AUTONOMOUS VEHICLES: A GAME CHANGER FOR URBAN MOBILITY AND PUBLIC TRANSPORT

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IEA Expert Workshop,on Automation, connectivity, electrification, and sharing (ACES): transforming road transport services

A DIVERSE GLOBAL MEMBERSHIP

UITP unites the sustainable mobility community

1,500 MEMBER COMPANIES

96 FROM COUNTRIES

18,000 CONTACT MEMBERS

- ❯ Operators
- ❯ Industry
- ❯ Research institutes
- ❯ Associations
- ❯ Authorities
- ❯ Policy decision-makers

WINNING CITIES GROW with PUBLIC TRANSPORT
Grow with public transport

ADVOCACY & OUTREACH

KNOWLEDGE

NETWORK & BUSINESS

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WHAT FUTURE DO WE WANT?
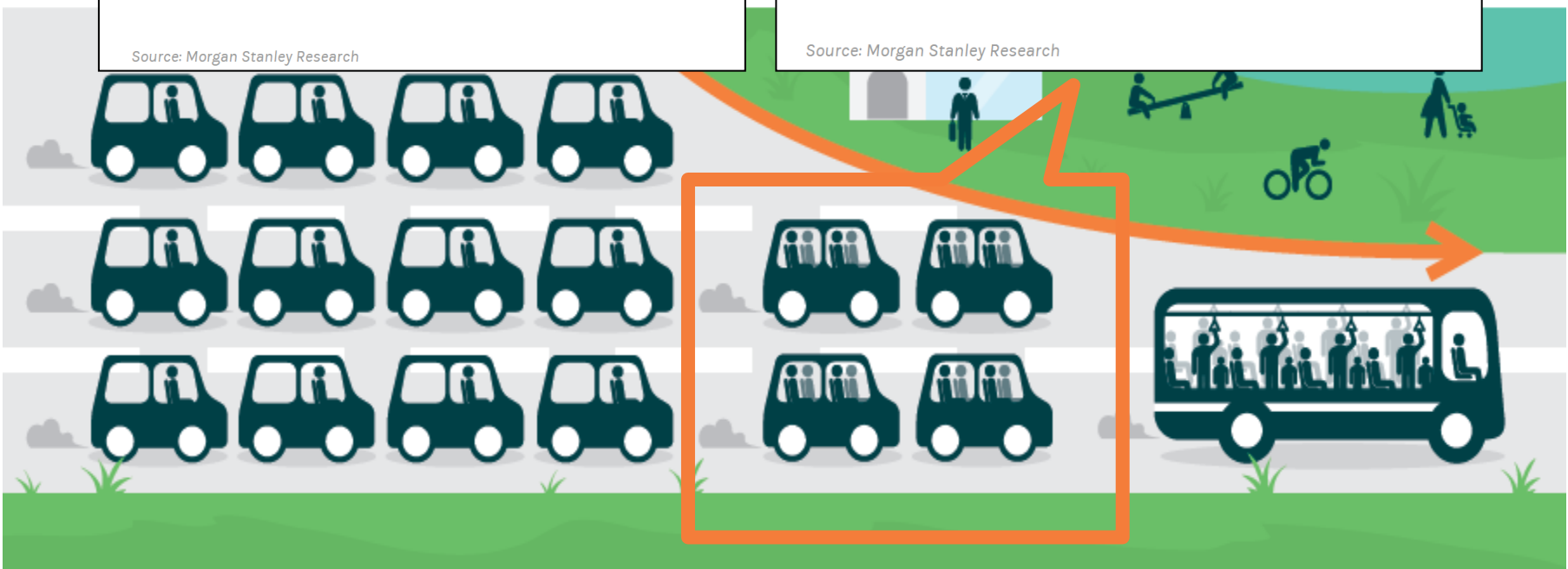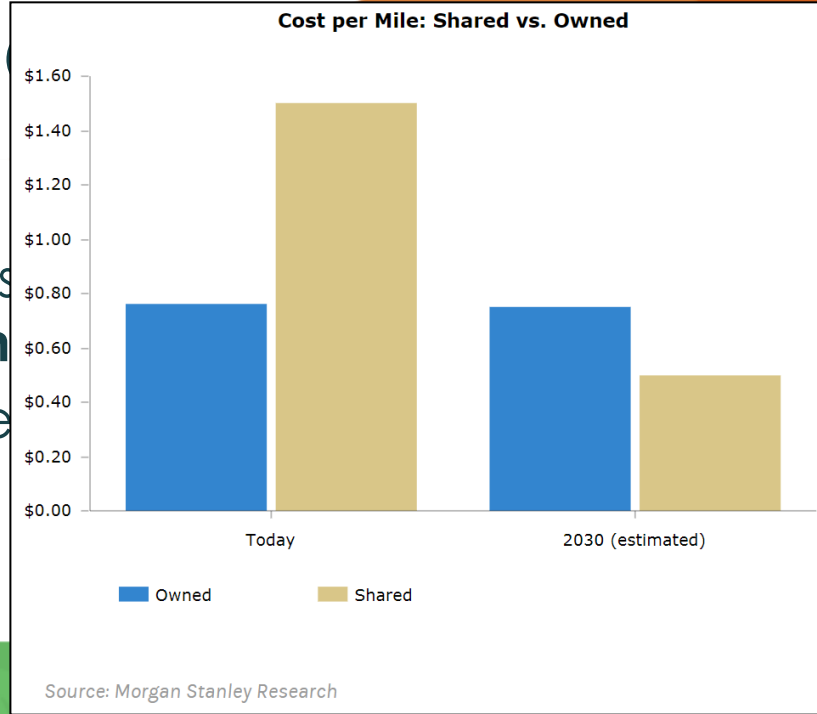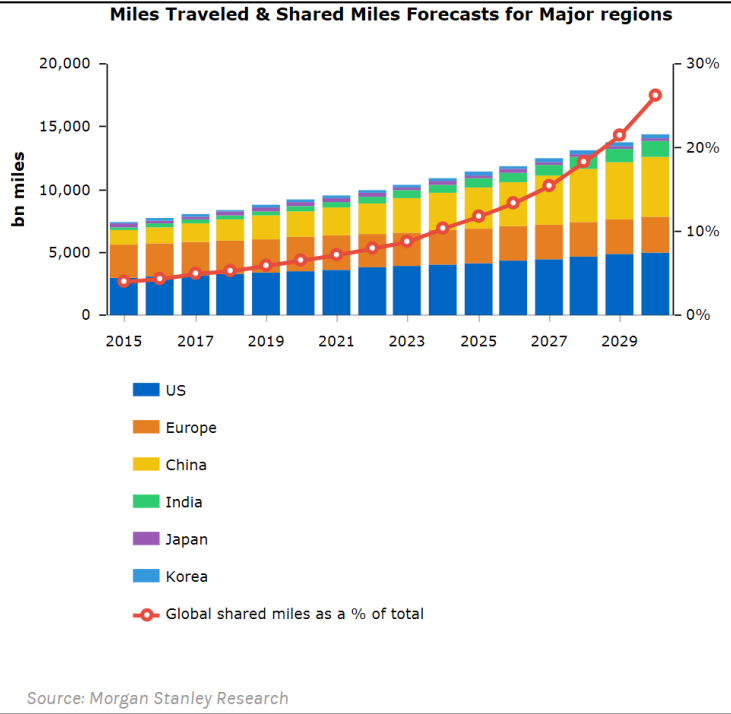
WHAT FUTURE DO WE WANT?

