# Infrastructure is Destiny

Levittown, NY 1947-1951

Eisenhower Interstate Highway System 1956

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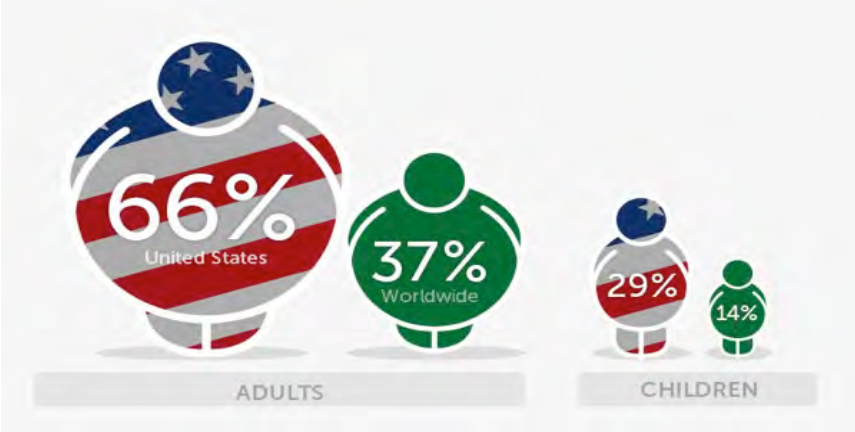

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10 day jam, Beijing 2010

**PERSONAL INFRASTRUCTURE**

**(**human nature)

We strongly favor convenience (EASY & CHEAP) economics

Over the last 100 years, we have specifically and proactively made personal cars *easy* and *cheap*.

## TAX & REGULATORY (ECONOMIC) INFRASTRUCTURE

We have underpriced:

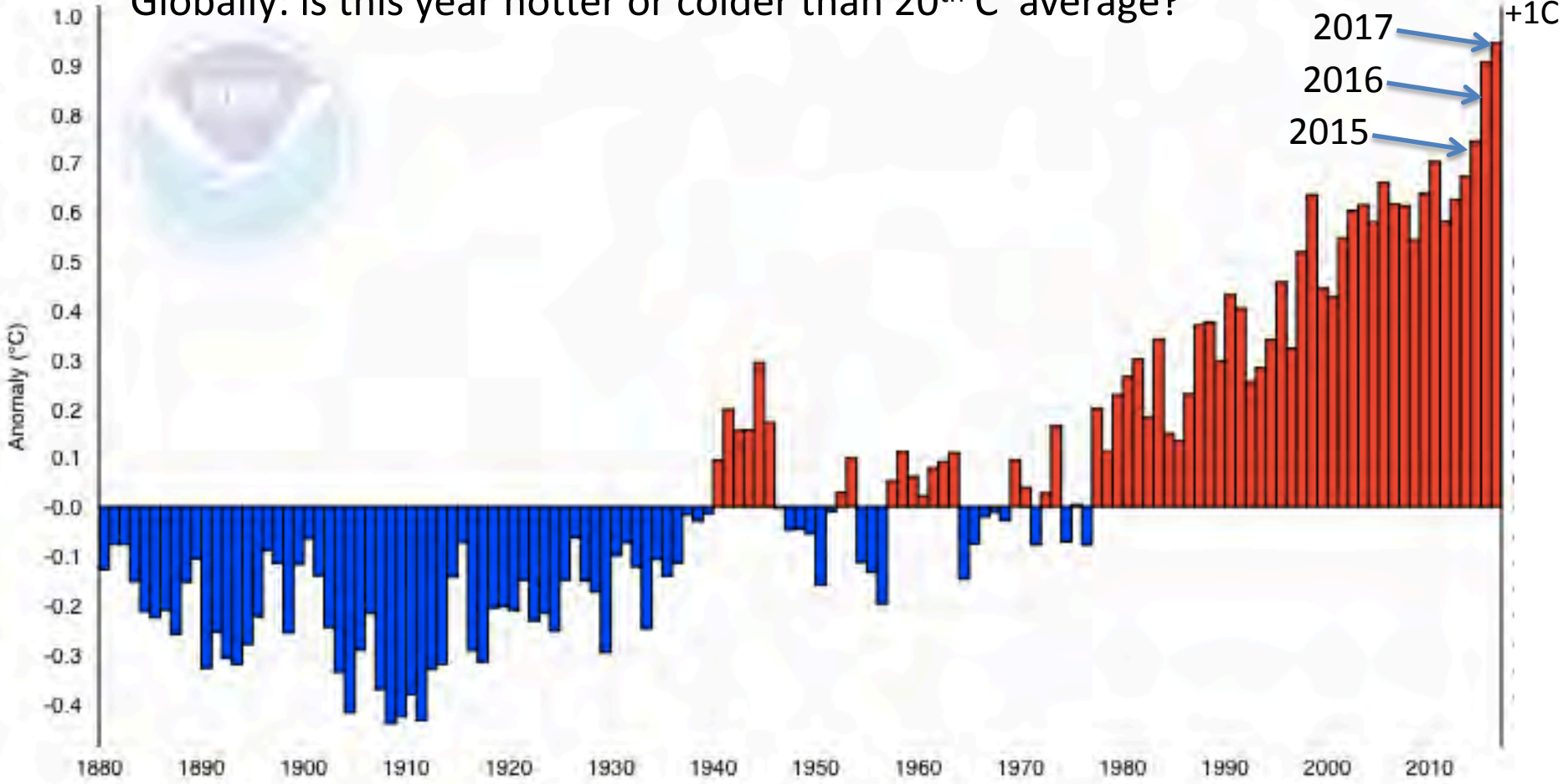
- Air pollution
- Congestion
- Curb access (in conditions of scarcity)
- User fees for transportation infrastructure investment (in some countries)

