Driving Shared + Electric Mobility

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By 2050
Up to 80% climate emissions reduction
Up to 90% vehicle population reduction

Experts: future of mobility is **shared, electric** and **automated**

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**McKinsey & Company**

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**Goldman Sachs**

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**Roadkill**
Uber Mobility globally

600+ Cities
78 Countries
300 Airports

3M Active drivers
5B+ Rides completed
15M Rides per day
As of 2017, Uber’s network...
600 cities across 78 countries
~15M shared trips per day
20% riders select POOL (in nearly 40 cities where available)

Carpooling peaked in U.S. peaked in 1970 at ~ 20% of commuter trips

Our goal: every journey a shared one
Shifting toward shared modes

Ridesharing companies ("transportation network companies") can support behavioural shift away from private vehicle usage & compliment other shared & low-impact modes

53 PERCENT OF TRIPS IN SAN FRANCISCO IN FISCAL YEAR 2015-16 WERE NOT IN PRIVATE AUTOS

SOURCE: City & County of San Francisco (accessed Aug 2017)
Supporting road pricing

- We support broad-based road pricing (across all vehicles) because a marketplace for efficiency is an exciting prospect for ridesharing companies.
- Focus on vehicle occupancy and efficient use of road infrastructure.
- Study estimates Toronto could save $9B by getting car occupancy from 1.08 passengers/car to 1.20 passengers/car.

SOURCE: CPCS (Jan 2017)
Ridesharing helps EV adoption,
EVs help ridesharing expansion

Electric vehicles <1% global new car sales after decades of government spending … today, a hundred EVs on Uber’s network can serve 100,000’s of riders

In 2017, on Uber’s network in the US & Europe:
thousands of EV drivers delivered millions of rides
Learning about shared + electric mobility

EV Pilots & Demonstrations

Past Efforts

Johannesburg
Cape Town
Boston
Chicago
Mexico City
New York City
Prague
Kazan
Beijing
Wuhan
Hong Kong

Active, Publicly Announced

Lisbon
Porto
Paris
London
Madrid
Portland
Singapore
Amsterdam
Dubai
Zurich
Salt Lake City
London, UK

Uber launches first fully electric car fleet in bid to cut air pollution

By journalist

Ultra fast-moving electric cars in a bid to show it can be greener than traditional black cabs.

Around 50 battery-powered cars will be working on the capital's streets by the end of September, the app-based ride service announced.

They will be monitored in a three-month study by the Energy Saving Trust to see whether a full-scale fleet of electric vehicles is feasible in London, it will look at driving patterns, the number of charging points and cost.

The move comes a new front in the company's battles against taxi drivers and Transport for London (TfL), who have cited pollution fears as a reason to limit the Uber-fuelled surge in private hire vehicles in the capital.

It says the number of private hire vehicles has grown from 90,000 in April 2010 to about 100,000.

"We are determined to use technology to help tackle the challenge of air pollution in London and across the UK," said Uber's UK boss Jo Bertram.

"The firm struck a deal with car manufacturers BMW and Nissan to provide cars in London and at least one other UK city at a reduced rate. Passengers will not be allowed to stipulate whether they want an electric car or not, but if electric vehicles take off the option may be added later.

"Green campaigns have welcomed the scheme. Adam Serwotka, a lawyer at ClientEarth, said: "This is a step in the right direction. Tfl and the private hire industry need to come to the table and dialogue with the UK's most polluted towns and cities."

"Poppy Welch, of Go Ultra Low, said: "This is a crucial step in our work to mesh companies of all sizes into electric vehicle growth."

"This is the first thing the fleet of electric cars but it is the biggest. Uber has 10 in 10 of journeys are already in low emi-
CASE STUDY - London EV Trial (Sept - Jan 2017)

CITY NEEDS / POLICY THREATS
● London imposing Ultra Low Emission Zone (ULEZ)
● Regulations begin 2018 → emissions requirements ratchet up until all newly licensed PHV are “zero emission capable” from 2023
● Concern over conflation of Congestion/Air Quality

DESIGN
● Partner with Energy Saving Trust (NGO / think tank)
● >60 fully EVs: Nissan LEAFs, BYD E6s & Tesla
● EVs fully incorporated within uberX
● Affordable vehicle rental negotiated, incentives paid direct to partners, deals agreed with charging companies

RESULTS
● >250k miles driven
● >40,000 Riders in 4 months
● Nearly 50% partners returned EVs, many within 3 days
● 1 Baby...