We are working to enhance **quality of life** and **economic well-being** by supporting and promoting **sustainable transport** in urban areas worldwide

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PT IS THE BACKBONE OF INTEGRATED URBAN MOBILITY

- **High quality public transport** is the only alternative able **to fulfil the lion's share of trips by using a minimum of space**
- Without public transport, other sustainable & innovative mobility services cannot **offer an affordable alternative to car ownership**

PT... ...AN
M...

- ...is...il
- ...

Miles Traveled & Shared Miles Forecasts for Major regions

Source: Morgan Stanley Research

Cost per Mile: Shared vs. Owned

Source: Morgan Stanley Research

AVs: CHALLENGES FOR CITIES

Decrease

- Traffic jams
- Pollution
- Accidents
- Cost of mobility

Increase of individual comfort

- Time saving
- Smart driving
- Personal preferences
- Freedom

« Natural » choice for the individual

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SELF-DRIVING CARS

Consequences:
- More purchase of cars
- Average AV drives more
- Empty cars on the road
- Urban sprawl
- Loss of public space
- Decrease of use of PT, walking and cycling

Challenge:
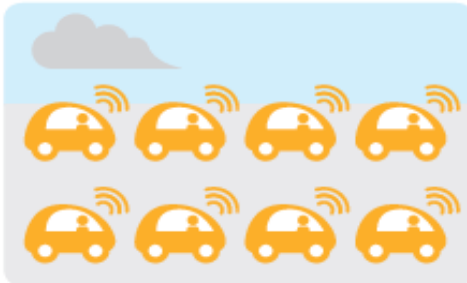
Convince the <u>individual</u> to make a <u>shift to shared AV's</u>

Autonomous vehicles will only help to meet public policy goals if they come as shared fleets integrated with public transport

Autonomous vehicles

Shared fleet of vehicles

⊕ Strong reduction in number of cars (reduced car ownership, effective use of cars as they operate most time of the day)
⊕ Drastically improved mobility for people that do not own a car

Privately owned cars

⊖ No effect on car ownership
⊖ No effect on number of parked cars (cars unused most of the day)
⊖ No effects on costs /km
⊖ No effects on mobility for people that do not own a car
⊖ Even more car traffic (as it is even more comfortable and attractive to go by car)

> **Unsustainable, even more car traffic**

Fleet cars COMPETING with traditional public transport services

⊕ Street reclaiming (less parked cars)
⊕ Improved access to public transport
⊕ Improved mobility for people that do not own a car
⊖ More traffic (strong increase in Vehicle Miles Traveled - VMT)
⊖ Inefficency (small vehicles replacing buses and trains)
⊖ Passenger loss for traditional public transport walking and cycling

> **Better mobility, less efficency**

Fleet cars INTEGRATED with traditional public transport services

⊕ Large scale street reclaiming
⊕ Highly improved access to public transport
⊕ Highly improved mobility for people that do not own a car
⊕ Strong decrease in VMT
⊕ High gain of efficency (large and small vehicles perfectly mixed)
⊕ Low costs/km

> **Sustainable, better mobility and equity**

Combined Mobility is the answer!