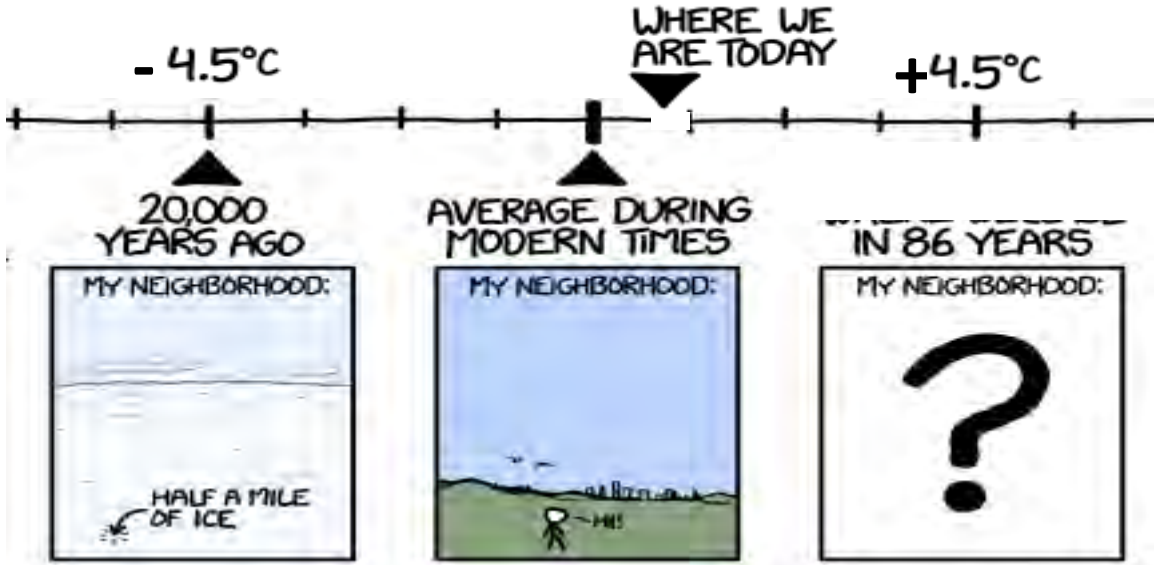
With market pricing misaligned with reality, we are **overconsuming car travel**.

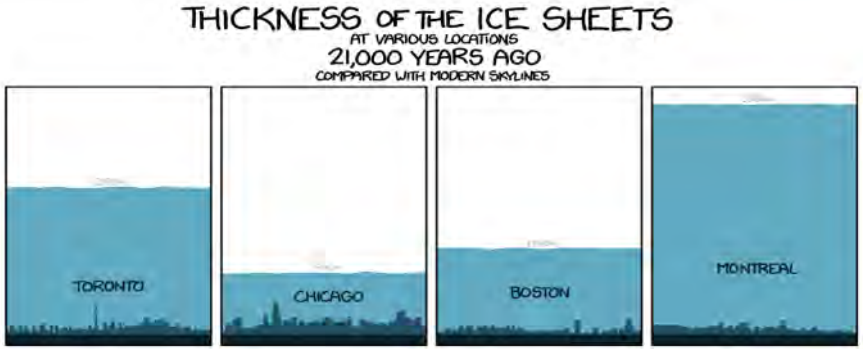
# Our planetary infrastructure

**Scientists predict +5-6C by 2100 under BAU**

Globally: is this year hotter or colder than 20th C average?



