

Car sharing: 0.8%

*alternative ownership models: ride-hailing (\$1.30/mile), car-sharing (\$1.50/mile), car subscription (see below)
1 multi-vehicle luxury (\$0.80/mile); 2 Multi-vehicle Luxury @ \$0.80/mile, Single-vehicle Luxury @ \$0.70/mile, Single-vehicle Non-Luxury @ \$0.60/mile



Four Predictions & How to Stay Ahead of the Curve

CONSUMERS WILL RELY SIGNIFICANTLY LESS ON PERSONALLYOWNED VEHICLES

Explore additional revenue streams outside of retail vehicle sales

AFFORDABILITY

INCREASES CONSUMER CONSIDERATION OF MOBILITY ALTERNATIVES

Educate consumers on the total cost of ownership so they can make informed decisions on the transportation mode that will best meet their financial needs

GEN Z & MILLENNIALS WILL BE THE FIRST TO ADOPT ALTERNATIVE OWNERSHIP MODELS

Target consumers most likely to be the early adopters of alternative ownership models

CAR SUBSCRIPTION WILL BE THE LEADER FOR ALTERNATIVE OWNERSHIP MODELS

Consider a car subscription platform as a first step into the alternative ownership space



Survey Definitions of Services

Ride-sharing/hailing

Services where you pay for rides on a *per trip* basis (e.g., Uber, Lyft). You can request a ride in a vehicle on demand using an app on a smartphone and a driver will pick you up and take you to your destination. This does *not* include traditional taxi or limo companies; your driver typically owns his/her own vehicle.

Car-sharing

Service where you pay **by the hour** (some by minute or day) to use a car (some services also require a membership fee to access the service). Examples include **Zipcar**, **Getaround**, **and Car2Go**. Pick-up/return of the vehicle is self-service from designated lots, and each person who uses it keeps it clean and refills the tank with a provided gas card. This is different than a traditional car rental.

Car Subscription

This service gives you possession of a vehicle (similar to leasing), and also offers the ability to **swap your vehicle by the week/month** for something different. Users pay a one-time membership fee and a subscription payment for their vehicle access (either weekly or monthly) that includes all expenses except gas (such as insurance, maintenance, roadside assistance). Examples include BOOK by Cadillac, Care by Volvo, Clutch, and Flexdrive.