

Peripheral Access



TAKING  
COOPERATION  
FORWARD

📍 CITY INDUSTRY DIALOGUE - CONFERENCE: THE FUTURE OF PUBLIC TRANSPORT NOT ONLY IN CITIES - MODERN TECHNOLOGIES IN PUBLIC TRANSPORT

Brno, 5th of June 2019

💬 MaaS - the way from the integrated transport system to the integration of different transport modes

👤 Hungarian Museum of Technology and Transport / Dávid Vitézy

# WHO AM I?

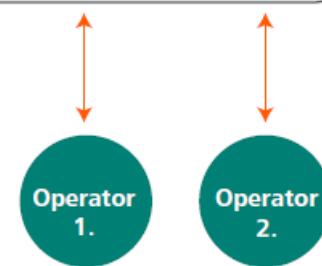
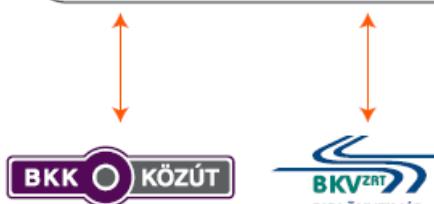
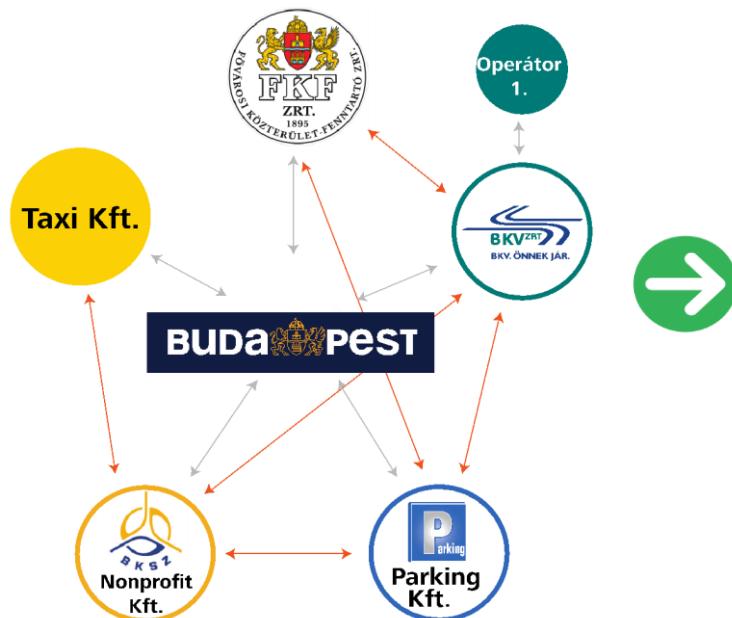
2005:



# TAKING COOPERATION FORWARD

# THE BKK MODEL

## 2010: BKK - integrated transport authority of Budapest



responsibility  
of provision

municipal  
transport  
competence  
centre

service  
providers,  
operators

## Integrated transport management: an example of the benefits



### Grand Boulevard in Budapest:

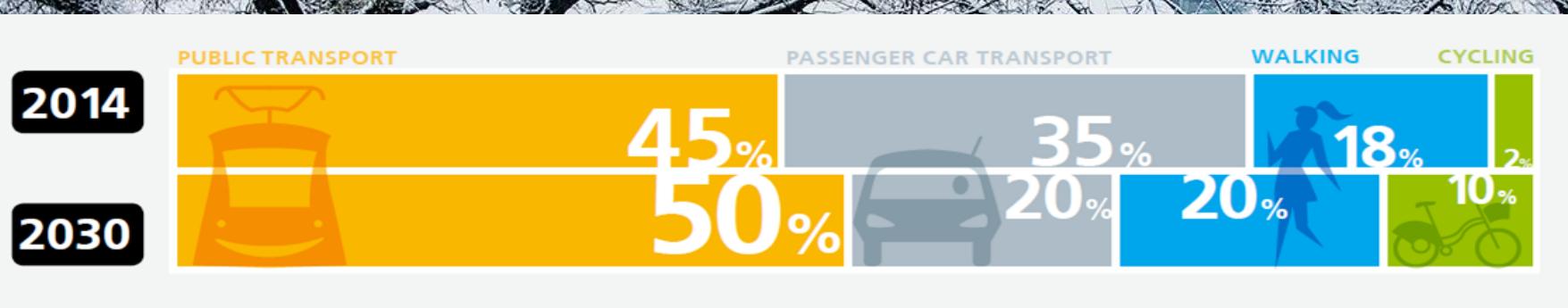
- 3000 passengers in cars (peak hour, direction)
- 9000 passengers on trams (peak hour, direction)

### Tram priority on the traffic light coordination:

- 7% increased capacity on the trams
- 2 minutes travel time decrease

## Transportation modes in Budapest - 65% sustainable in 2014, the goal is 80%

RIZSAVI TAMAS PHOTOGRAPHY  
WWW.FACEBOOK.COM/RIZSAVITAMAS  
WWW.RIZSAVI.COM



# PUBLIC SPACE RENEWAL



fotó: origo

Károly Boulevard, 2006

# PUBLIC SPACE RENEWAL



fotó: origo

Károly Boulevard, 2013

# PUBLIC SPACE RENEWAL



Madách Square, 2011

fotó: Google

# PUBLIC SPACE RENEWAL



fotó: Funzine

Madách Square, 2014

# CUSTOMER-FRIENDLY SERVICES

The PT operator BKV's sales in practice around 2010



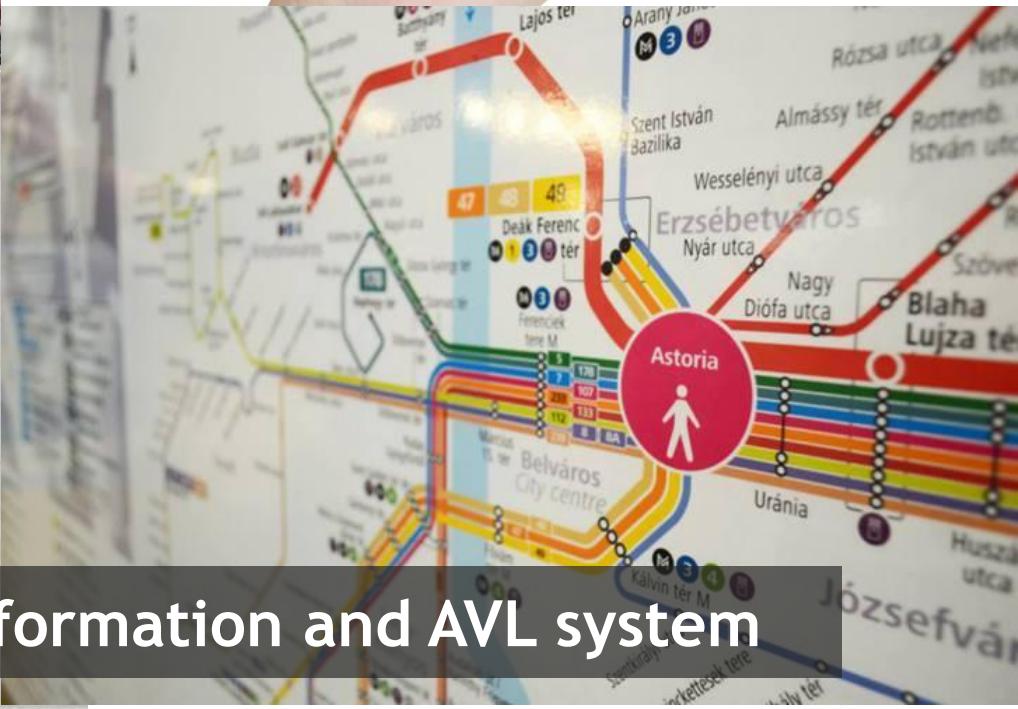
# OLD PRACTICES: BKV BEFORE 2010



# LACK OF CUSTOMER-FRIENDLY SERVICES



# CUSTOMER-FRIENDLY SERVICES



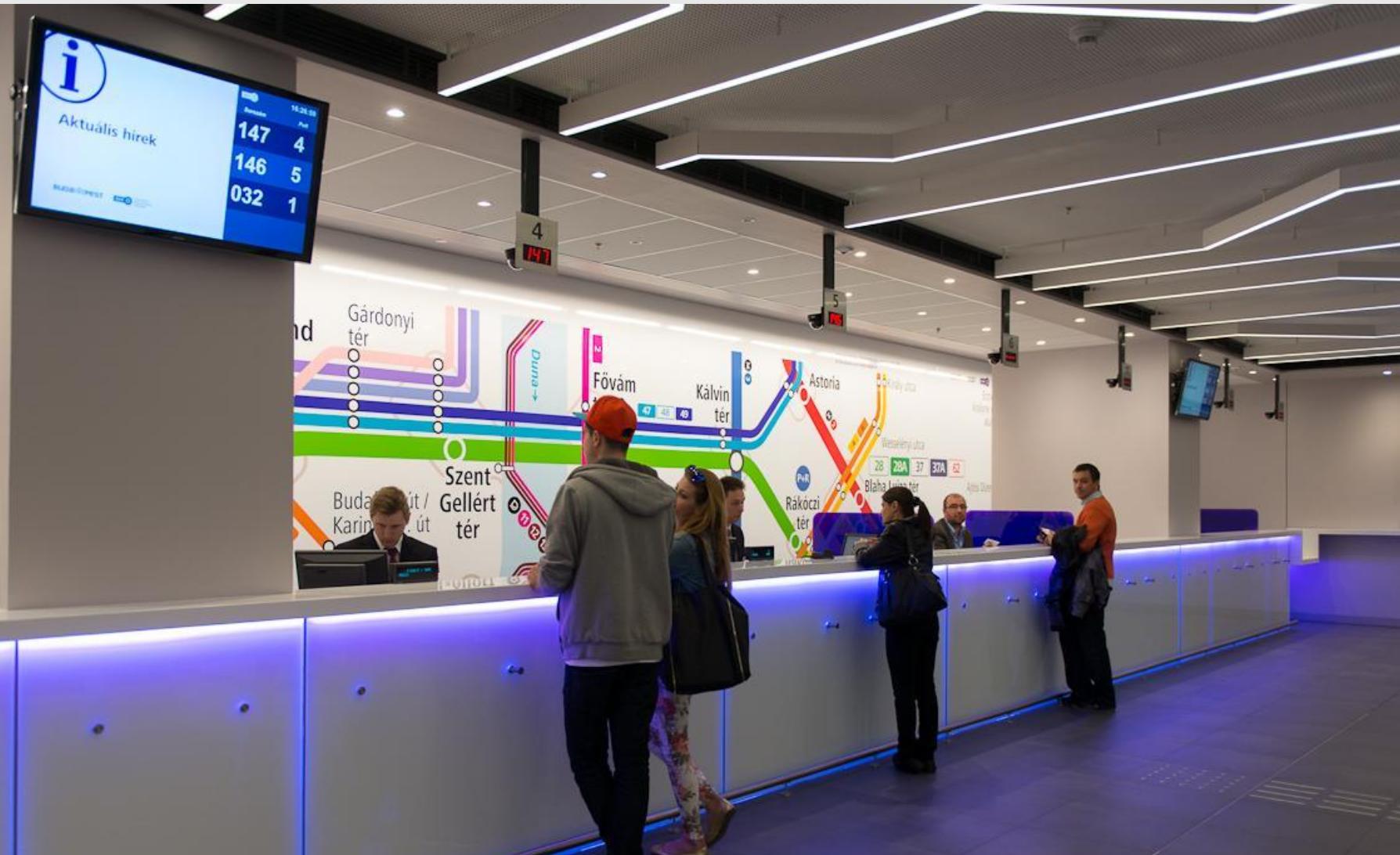
**FUTÁR - passenger information and AVL system**