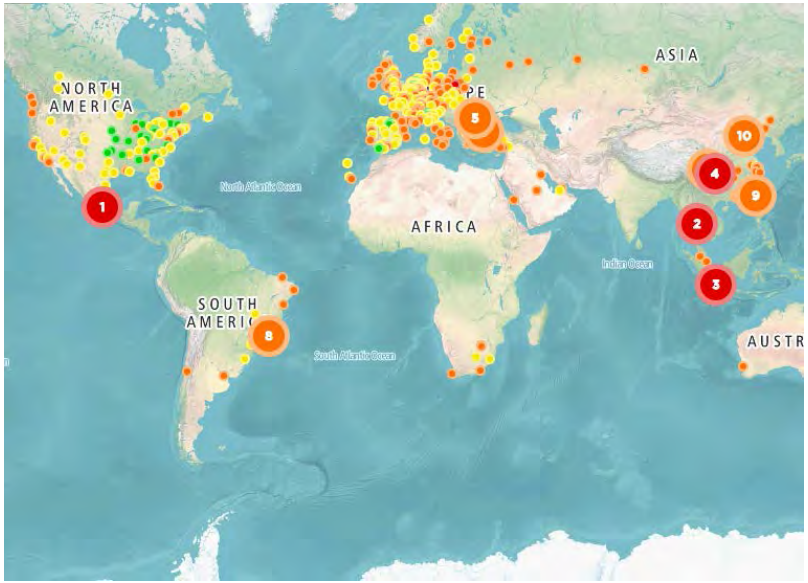



Credit: Randall Monroe

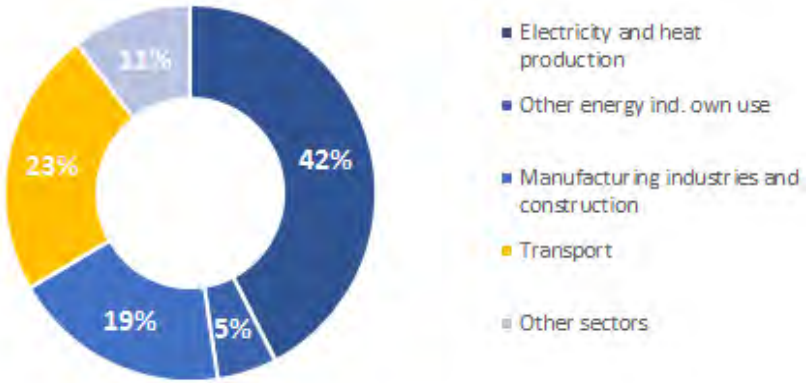
# *Underpriced,* Private vehicles as a solution have found their limits, clogging streets, arteries and the atmosphere

## World's Most Congested Cities




Source: TomTom Traffic Index (2016)

## Global $CO_2$ Emissions from Fuel Combustion by Sector




Source: Authors using data from IEA (2015)