KEY INSIGHTS
● Riders enjoyed experience - ratings stable, good feedback
● Potential for platform as EV multiplier
● >50% of partners wanted to work at least 10 hours more per week than was possible due to fare-time lost due to EV charging needs
● Vehicles heavily reliant on on-street, fast charging (currently limited)
Automated mobility promises dramatic efficiency gains in the future … so we’re real-world testing today

Automated UberX: Pittsburgh & Phoenix
● Over 2M miles
● Over 30,000 riders

Automated heavy duty trucks on CA roads
“Started driving with Uber. Wanted to save on gas. Turned in my SUV for an electric car. Put solar panels on our roof and charge the car overnight. Now my costs are virtually zero!”

Heard from a casual rideshare driver
San Diego, 2017
Thank you

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APPENDIX

Additional Slides with Further Detail on Select Topics
Sharing by design
Uber’s business works best when we ENABLE MORE PEOPLE TO MOVE WITH...

FEWER

...VEHICLES & TRIPS
One driver on Uber’s network can serve as many as 10 or more riders per day.

2 strangers in 1 car is how we began...

...3 or more is POOL & other innovations

A driver on Uber’s network knows every dollar saved on fuel is a dollar in their pocket.
Rider-driver GPS matching
“Forward dispatch”
Trip swap technology
Pre- & rematch technology

POOL
UberXL
Split-fare
Multi-destination trips

Smart routing
Aggressive driving notifications
Vehicle-to-trip right-sizing
Driver vehicle solutions support
EV & hybrid focused initiatives
Rider Trips
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Vehicle

Rider Miles
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Vehicle Miles

Fuel
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Vehicle Mile

impact
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passenger-mile

FULLER
MORE EFFICIENT
BY DESIGN
A mobility system based on individual private car use is incredibly inefficient.

- 1.2B cars globally...
- ...idle 95% of time...
- ...~1 person each when moving...
- ...eating >50% global oil

Not to mention, 135M motorcycles

3.4 - 8 parking spaces per car, in typical US cities

>60% of car miles in US by the driver alone

Global fuel economy progress slowing as car sales erode gains.
A mobility system based on private cars produces **unsustainable consequences**

“Air pollution is single greatest environmental health risk”

--- World Health Organization

~3.7 million premature deaths globally from outdoor air pollution exposure

In cities, cars cause up to 75% of local air pollution
A mobility system based on private cars produces **unsustainable consequences**

*Transport’s carbon footprint…*

... greater than 20% globally

... up to 40% in developed regions like Europe or CA

... >50% in developed cities

... #1 or #2 largest of all sectors and fastest rising
Continuing a mobility system based on private cars poses fundamental growth challenges

2 billion+ cars globally (if business as usual) by 2050

Next 1 billion to be mostly absorbed by emerging markets

Commuting time inversely related to potential for escaping poverty (Harvard)

Average US household spends $9 - 10k per year on car ownership
Cities and regions spend lots of time and money dealing with these challenges.

“Cities taking matters into their own Hands…”

The mayors of Paris, Madrid, Athens and Mexico City plan to take diesel cars and vans off their roads by 2025.

“Pittsburgh, 50 other North American cities join Chicago Climate Charter”

Mr. Peduto and hundreds of other U.S. mayors pledged in June [2017] that they would continue to follow the Paris climate agreement inked in 2015.

“Gov. Brown is America’s leader on climate change”

Brown determined to reduce petroleum use in vehicles by as much as 50% in the next 15 years. Worthy, aggressive goals ... but the path to achieving them is still strewn with obstacles.
Uber

Point-to-point, on demand mobility

Mobile tech enabled

Network of mobility providers and consumers

Two-way, flexible participation
New solutions are emerging to drive a more sustainable future of mobility

New mobility solution themes

**BEHAVIORAL SHIFT**
...away from solo, private car trips to shared journeys

**VEHICLE GREENING**
...via turnover to cleaner fuels and higher efficiency technologies

**COMPLEMENTARITY**
...with public transit and multi-modal mobility on more sustainable modes

**INFRASTRUCTURE TRANSFORMATION**
...to more human-centric designs as demand from private cars shrinks
Transit Partnerships

Partnerships with transit agencies across the country help us learn what works for improving first mile / last mile logistics.