# CUSTOMER-FRIENDLY SERVICES



320 new ticket vending machines

# CUSTOMER-FRIENDLY SERVICES



New BKK customer service centres

# DEVELOPMENT OF INFRASTRUCTURE

750 new low-floor buses



# DEVELOPMENT OF INFRASTRUCTURE



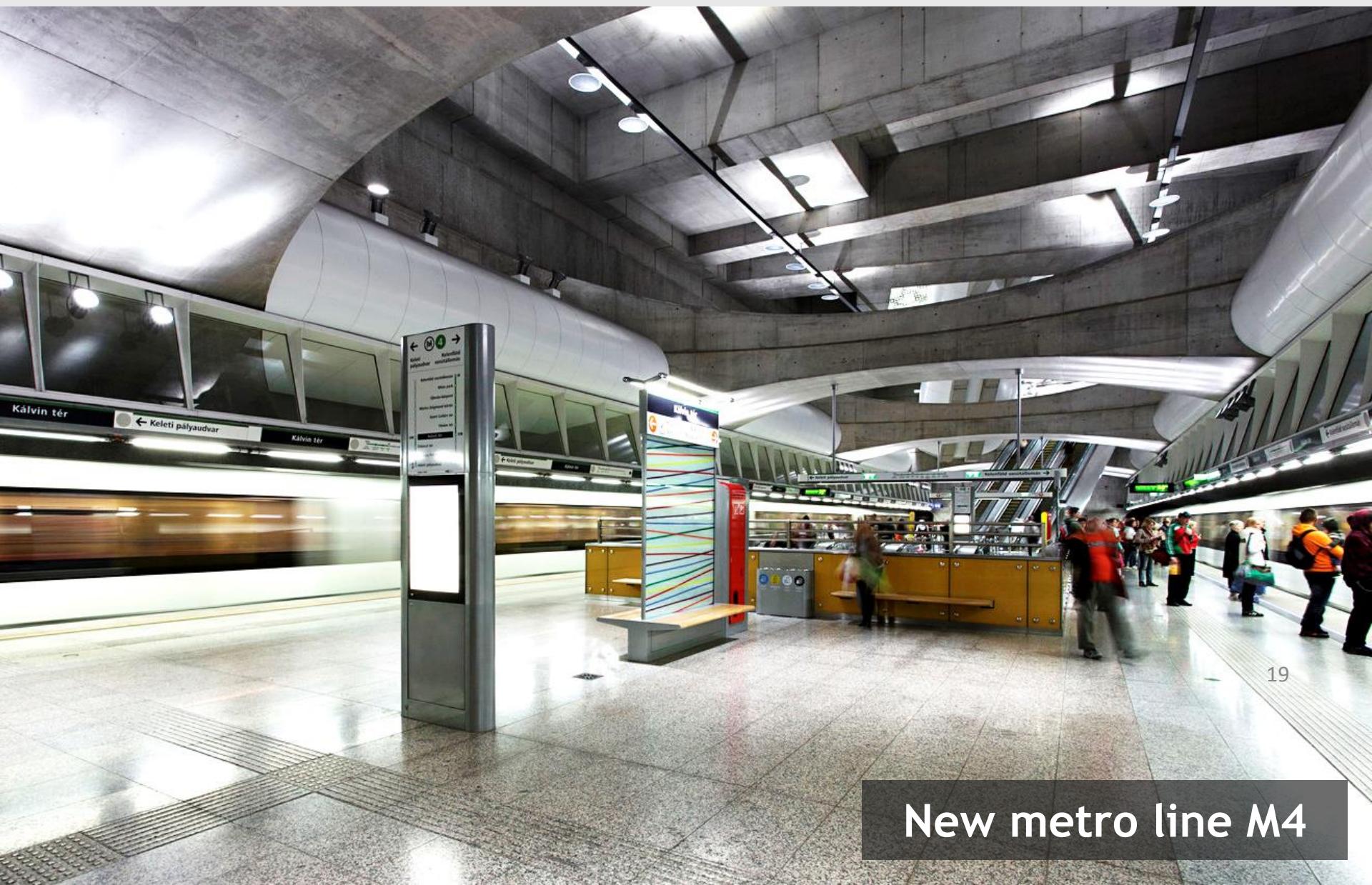
New trolleybuses

# DEVELOPMENT OF INFRASTRUCTURE



New low-floor trams

# DEVELOPMENT OF INFRASTRUCTURE



# DEVELOPMENT OF INFRASTRUCTURE



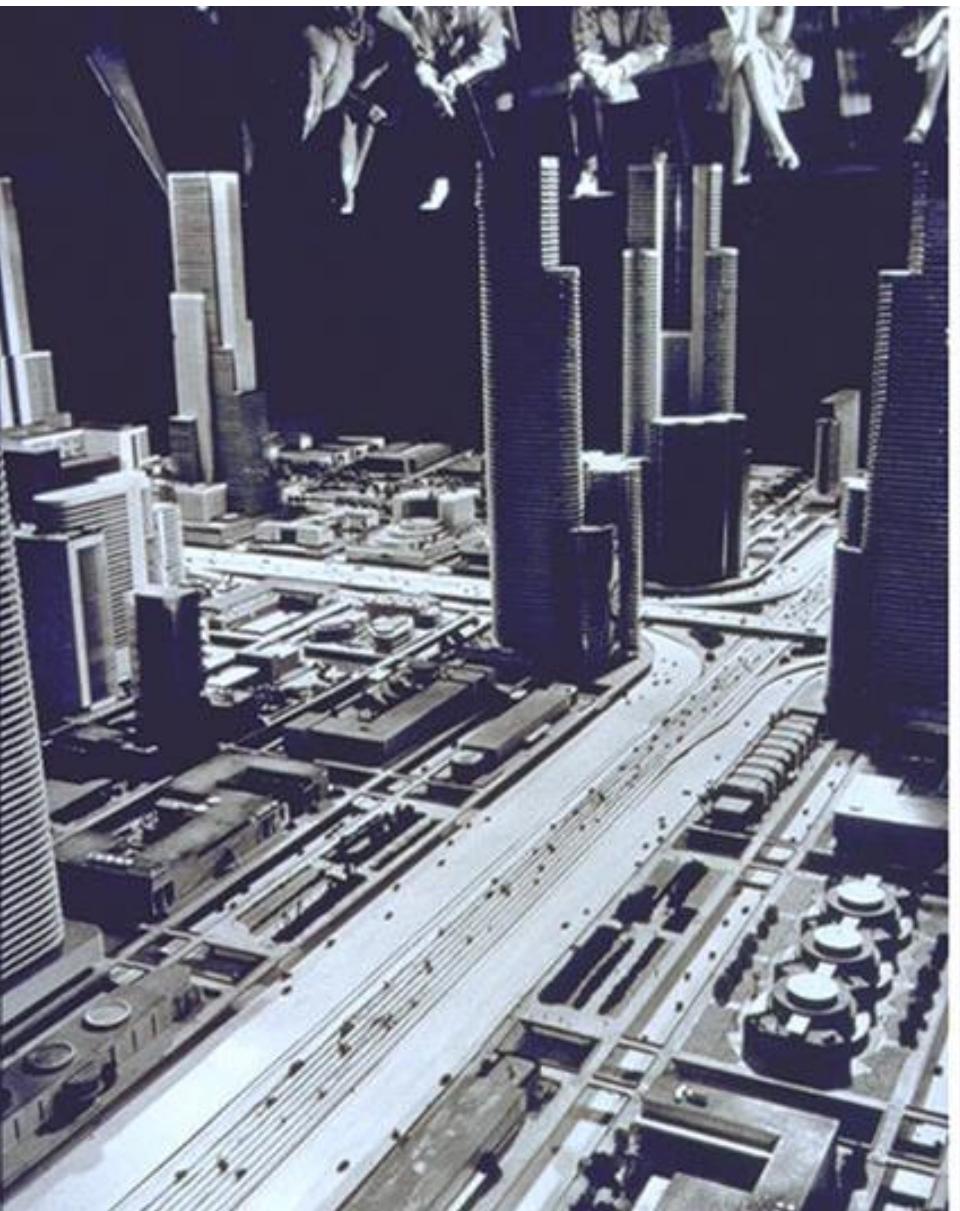
New tram connections

# RESULTS

growth of fare revenues by 20%



# FUTURAMA 1939 (NEW YORK EXPO)



# LOS ANGELES 1957



# A CITY BUILT AROUND CARS: WHERE THE OLD POLICIES WOULD LEAD US?



# A CITY BUILT AROUND CARS



35% of LA area is covered by roads,  
an additional 24% by parking lots

# DUBAI: FUTURAMA IN THE 21TH CENTURY



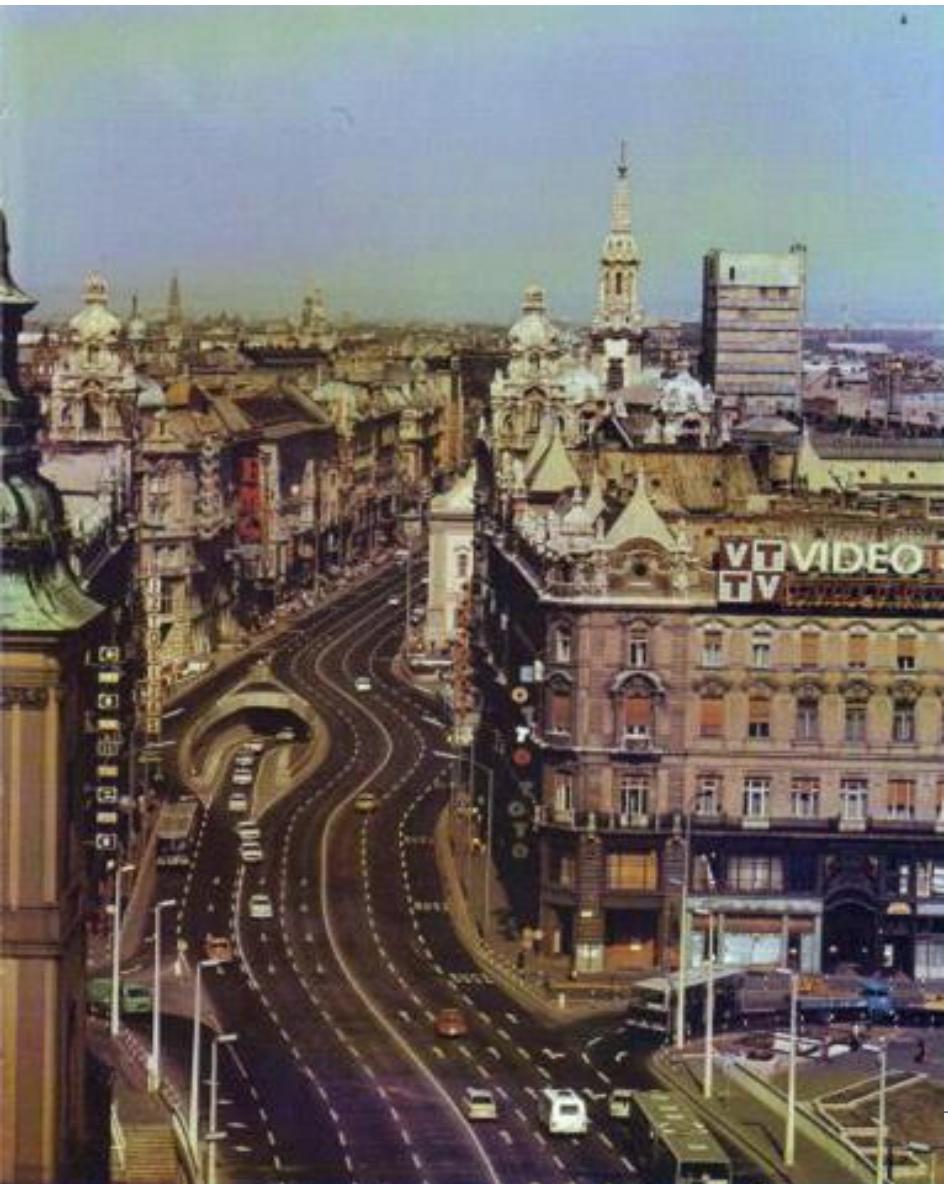
# BUDAPEST 1942



# BUDAPEST 1963 - 1972



# BUDAPEST 1980 - 2000



# BUDAPEST 2010



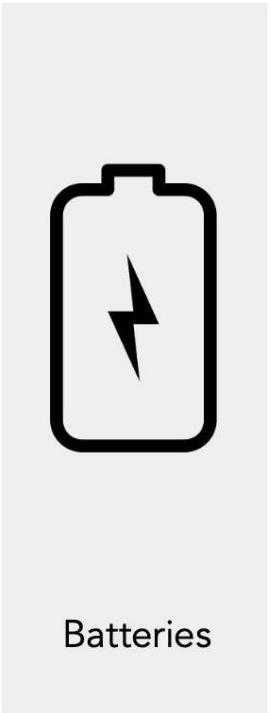
# SHARED SERVICES: A REVOLUTION IN PROGRESS