# TECHNOLOGY

# Technology has made sharing easy

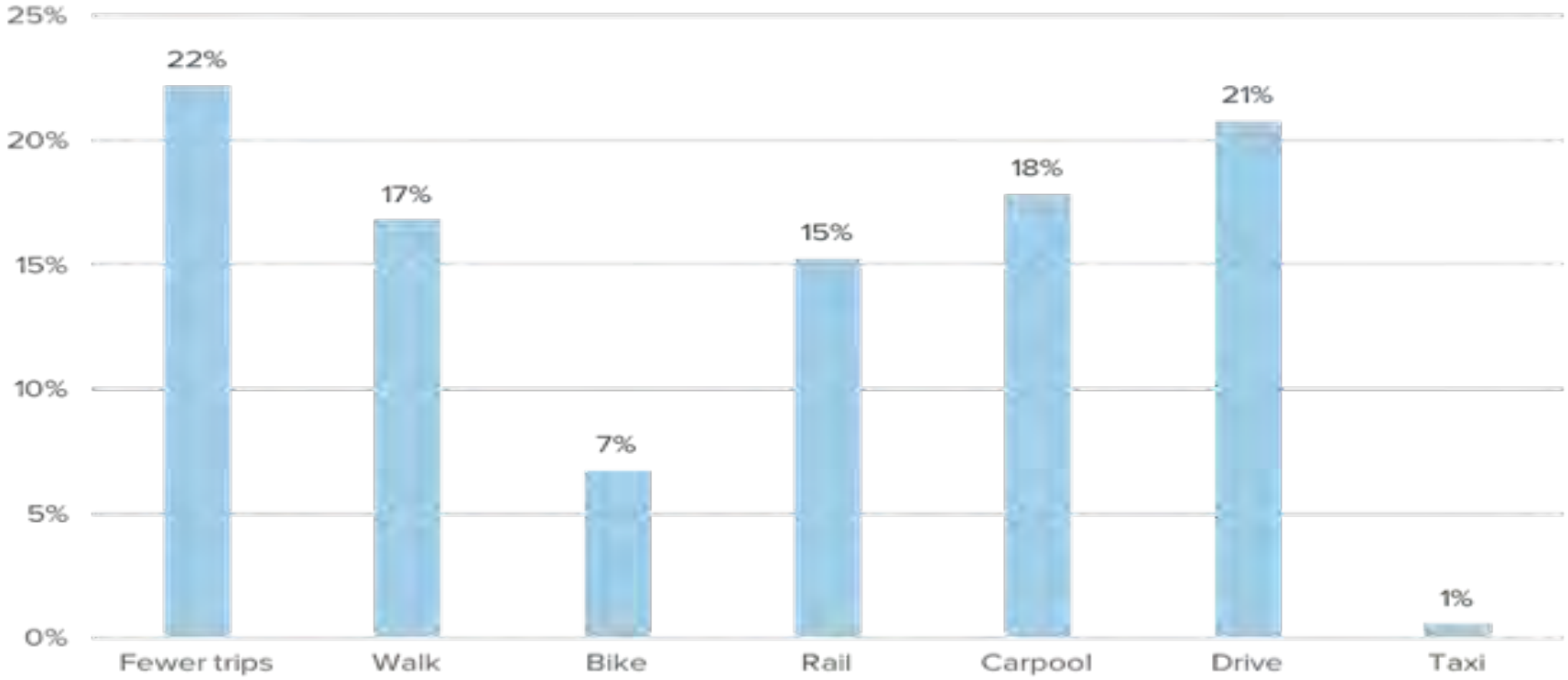
## Car Sharing


## Transit Apps


## E-Hailing and Ride-Sharing

What would you do if e-hailing/ridesharing did not exist?