Flexibility + convenience = Door-to-door solution

Public transport

+

Walking

Bicycle

Bike-sharing

Car-sharing

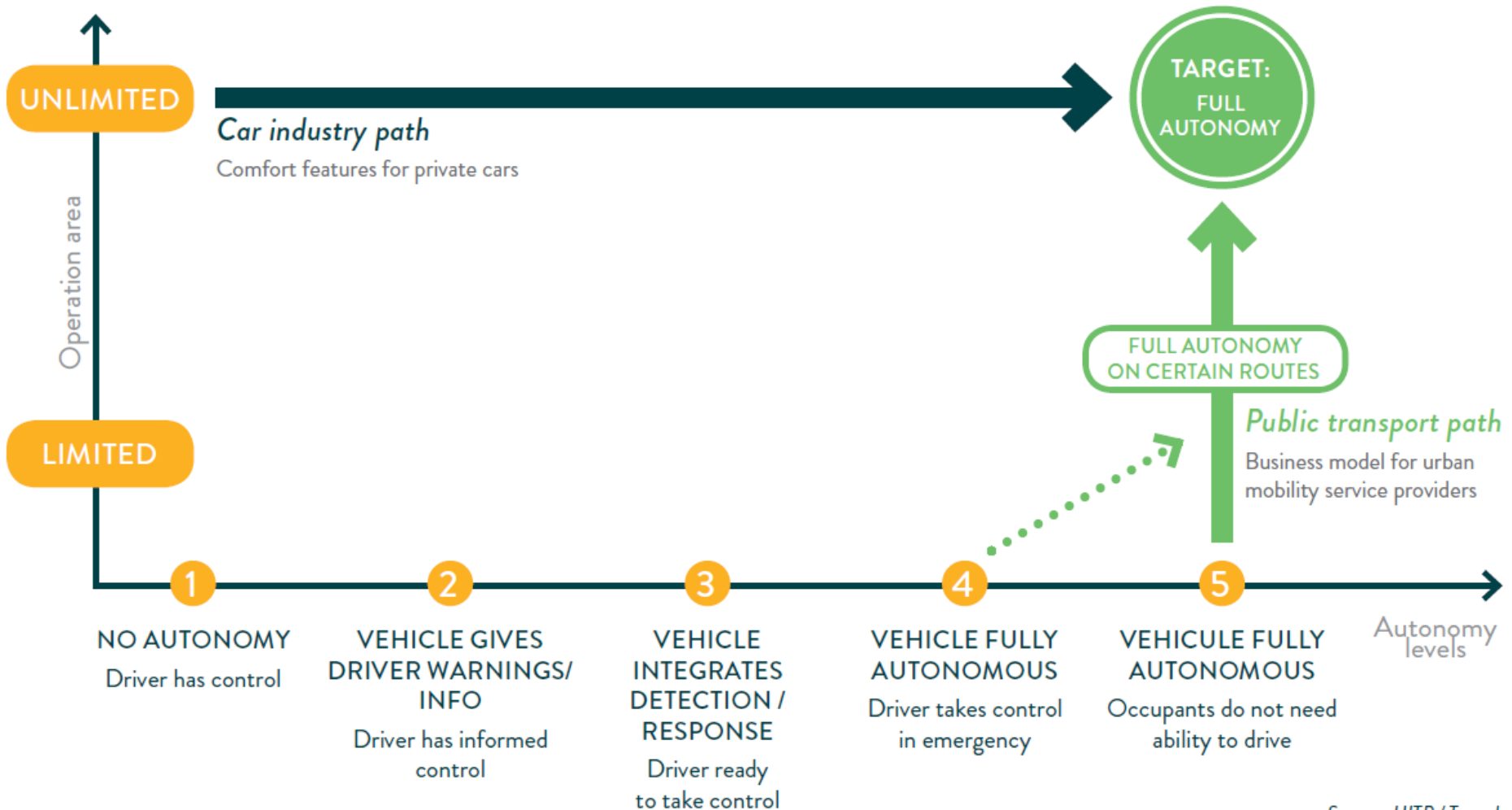Ride-sharing

Taxis and shared taxis
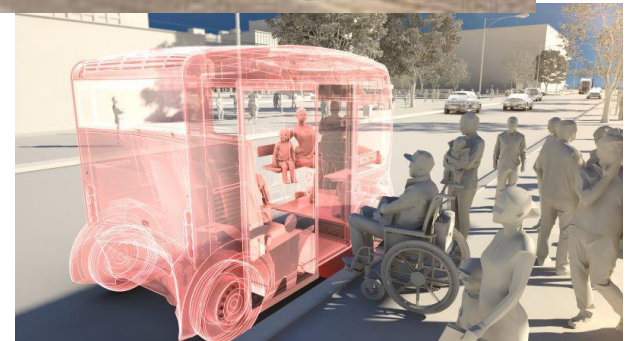
On-demand transport