# SHARED SERVICES: A REVOLUTION IN PROGRESS



# ENABLED BY RAPIDLY FALLING COSTS IN...



Oliver Bruce (Twitter)

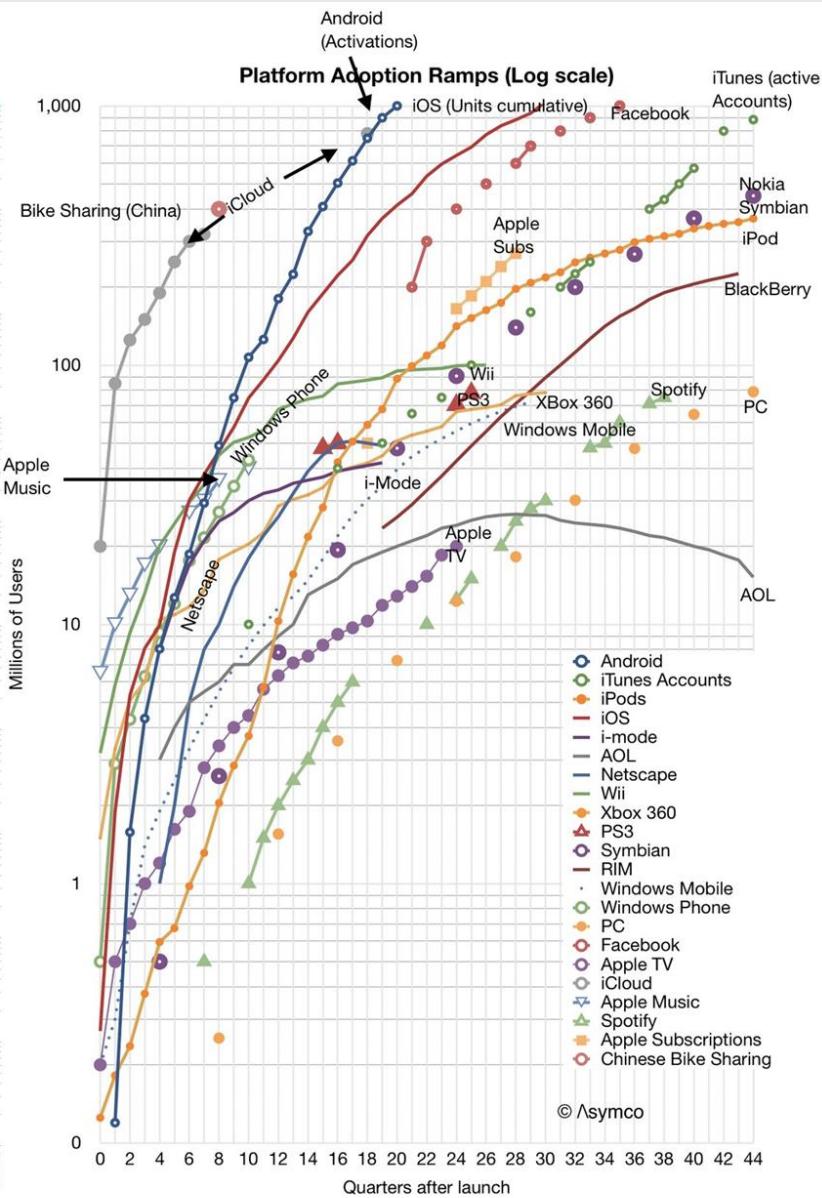
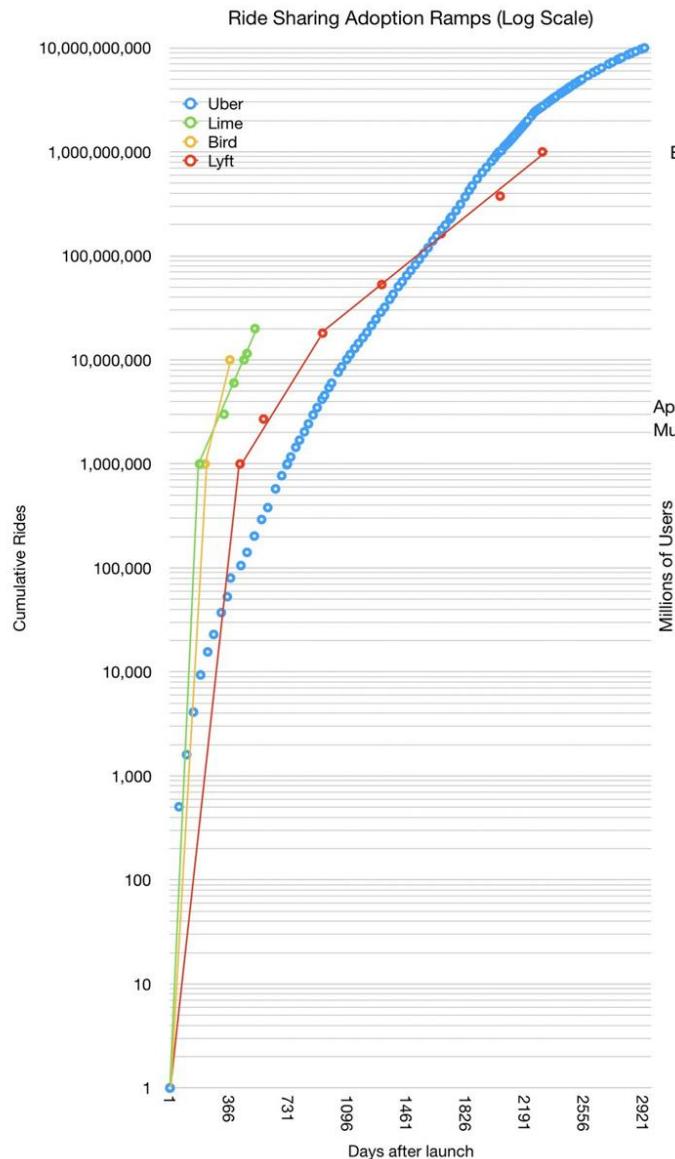
# THE SCOPE OF MICROMOBILITY



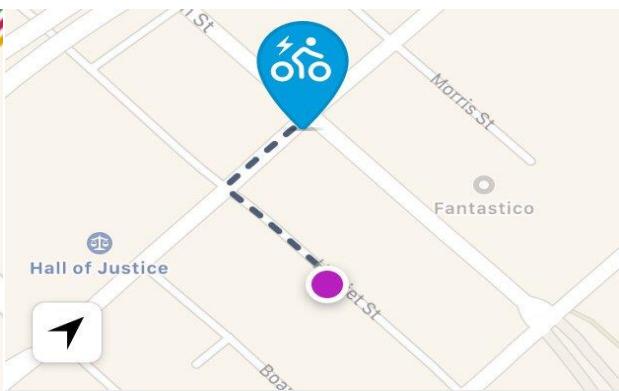
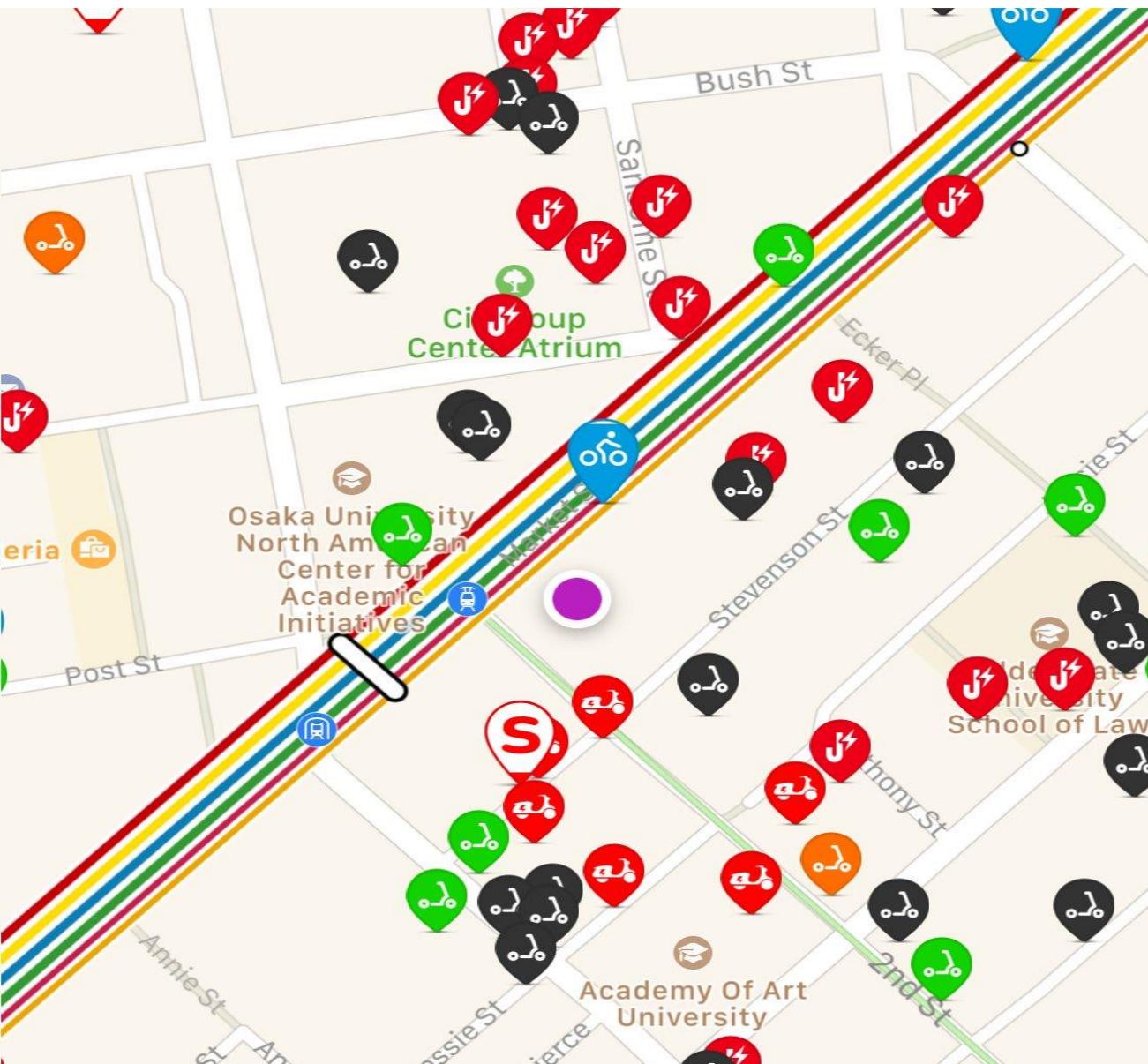
Oliver Bruce (Twitter)