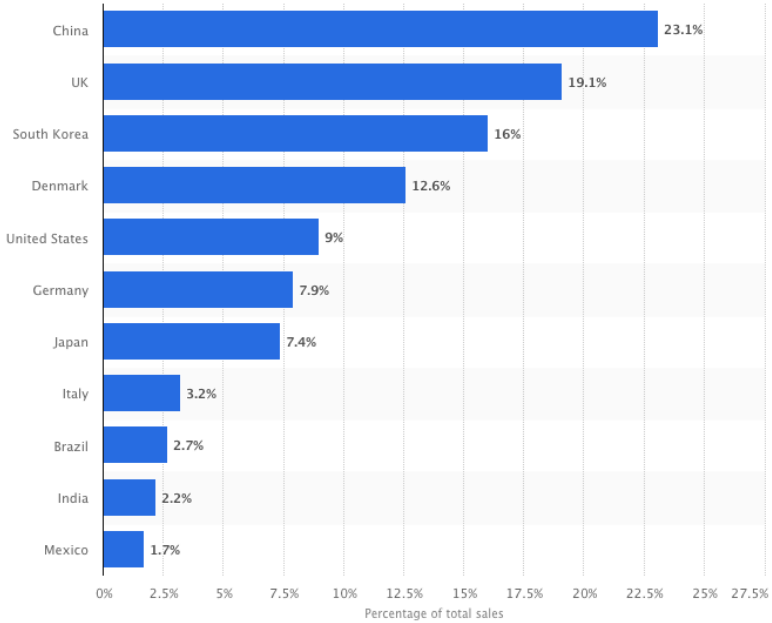
24% of people chose not to walk or bike



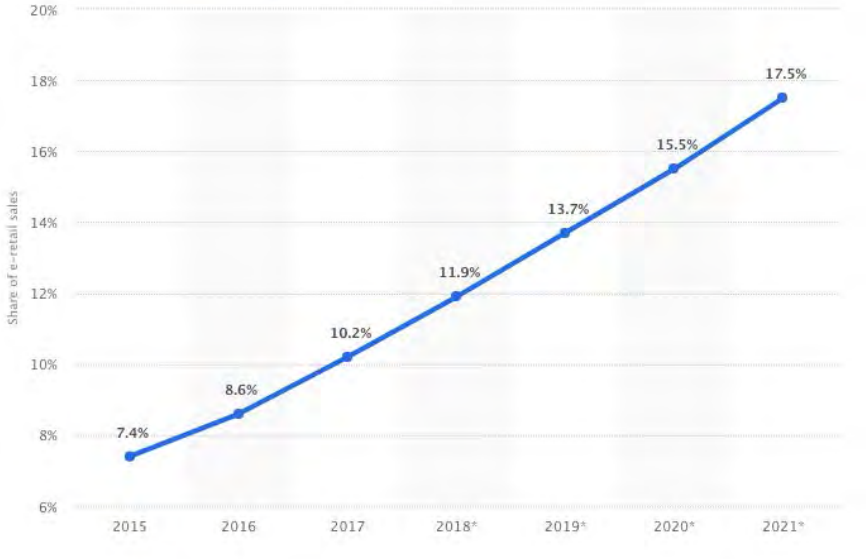

Regina Chertow 2017

# It has also made on-demand consumption and delivery easy and convenient with consequences for city retail, and street and curb use


