The future of Self-driving cars

Robin Chase, Keynote Address
Automated Vehicles Are Here

This is not science fiction, this is not 20 years away. AVs are happening now.
In 7 to 8 years, fifty percent of cars sold will be autonomous.
TESLA CEO Elon Musk (2016)

By 2025, private car ownership will all-but end in major U.S. cities.
LYFT PRESIDENT John Zimmer (September 2016)

There’s an urgency to our mission about being part of the future. This is not a side project. This is existential for us.
UBER CEO Travis Kalanick on deploying Autonomous UBERs in Pittsburgh (August 2016)
We're dedicated to putting autonomous vehicles on the road for millions of people, not just those who can afford luxury cars...this next decade is really going to be defined by the automation of the automobile.

FORD CEO, Mark Fields
Cheonggyecheon River Restoration in Seoul
With AVs, We Have Two Paths

Heaven is "Let’s Be Proactive"

ICEs ➔ AVs

Hell is "Let’s Wait & See"
https://www.youtube.com/watch?v=DeUE4kHRpEk or http://bit.ly/2arVxBh
Autonomous is the battleground. Not all AVs are alike!

**AVs**
We swap out personal ICE vehicles for personal AVs
maybe electric, maybe not

**FAVES**
Fleets of AVs that are Electric & Shared
Every month in 2016 has been the hottest on record

The infrastructure we build over the next 4 years will determine the fate of humanity.

- Christiana Figueres
We are getting a chance to do over our city streets!
From TODAY’s car to AV – 5 yr transition
Unchanged infrastructure, vastly fewer jobs

Year 1: 100 vehicle pilot in mid-size city (students/tourists)

Years 2-5: *Cheaper & more convenient than status quo*. Expands to 1000 vehicle fleet. First 2\textsuperscript{nd} vehicles sold. Then primary.

Years 3-5: Other cities need to adopt to be competitive/modern, innovative.

Urban & trucking →
Suburban → ?
Will people actually share rides?
Doing so now

30% of all Lyft rides in the US are now shared trips.
50% of all Uber & Lyft rides in the San Francisco are now shared trips.
If we don’t act now, We will get

AVs replace personal cars

- INCREASED CONGESTION 50%? ZOMBIE CARS
  - $Driving < $Parking
  - $Driving < $Retail rent

- RAPID JOB LOSS
  - no more drivers

- PLUMMETING INFRASTRUCTURE REVENUE
  - No gas taxes or parking fees & tickets

- INCREASED DIRTY ENERGY
  - Cars charged during nighttime could be dirtiest (depending on region)

Reduce 36k traffic deaths (& injury)
The vision & potential

FAVES
Need only 10% of today’s fleet

Point-to-point travel for
Price of bus fare.
Access to Opportunity

Save $4k per household,
More local $$$

Repurpose Parking
ROWs for green, bike, ped
Prime locations for affordable
housing, green space

Transition transport fossil fuels
into clean renewables

Reduce 36k traffic
deaths (& injury)
To accomplish this big vision – 10% OF CURRENT VEHICLES --
We need to prepare & deliver Policies that encourage it.
Representing the Interests of cities & those who live/work in them

**LAND USE & URBAN PLANNING**
Planning & Criteria for New Space

**TRANSPORT INFRASTRUCTURE REVS**
No gas tax, parking, tickets, 1/10\(^{th}\) tolls
New: fuel type, weight, distance, congestion, occupancy

**TRANSPORT**
w/out ownership, integrated multimodal

**LABOR**
Rapid crash in sector jobs
Enable diversification today; plan for future

**ENERGY**
New grid load must be renewables

**DATA**
Open APIs, Privacy, Security
Transparency, Portability

**DEMAND**
Community organizing
The Solution Is a Multi-Sector Approach
A FUTURE PRIORITIZING PEOPLE
NOT CARS
Getting the incentives right

Vehicles on purchase ➔ category
• Fuel type
• Weight

Road user fees (based on category)
• Distance
• Congestion
• Zero Occupancy penalty

Retail
• Pickup/Dropoff
• VAT
GUIDING PRINCIPLES

Community
- Vision zero safety for all modes; Demand for FAVES not AVs. Environmental & social justice

Transport
- Multimodal: 50% physically active modes (walk/bike)
- FAVES not AVs: 50% shared vehicles (all sizes)

Land Use
- Repurpose ROW & parking for livable, equitable, sustainable communities. Create local criteria & priorities now.

Labor
- Build fund for inevitable driver job losses & registry; pilot UBI. Enable income diversification & protect this way of working.

Taxation
- New transport tax regime to shape incentives & cover costs. AVs model for automation, rethink labor & corporate taxation.

Energy & Climate
- Urban AVs must be Evs. Incremental demand on energy grid must be renewable

Data
- Standard Open APIs to support multimodal transport, shared trips, data commons. Protect privacy & security.
Legislation:

1. All passenger AVs must be clean fuel or EVs.

2. New addition to energy grid must be renewable.

3. Moratorium on personal AV ownership for 5 years from when FAVES first introduced.

4. FAVES must use standard open APIs to maximize likelihood of shared trips for passengers (and freight).
Time to Seize the Moment

What are we waiting for?