TAKING COOPERATION FORWARD

# A SWIFT TRANSITION



# A NEW MOBILITY LANDSCAPE

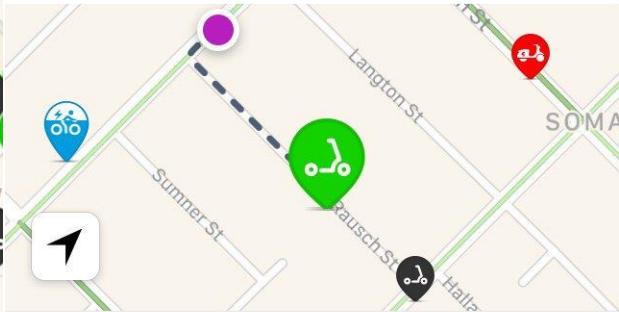


Ford GoBike

1 minute

Bryant St / 6th St

14 bikes - 3 ebikes - 0 docks



LimeBike

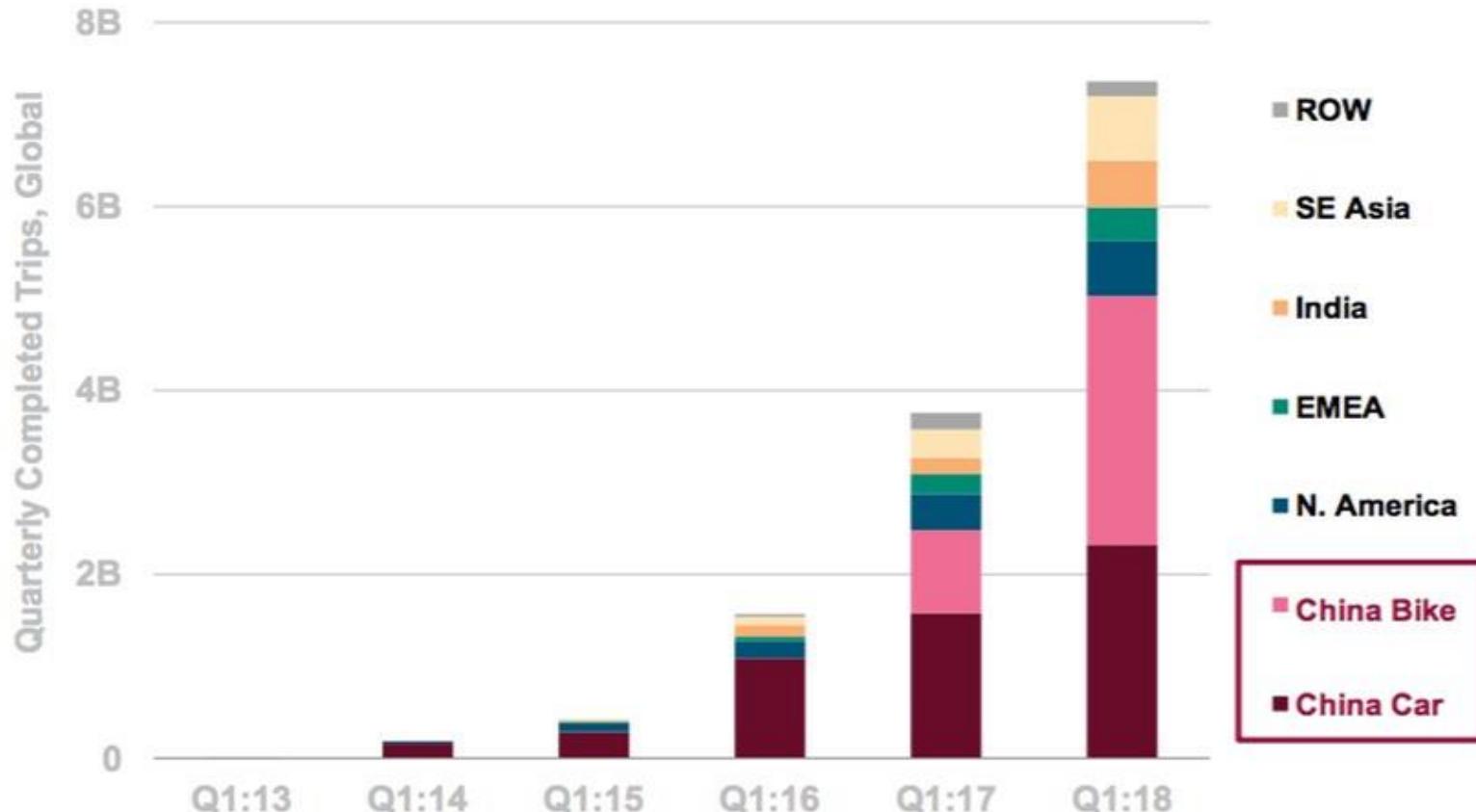
1 minute

## Electric Scooter

Est. Range: 19 mi

China On-Demand Transportation (Cars + Bikes) = +96%...  
68% Global Share & Rising

## On-Demand Transportation Trip Volume by Region



# ALSO IN BUDAPEST...



BUBI public bike service with 1800+  
bikes and 146 docking stations

# ALSO IN BUDAPEST...



**GREEN  
GO**  
Enyém. Tiéd. Miénk.



Private car-sharing companies with  
1000+ electric and ICE vehicles

# ALSO IN BUDAPEST...



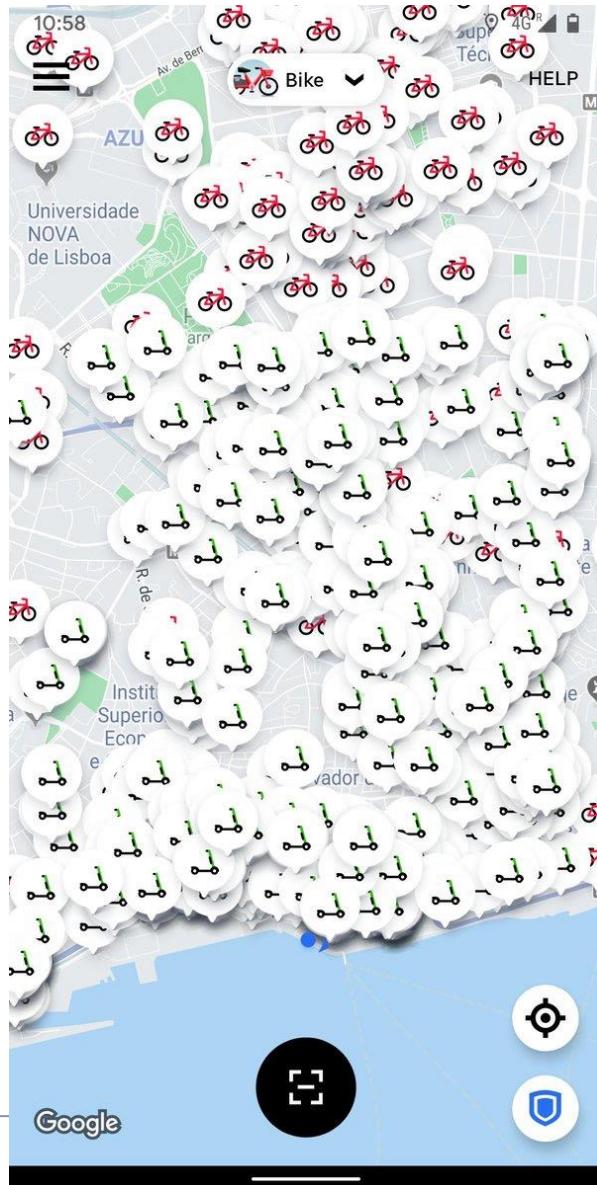
Index.hu



**Lime**

Test period with  
200 scooters

# NEW MOBILITY LANDSCAPE, VANISHING BORDERS BETWEEN PRIVATE AND PUBLIC



# IMPACT 1: WHO WILL BE THE INTEGRATOR? THAT'LL THE „MAAS”!

Coming soon to the Uber app: bikes, rental cars, and public transportation

*Uber CEO Dara Khosrowshahi is in Washington, DC today to extend the hand of friendship to cities and make some product news*

By Andrew J. Hawkins | @andyjayhawk | Apr 11, 2018, 10:30am EDT

f t e SHARE



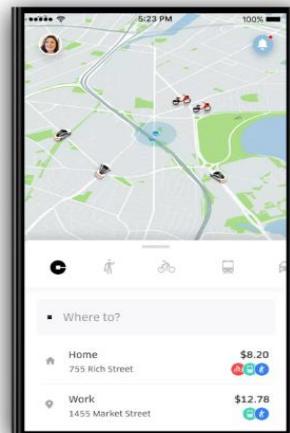
OR ?

**Uber customers in Denver can now buy train and bus tickets in the app**

*Criticized for poaching riders, Uber seeks to give transit equal footing in its app*

By Andrew J. Hawkins | @andyjayhawk | May 2, 2019, 11:00am EDT

f t e SHARE



COOPERATION FORWARD

# GLOBAL TREND: PT AGENCIES FAILED IN INTEGRATION AMONG THEMSELVES

The figure shows a travel planning interface with a map and a list of routes. The map highlights a route from Normafa in Budapest to Hold Street in Miskolc, showing various modes of transport including bus, train, and walking. The list of routes includes the following details:

- Hold St, Miskolc, 3531** to **Normafa, Budapest, Eötvös út 59, 1121**
  - Leave now
  - OPTIONS
  - [Send directions to your phone](#)
- 2:21 AM–7:15 AM** 4 h 54 min
  - Walking (1V) > Bus (5009) > Walking (5009) > Bus (21) > Walking (1040) > Walking (M2) > Walking (21)
  - 2:35 AM from Baláz Győző tér
  - 36 min
- 6:55 AM–10:55 AM** 4 h
  - Bus (21) > Bus (21) > Budapest-Keleti-Košice > M2 > Walking (21A)
- 6:55 AM–11:05 AM** 4 h 10 min
  - Walking (21) > Budapest-Keleti-Košice > 5 > 21A
- 7:56 AM–11:45 AM** 3 h 49 min
  - Walking (21) > ICB 682 > M2 > Walking (21A)

**Satellite**

**TAKING COOPERATION FORWARD**

# TAKING COOPERATION FORWARD

# IMPACT 2: MICROMOBILITY CLAIMS URBAN SPACE



# MICROMOBILITY CLAIMS URBAN SPACE

Interreg  
CENTRAL EUROPE

European Union  
European Regional  
Development Fund

Peripheral Access



# MICROMOBILITY CLAIMS URBAN SPACE



Tel-Aviv

# MICROMOBILITY CLAIMS URBAN SPACE

Paris

1967-2017

VS.

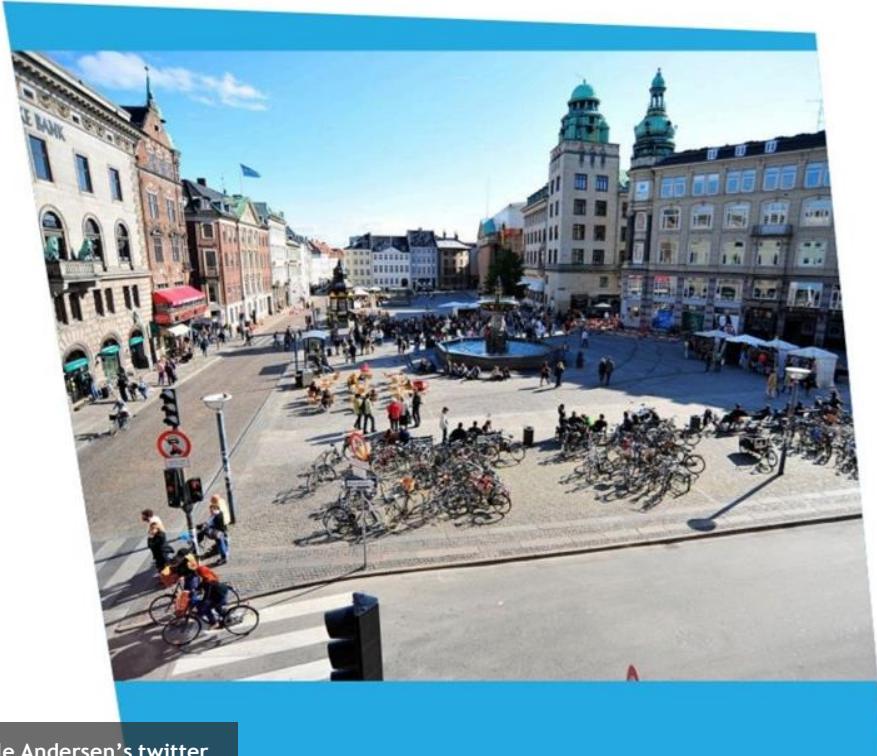
2018...