## E-Commerce as a Percent of Retail Shopping

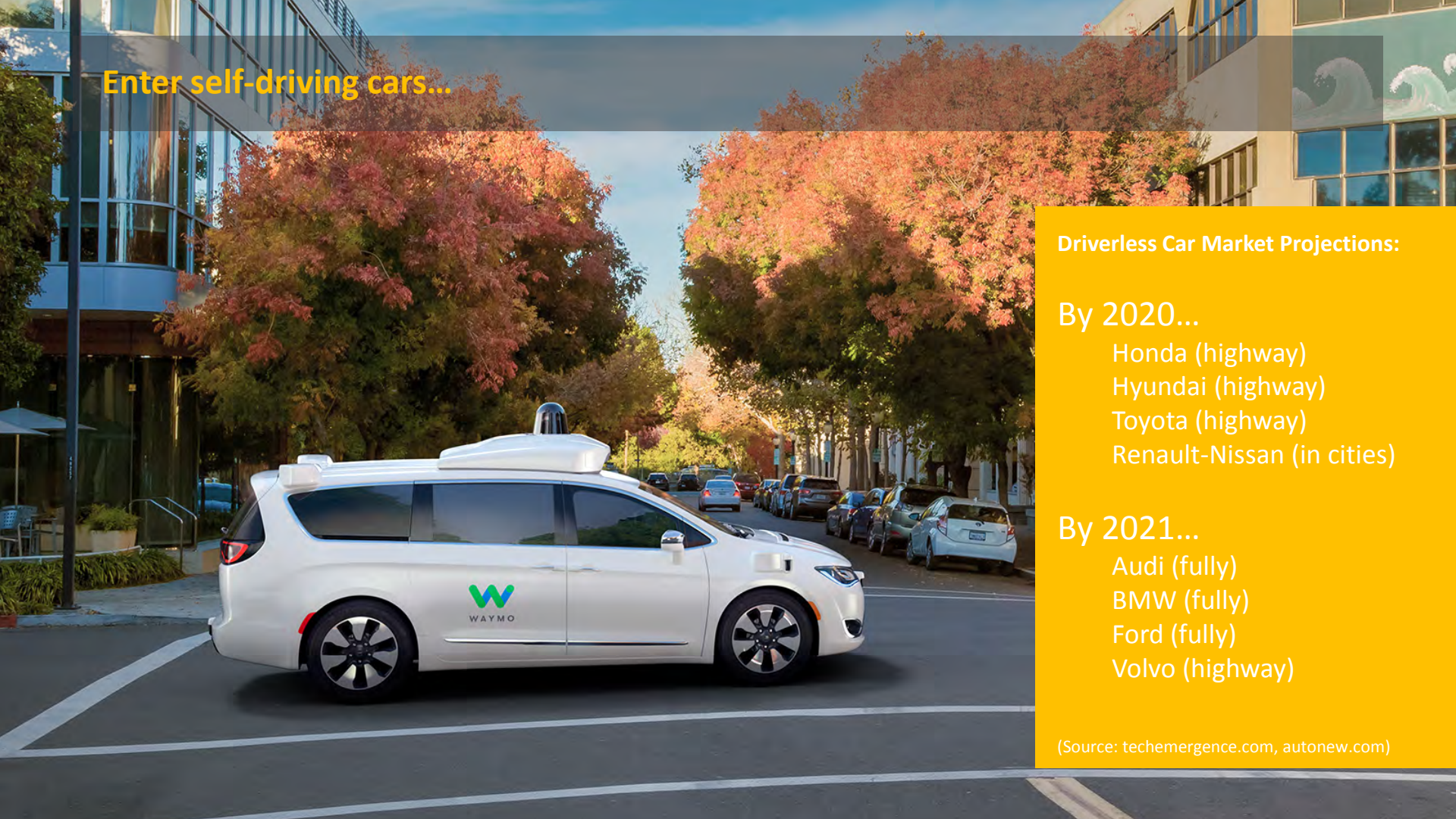



## Projections 2015-2021




Source: Statistica.com

# Enter self-driving cars…




**Driverless Car Market Projections:**

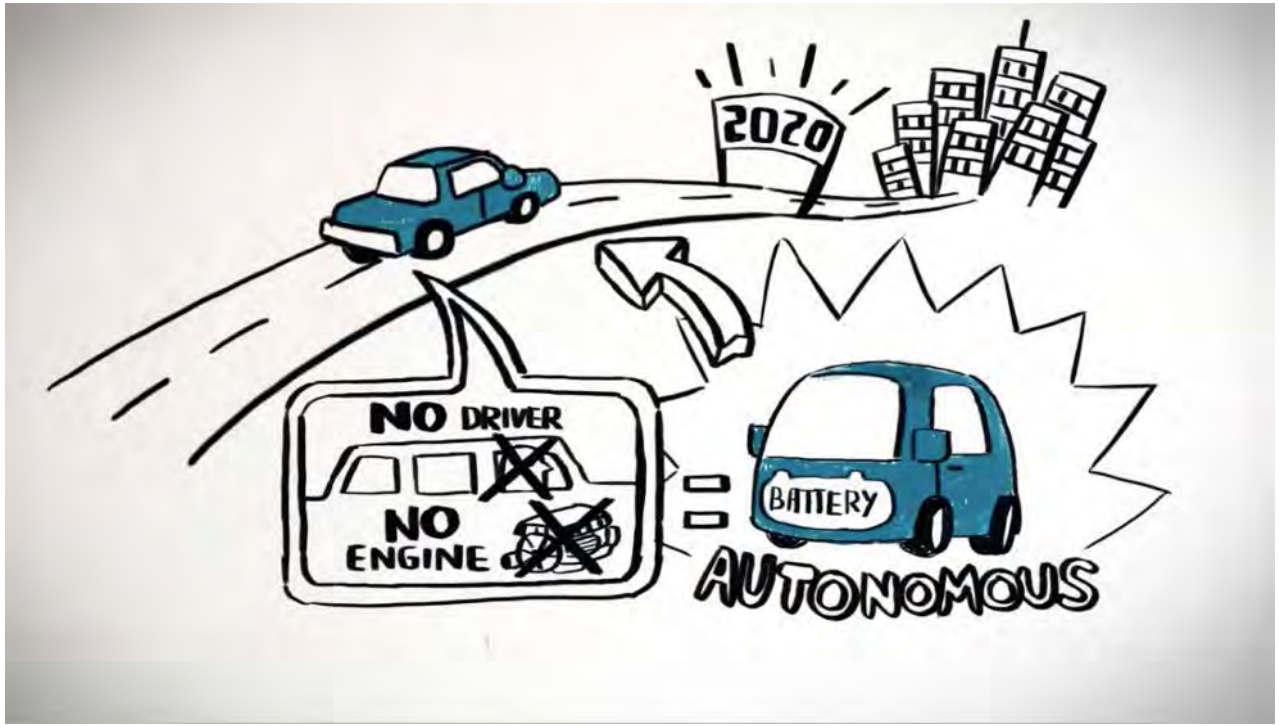
By 2020…

- Honda (highway)
- Hyundai (highway)
- Toyota (highway)
- Renault-Nissan (in cities)