**DALLAS, TX:** DART
API integration with the DART app - call a ride after buying a ticket

**ATLANTA, GA:** MARTA
Free first rides to/from MARTA stations

**BOSTON, MA:** MBTA PARATRANSIT
$13 subsidy from the MBTA for eligible paratransit riders

**SAN FRANCISCO, CA:** CALTRAIN
Partnership promoting uberPOOL to/from Caltrain during Super Bowl 50

**LOS ANGELES, CA:** METRO
Exclusive partnership promoting uberPOOL to/from new stations

**SAN DIEGO, CA:** MTS
$5 off all uberPOOL trips to/from stations

**MINNEAPOLIS, MN:** METRO TRANSIT
City-sponsored free rides when needed most

**ATLANTA, GA:** MARTA
Free first rides to/from MARTA stations

**TAMPA BAY, FL:** PINELLAS SUNCOAST TRANSIT
$3 subsidies for Uber rides during outages, discounts all trips for low-income riders.

**CENTRAL FL:** CITY PLANNING
5 Cities subsidizing 20%-25% off rides.
Moving to parking minimums

Uber partnerships with real estate developers to encourage & enable car free lifestyles

SOURCES: SFGate (May 2016); Independent (May 2017)
Re-imagining/-claiming space(s)

Developers building adaptive-use parking garages for a time when ride-sharing services whittle down car ownership, to eventually serve other uses

**SOURCES:** Gensler / AvalonBay Communities 
Los Angeles, CA

**Gensler / LA Times** (April 2017)
Figure 1: Capacity Utilization Rate (Percent of Miles Driven with a Passenger) for Taxi and UberX Drivers in Los Angeles and Seattle

Source: Uber Technologies, Inc.; LA DOT; City of Seattle, Regulatory Compliance and Consumer Protection Division; Authors’ calculations.
Notes: LA and Seattle are 2013-14 and Uber is the 12 months ending December 1, 2015; see text for further details.
MOVING MORE PEOPLE WITH FULLER VEHICLES

PMT / VMT FROM UBER TRIPS, US-BASED CITY

Vehicle Capacity Utilization vs. Time
MOVING MORE PEOPLE MORE EFFICIENTLY

Total annual cost (2012 USD)

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US consumer average ~ 13.5k
US taxis > 30k, 70k or greater (in cities like NYC)

COLLABORATIONS ACROSS MOBILITY ECOSYSTEM CAN ENABLE NET IMPACT

- Riders
- Policy-makers
- Cities
- Real Estate Creators & Owners
- TNCs
- Infrastructure Providers
- Drivers
- Vehicle Financing Providers
- OEMs
- Energy Providers
1. Uber seeks to build a more **sustainable future of mobility** by moving more people needing on-demand services with fewer, fuller, and more efficient vehicle trips. Supporting plug-in electric vehicle technologies is one way we can drive more efficient vehicle trips.

2. We’re excited about the potential for electric vehicles (EVs) to bring many **benefits** to drivers, riders and cities.

3. Ridesharing platforms can offer **new, market-driven tools** to help advance EV adoption.

4. While we’re optimistic about the future of EVs in ridesharing applications, we are **clear-eyed about very real business obstacles** large scale adoption faces.

5. We **want to collaborate** with others to better understand the unique opportunities and challenges that ridesharing platforms present for EV adoption.
CASE STUDY: LONDON EV PILOT RESULTS

PRE-LAUNCH DRIVER SURVEY

VEHICLE STOPS HEAT MAP

40,000 riders served by ~60 EVs in 4 months

Infrastructure & range challenges remain: drivers reported wanting to drive an additional 10+ hours/week

EV PILOTS INCLUDE THREE PRIMARY WORK STREAMS

Reduce barriers for key driver segments to accessing EVs to use

Reduce friction in using EVs while driving on platform

Share information, insights, and learnings publicly
Automated mobility promises **dramatic efficiency gains** in the future.