European Union  
European Regional  
Development Fund

# MICROMOBILITY CLAIMS URBAN SPACE

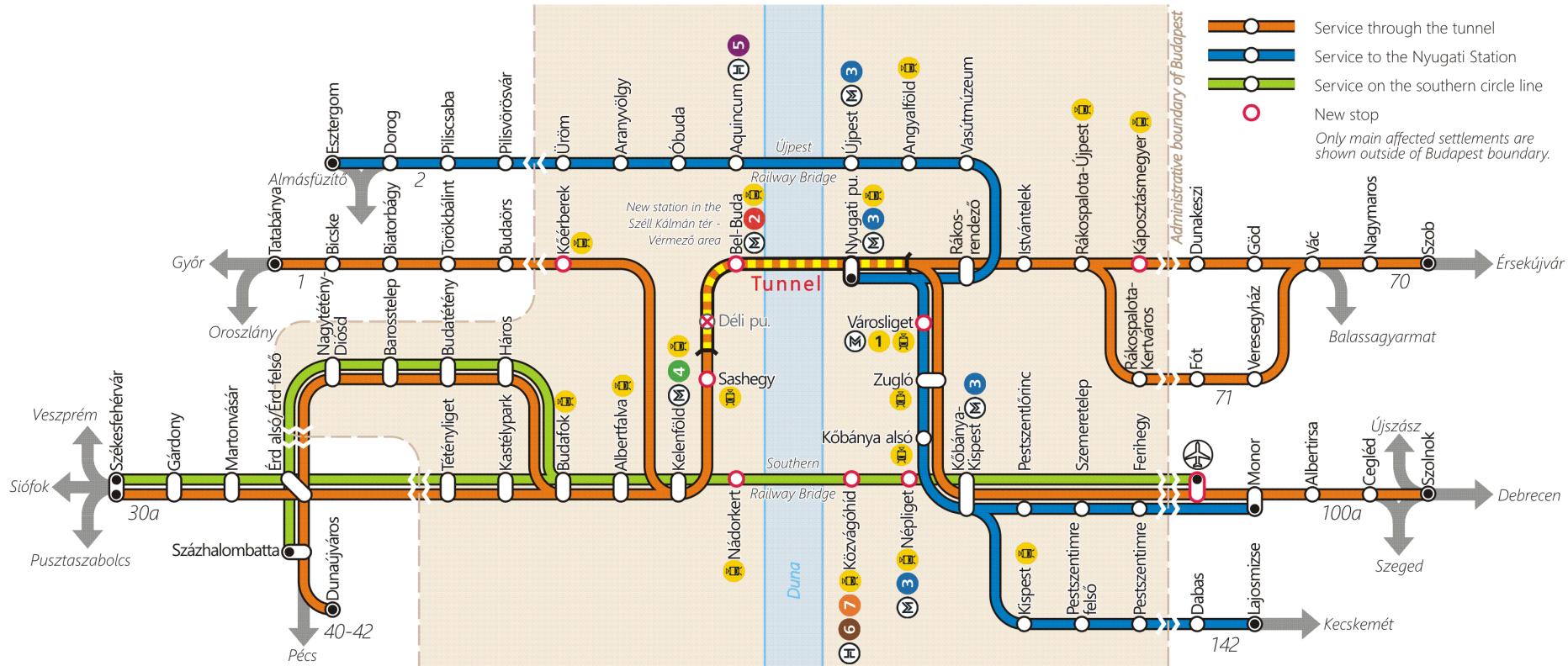
copenhagen wasn't always copenhagen



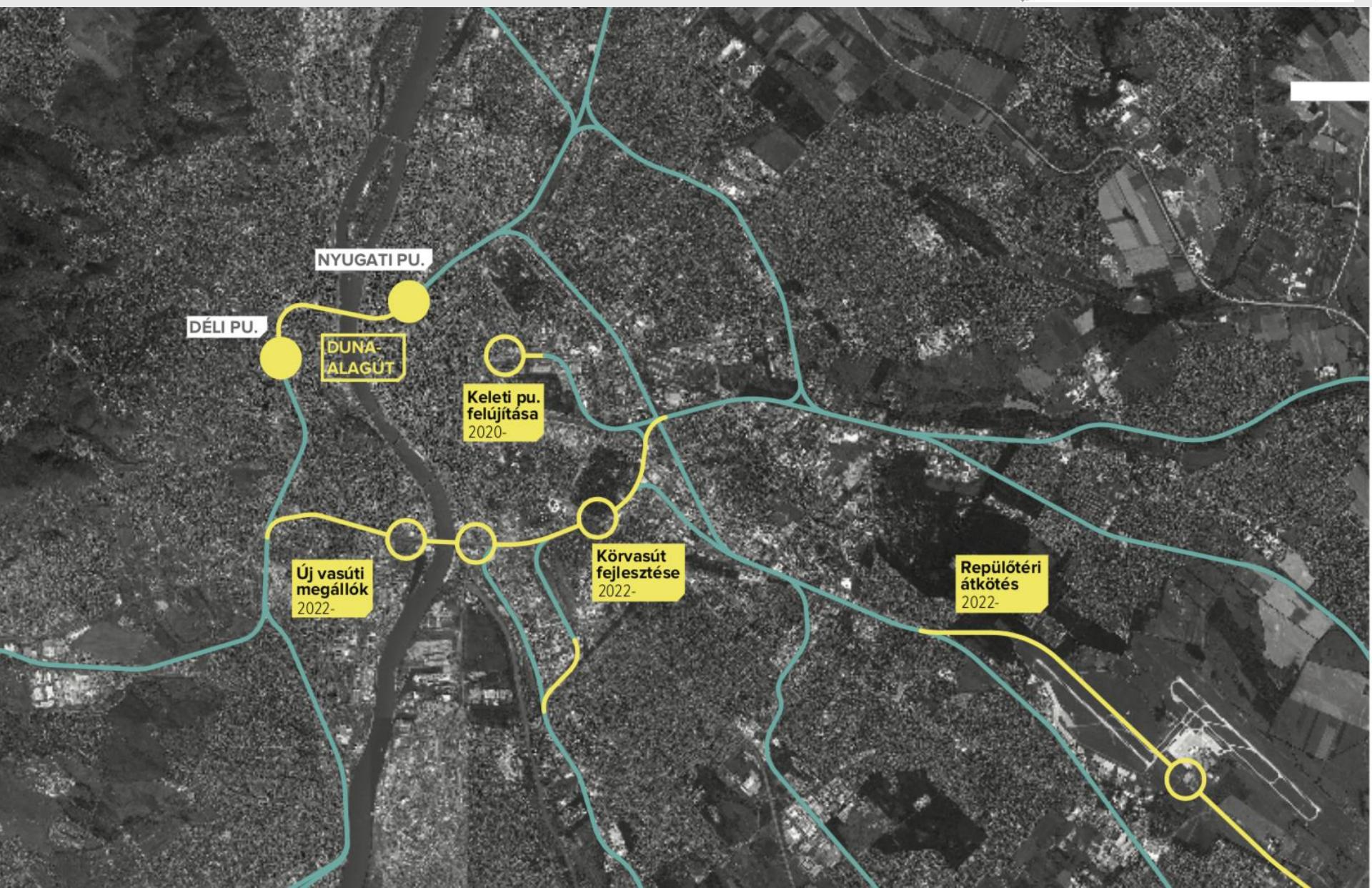
# BUDAPEST STILL PREFERENCES PT: NEW REGIONAL RAIL SYSTEM IS PLANNED



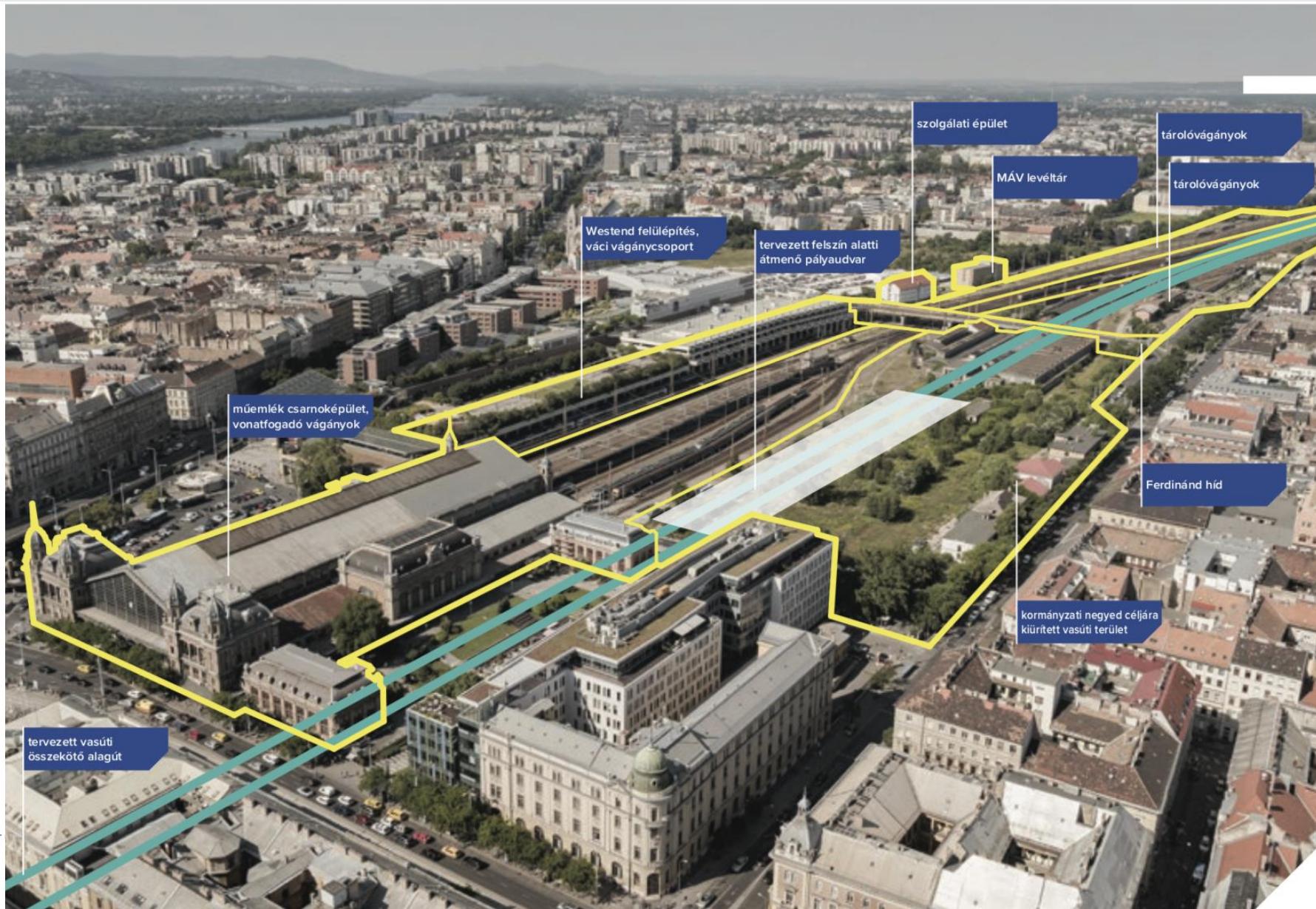
# BUDAPEST STILL PREFERENCES PT: NEW REGIONAL RAIL SYSTEM IS PLANNED



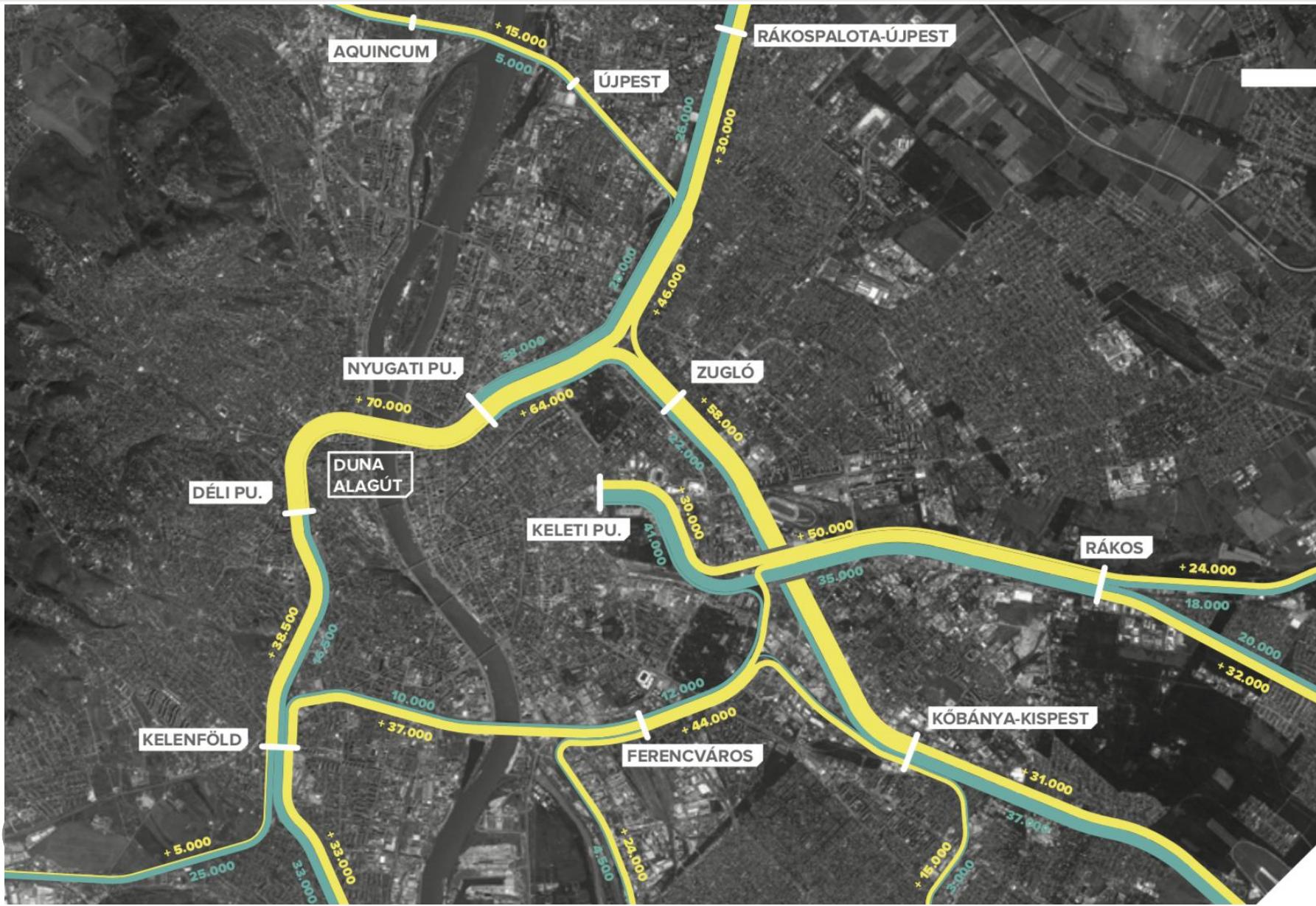
# BUDAPEST STILL PREFERENCES PT: NEW REGIONAL RAIL SYSTEM IS PLANNED



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# BUDAPEST STILL PREFERENCES PT: NEW REGIONAL RAIL SYSTEM IS PLANNED