By 2021…

- Audi (fully)
- BMW (fully)
- Ford (fully)
- Volvo (highway)

(Source: techemergence.com, autonew.com)




https://drive.google.com/file/d/1bHXTWhALz9RRAzyqSQEyP_YqydNw7icw/view?usp=sharing

**If we understand that people naturally choose easy & cheap,**
**& INFRASTRUCTURE IS DESTINY**
**& AVS ARE IMMINENT (AT LEAST IN CITIES)**

Over next 5 years
We need to specifically & pro-actively rework our
ECONOMIC, PHYSICAL & DATA INFRASTRUCTURE

active & shared transport

**EASY & CHEAP**

Today's personal car trips:

75% of trips SPACE INEFFICENT (single occupancy)
45% of trips BIKEABLE < 4 miles (6.5 kms)
15% of trips WALKABLE < 1.5 miles (2.5 kms)

BY FOCUSING ON & PRIORITIZING:

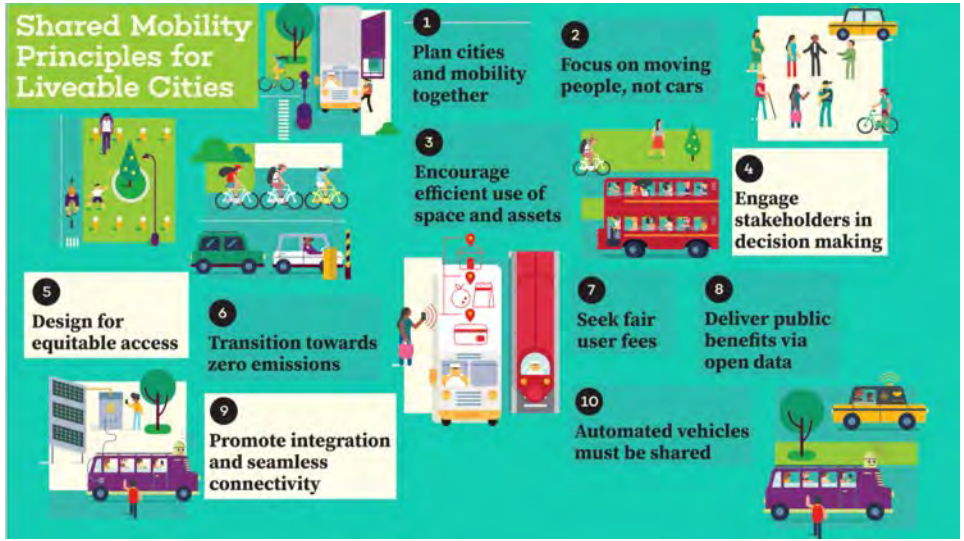
# active & shared transport

# EASY & CHEAP

- Healthier
- Greener
- Cheaper (Equitable)
- More accessible
- Space Efficient
- More livable

*The endorsers of the SMPs include:*

C40 CITIES · ICLEI Local Governments for Sustainability · ITDP Institute for Transportation & Development Policy · NRDC Natural Resources Defense Council · Rocky Mountain Institute · Shared-Use Mobility Center · Transportation for America · World Resources Institute Ross Center



**Shared Mobility Principles for Livable Cities**

Multimodal, integrated.

Vehicles are right-size, shared, zero emission.

1. Plan cities and mobility together
2. Focus on moving people, not cars
3. Encourage efficient use of space and assets
4. Engage stakeholders in decision making
5. Design for equitable access
6. Transition towards zero emissions
7. Seek fair user fees across all modes
8. Deliver public benefits via open data
9. Promote integration and seamless connectivity
10. Automated vehicles must be shared