**A real alternative to the private car
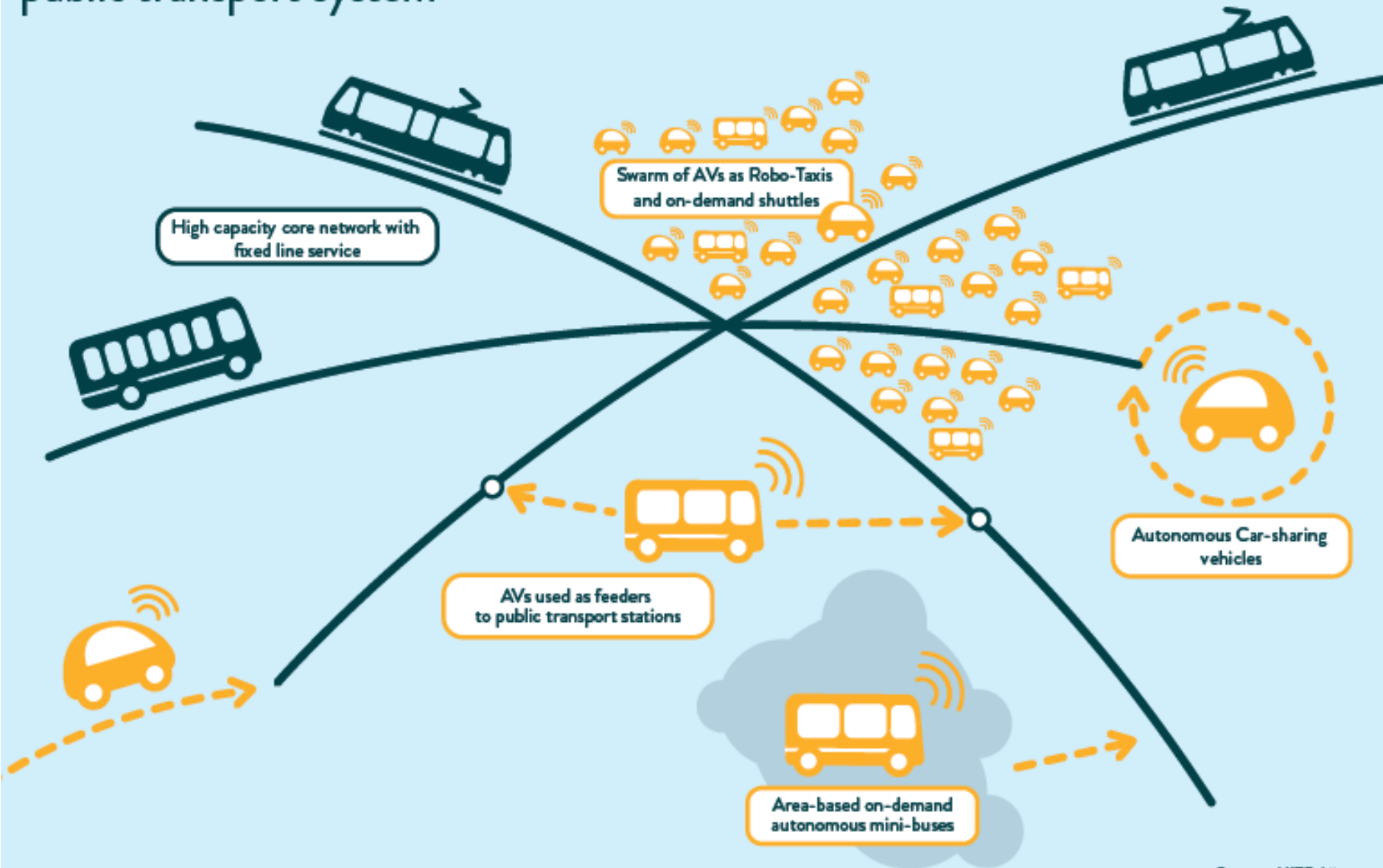Key to changing citizens' travel behaviour**

AVs: OPPORTUNITY FOR CITIES

Public transport offers the quickest development path to full autonomy because it can start operating in a limited area

Source : UITP / Transdev

AVs: OPPORTUNITY FOR CITIES

Possible applications of autonomous vehicles (AVs) as part of a diversified public transport system

Swarm of AVs as Robo-Taxis and on-demand shuttles

High capacity core network with fixed line service

Autonomous Car-sharing vehicles

AVs used as feeders to public transport stations

Area-based on-demand autonomous mini-buses

Source: UITP / üstra

ACTION NEEDED

- **Public Authorities need a central and active role** in the roll out of AVs so they meet policy objectives, therefore they need to take action now

- **Encouraging shared mobility now** is the way **to ensure autonomous vehicles are shared tomorrow**

UITP Project : SPACE (Shared **P**ersonalized **A**utonomous **C**onected V**e**hicles)

Objective : Building knowledge & sharing experience on how the Public Transport Sector can use AV technology to reach public policy goals

4 working groups:

- Connected and Automated Mobility Scenarios
- Technical Reference Architecture
- Observatory of shared AV experience
- Estimated impact assessment, customer acceptance and stakeholders' engagement

CONCLUSION

The only goal when developing a city's mobility policy: offer your citizens the possibility to live and work in your city without owning a car!

How?

- Prepare citizens for shared mobility
- Partnerships : shared mobility providers & public transport
- Integrate mobility platform - MaaS
- Test and Deploy AV technology

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THANK YOU!

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