# CONTACT DETAILS

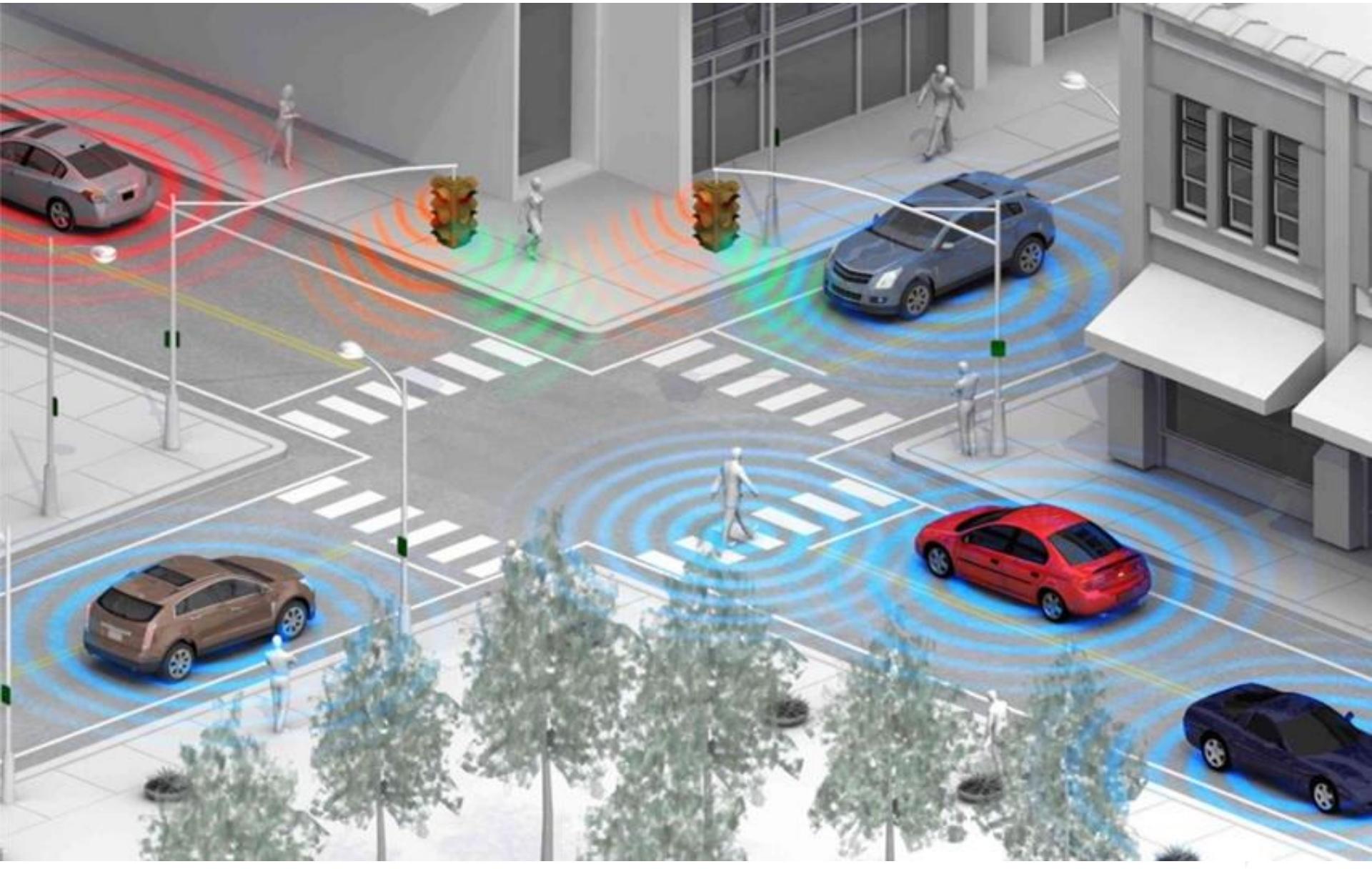
THANK YOU  
FOR YOUR  
ATTENTION!

DÁVID VITÉZY

DAVID@VITEZY.HU  
TWITTER: @VITDAVID



# AUTONOMOUS VEHICLES: NEXT STEP OR FAILED PROMISE?



# AUTONOMOUS VEHICLES: NEXT STEP OR FAILED PROMISE?

A vision from 1960:  
smart infrastructure,  
dumb vehicle

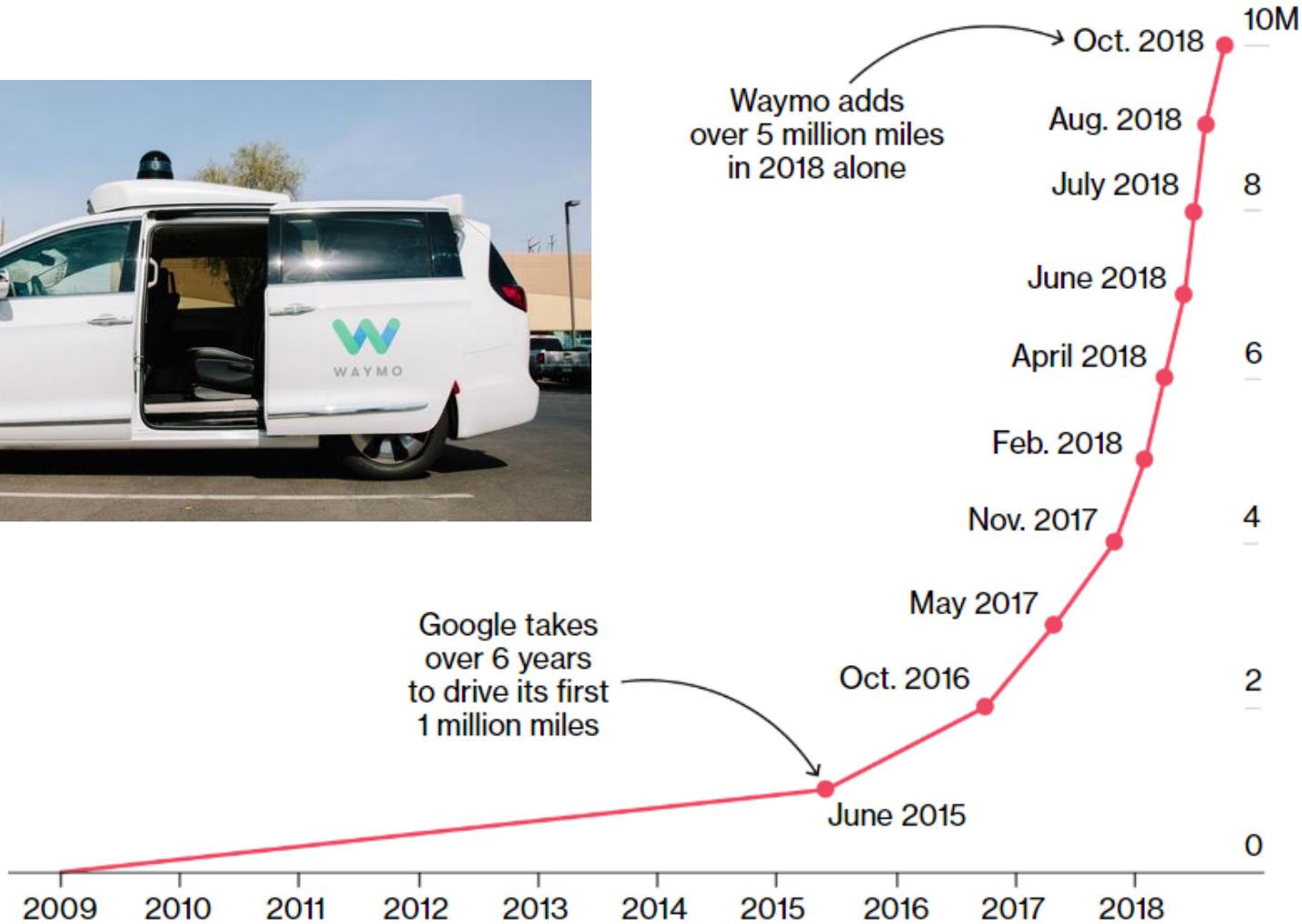


**ELECTRICITY MAY BE THE DRIVER.** One day your car may speed along an electric super-highway, its speed and steering automatically controlled by electronic devices embedded in the road. Travel will be more enjoyable. Highways will be made safe—by electricity! No traffic jams . . . no collisions . . . no driver fatigue.