**SharedMobilityPrinciples.org**

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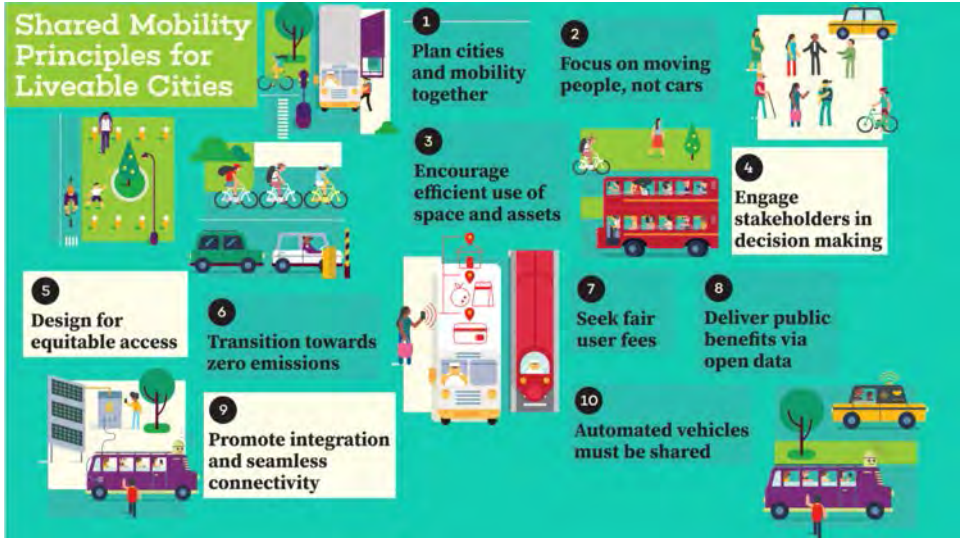
Transportation for America
World Resources Institute Ross Center
BlaBlaCar
bestmile
Citymapper
cityway
DiDi
Keolis
Lyft
motivate
MOIA
LimeBike
mobike
masabi
nextbus
ofo
New Flyer
ridlr
OLA
scoot
SnappCar
PROTERRA
Transit
transdev
THALES
splyt
STRATIM
UBER
Via

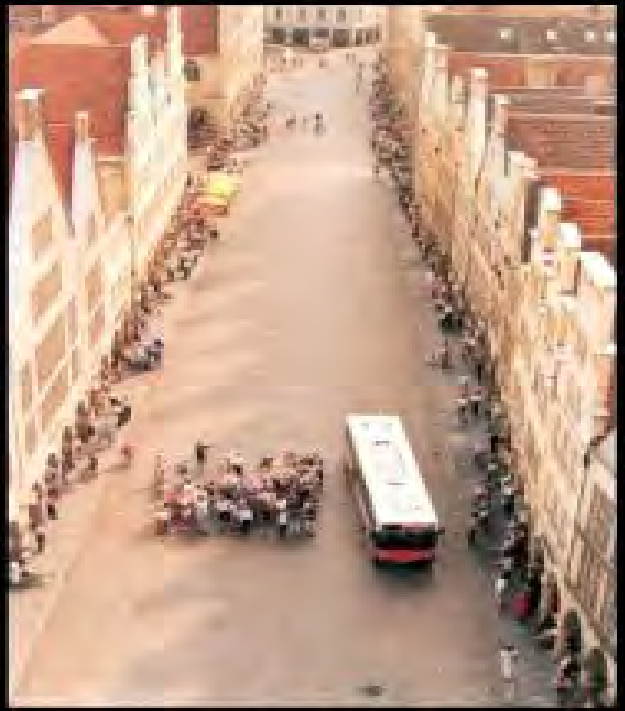


#2 Move people, not cars

#3 Encourage efficient use of space & assets

**space** required
to transport **60 people**

car



bus

bicycle

**space** required
to transport **60 people**

car


Here are 200 people in 177 cars

# #2 Move people, not cars

# #3 Encourage efficient use of space & assets


60 people/lane/block

40 people/lane/block

12 people/lane/block

# #7 Fair user fees across all modes

## TODAY:  Cities express ambivalence


#8 Public benefits
via open data

Interoperability btwn modes
Competition w/in modes

**<-Continuuuuummmmm->**

**SharedStreets.io**

**Today we have a unique and irreplaceable window of opportunity**

- provides a concrete and visible time horizon for action, with
- a built-in refreshment of our vehicle stock
- a host of focusing problems for all stakeholders

# A chance to DO-OVER Cities

# INFRASTRUCTURE IS DESTINY

## We have to get this transition right.


A new *collaborative* initiative to channel tech-driven disruptions in mobility to (re)build cities that are sustainable, just and livable