POWER COMPANIES BUILD FOR YOUR NEW ELECTRIC LIVING

## Driverless Cars Prepare to Launch

Waymo racks up autonomous miles by the millions



# RACE: WHO WILL OWN THE APP?



**WAYMO AND JAGUAR WILL BUILD UP TO  
20,000 SELF-DRIVING ELECTRIC SUVS**

Image: Waymo

*Jaguar I-Pace will be the second official vehicle in Waymo's robot taxi fleet*

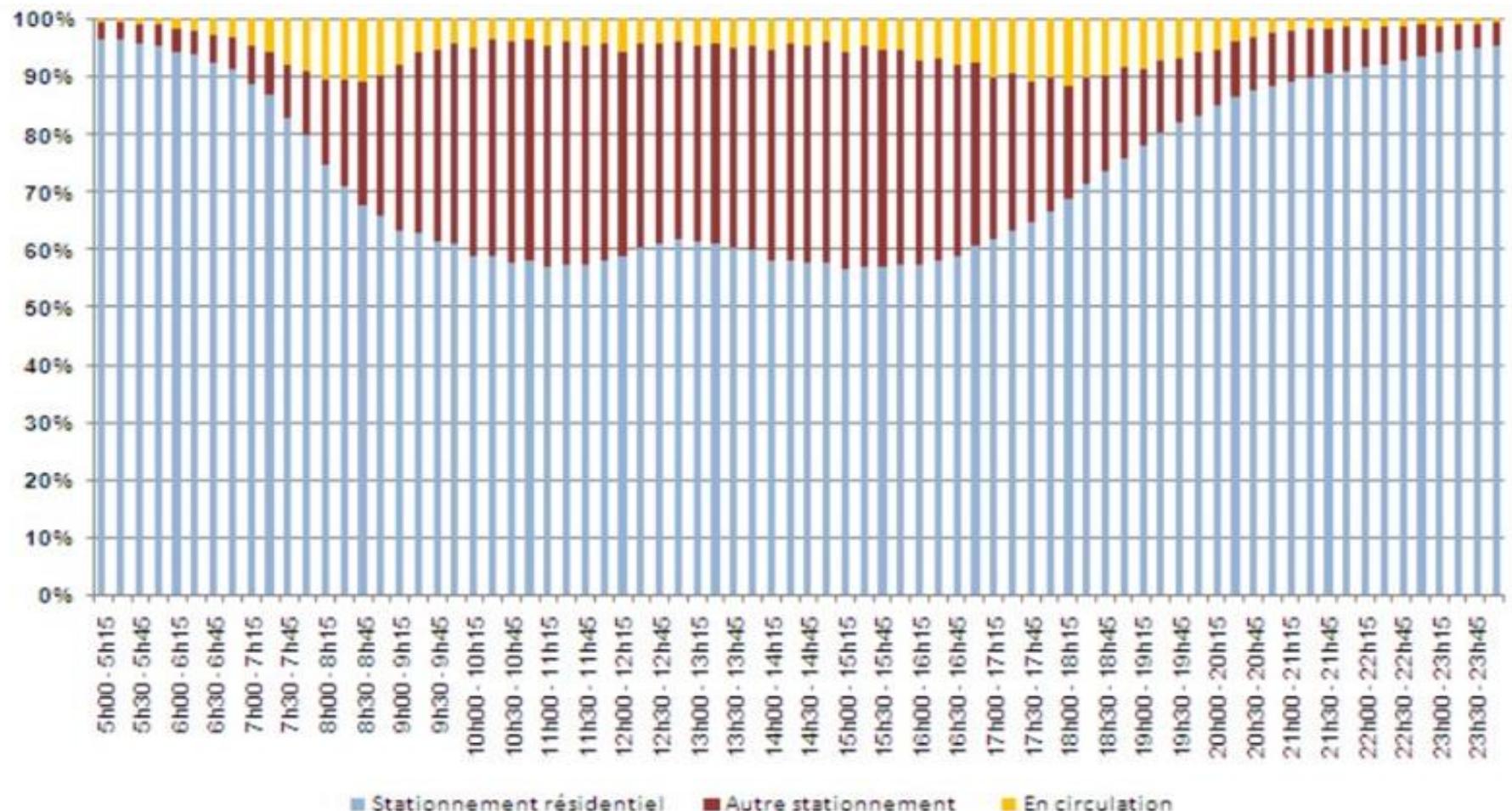
By [Andrew J. Hawkins](#) | [@andyjayhawk](#) | Mar 27, 2018, 10:09am EDT

# EFFECTS ON URBAN LIFE

Traffic simulation with self-driving taxis (Lisbon 2015): number of vehicles is reduced by 87-90%



## Moving and parking vehicles in the Paris region

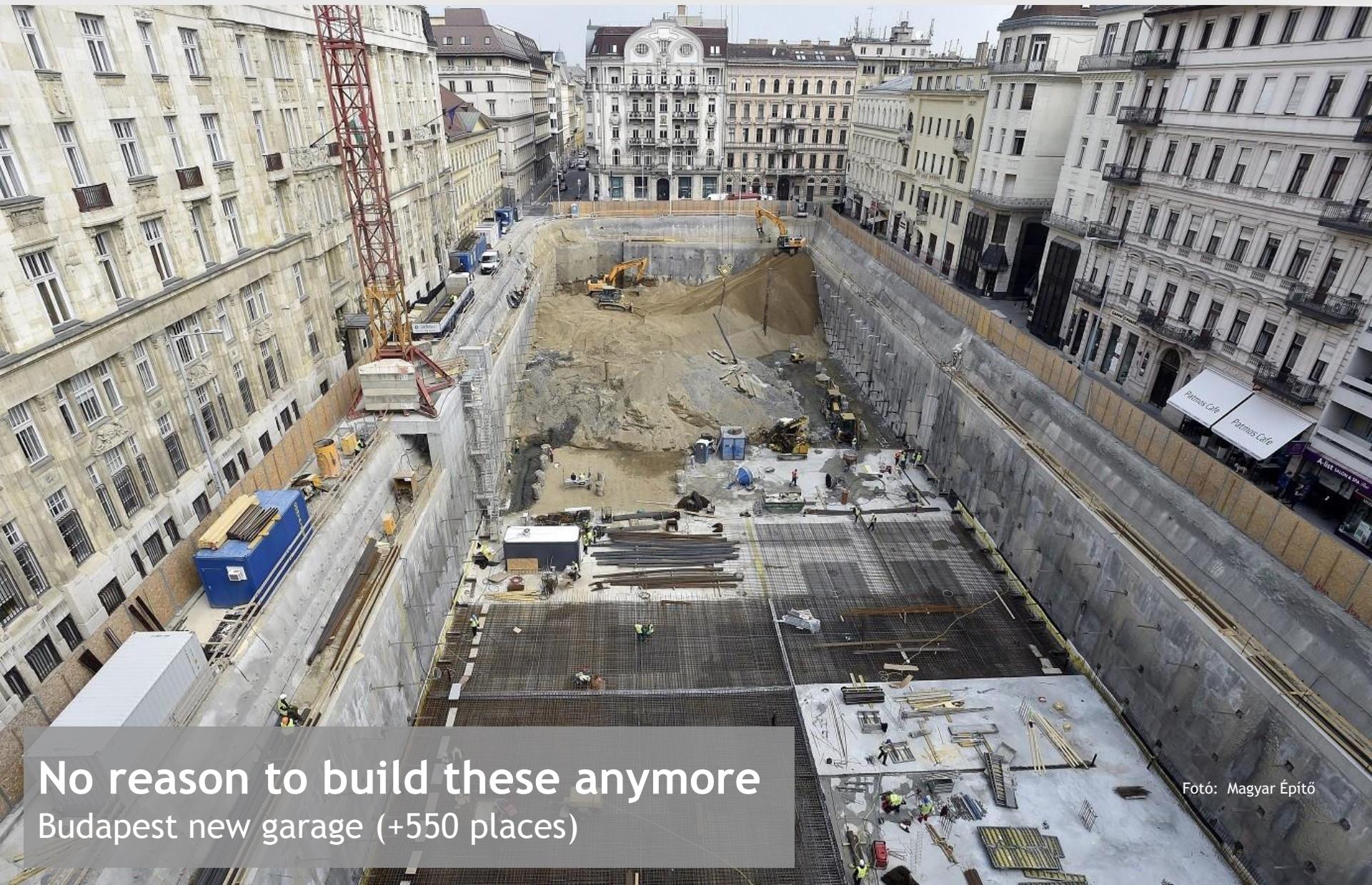


# EFFECTS ON URBAN LIFE

Lisbon: -94% demand for parking



# .EFFECTS ON URBAN LIFE

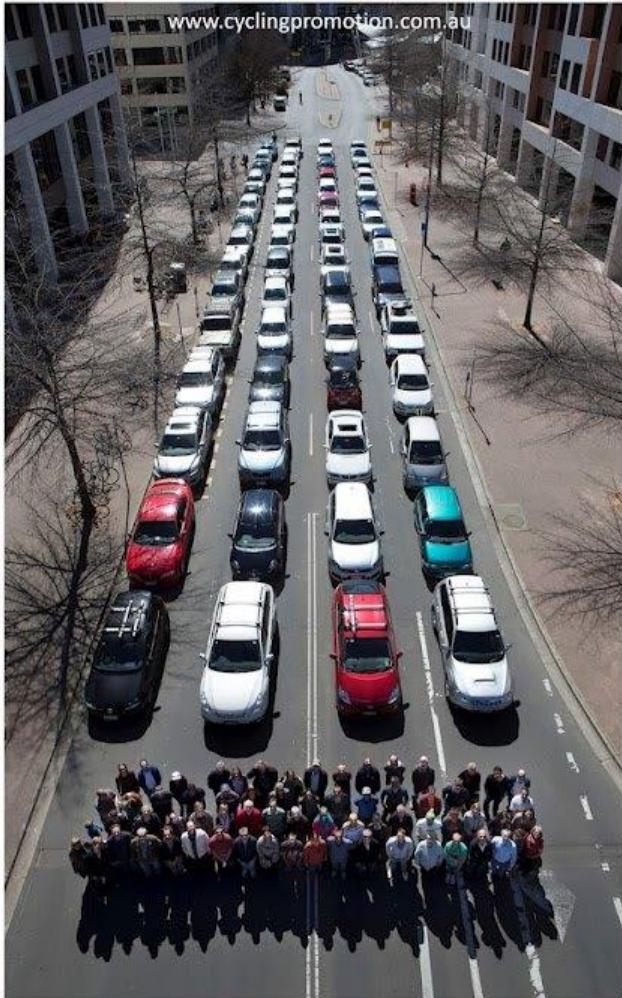


**No reason to build these anymore**  
Budapest new garage (+550 places)

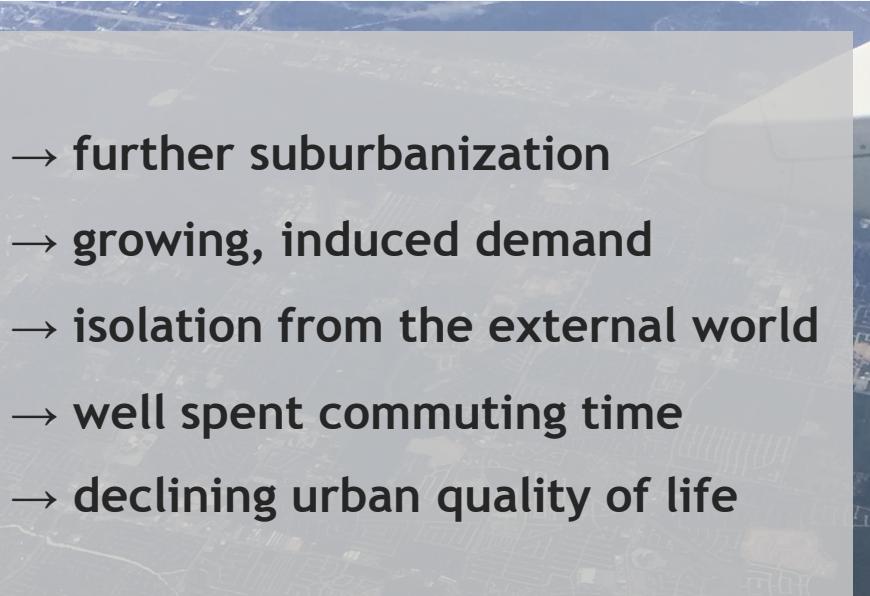
Fotó: Magyar Építő

# EFFECTS ON URBAN LIFE

Lisbon: +9% road traffic



# EFFECTS ON URBAN LIFE



- further suburbanization
- growing, induced demand
- isolation from the external world
- well spent commuting time
- declining urban quality of life

# A NEW COMPETITION FOR PUBLIC TRANSPORT



## WELCOME TO UBERVILLE

Uber wants to take over public transit, one small town at a time

By Spencer Woodman | Illustration by Jude Buffum

M

**Y**first morning in Altamonte Springs, Florida, I was faced with a dilemma: how to travel the two miles from my hotel to city hall without a car. Walking would take nearly an hour in the sweltering June heat. Taking a bus would entail waiting up to a half hour at a stop with little shelter from the

# A NEW COMPETITION FOR PUBLIC TRANSPORT

## How unlimited POOL works

### 1 Buy

Choose from 2 options:

- **2-week pass (\$49)**

Rides start on Monday, November 28, and go through Friday, December 9

- **4-week pass (\$79)**

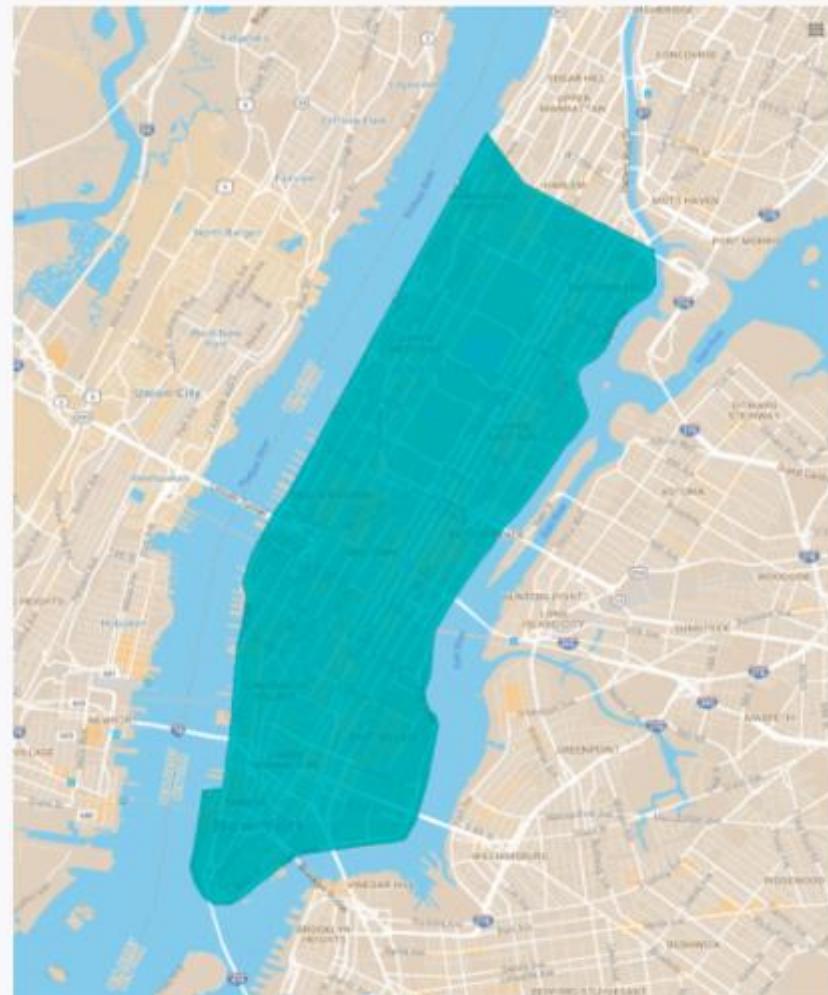
Rides start on Monday, November 28, and go through Friday, December 23

### 2 Ride

Ride uberPOOL anywhere within Manhattan below 125th Street, Monday through Friday. Hit the road as early as 6am, and catch a ride home from the office or happy hour until 8pm.

### 3 Relax

No matter where you go, it's a crazy-good deal.

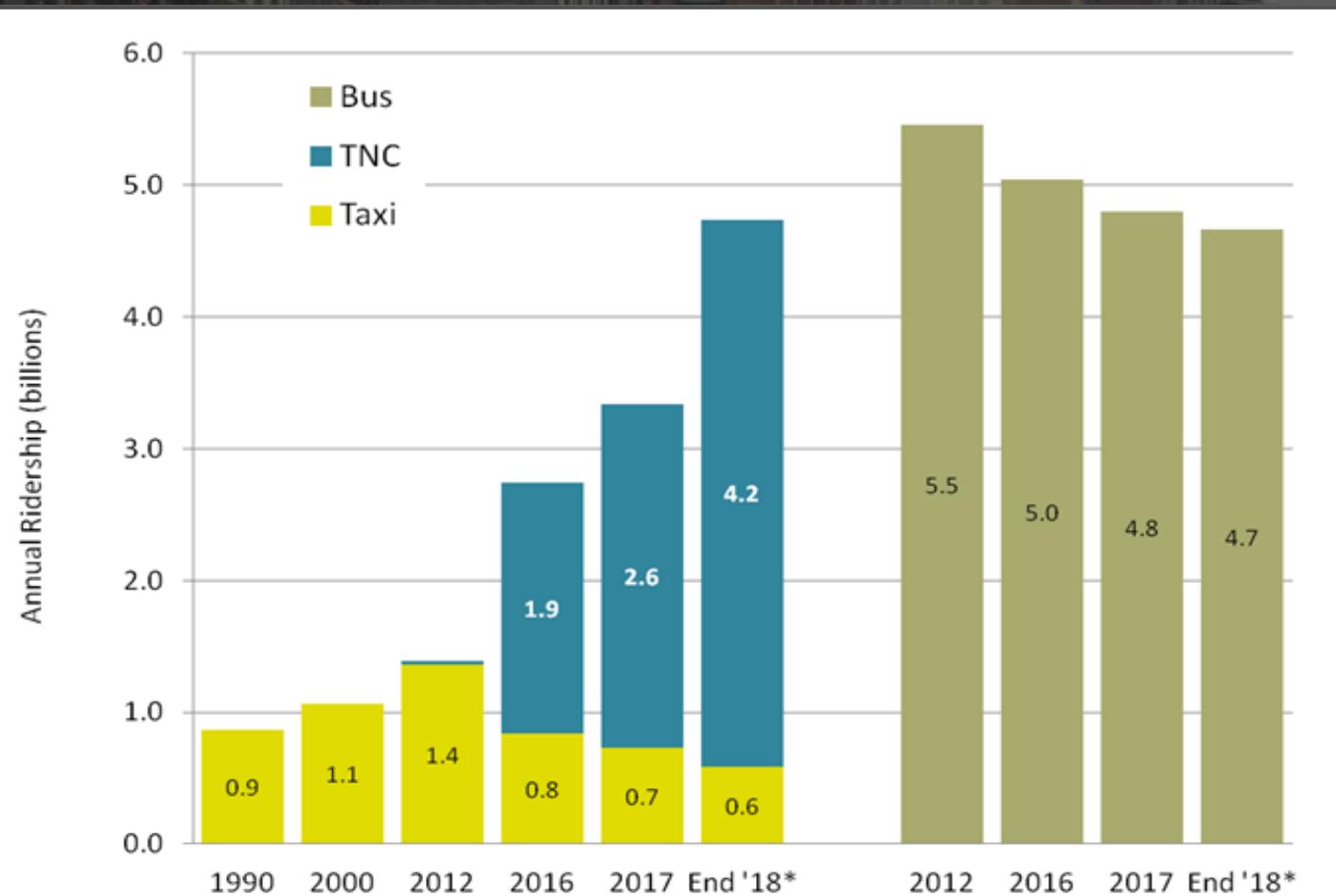


Trips eligible within designated zone. See map for detailed information.

# A NEW COMPETITION FOR PUBLIC TRANSPORT

2013-2016: +7% road mileage in Manhattan due to ride-sharing services

(Schaller: Unsustainable, 2017)



# A NEW COMPETITION FOR PUBLIC TRANSPORT

the village  
**VOICE**



TECHNOLOGY



## Instead of Building De Blasio's Streetcar, What If We Had Self-Driving Uber Vans?

BY STEPHEN MILLER



TUESDAY, JANUARY 24, 2017 AT 4:12 P.M.

## The New York City Subway Is Beyond Repair

Forget trains. It's time for something radically different.

PETER WAYNER JUN 9, 2018



Commuters ride an L train in New York City (LUCAS JACKSON / REUTERS)

Ad clo

Stop

W

### MORE STORIES

Why New York Lines Are Mis-Countdown C

JAMES SOMERS

The New York City subway is a miracle, especially at 3 a.m. on a Friday night. But the system is also falling apart, and it's going to cost billions to keep the old trains running: \$19 billion, at least according to one estimate from city planners. The time has come to give up on the 19th-century idea of public transportation, and leap for the autonomous future.

Right now, fully autonomous cars are rolling around Pittsburgh, the San Francisco Bay area, and parts of Michigan, shuttling people from here to there with minimal manual intervention. Instead of fixing the old trains, let's rip out the tracks and fill the tunnels with fleets of autonomous vehicles running on pavement. The result would be radical improvements in throughput while saving money and increasing the ability of the system to survive a fire, flood, or terrorist attack.

## PLAY 1:

Ensure new mobility delivers a fair and just transportation system for all



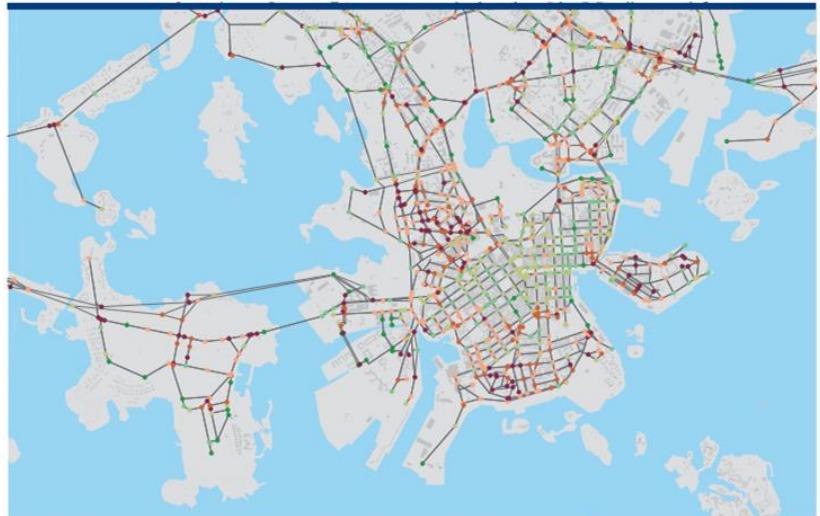
### IF WE LEAVE IT TO CHANCE...

There are more transportation choices, but only for those who can afford it. New mobility innovations cannibalize resources and erode support for public transportation. Workers are vulnerable to disruptions. The city becomes disconnected.

### IF WE SHAPE IT...

More affordable and better integrated transportation choices make the city and the region more accessible to people with disabilities and the disadvantaged. Public transit flourishes. The transportation workforce earns a living wage and is resilient to disruptions.





**Shared Mobility  
Simulations for Helsinki**



Case-Specific Policy Analysis

## OECD ITF, Helsinki, 2017:

- Driverless shuttles are feeding public transportation
- All road trips need only 4% of the current vehicle fleet
- Road traffic can be reduced by 40%
- Number of public transport passengers could grow by 15-23% if co-operate with self-driving taxis
- Parking spaces would be mostly unnecessary

**The concept of high capacity  
public transport won't turn  
obsolete in the light of  
changing technology!**

# PUBLIC TRANSPORT - STILL MORE EFFICIENT

## Shared on-demand service as public transport



# PUBLIC TRANSPORT: IT WILL STILL BE MORE EFFICIENT

This can be self-driving as well - and it will be more efficient to operate



Bloomberg

## Singapore Is About to Trial Full-Size Driverless Buses

By Kyunghee Park

March 5, 2019, 3:00 AM GMT+1

