

# PUBLIC TRANSPORT 2045

15 November 2018  
Transport Knowledge Conference  
Richard Cross



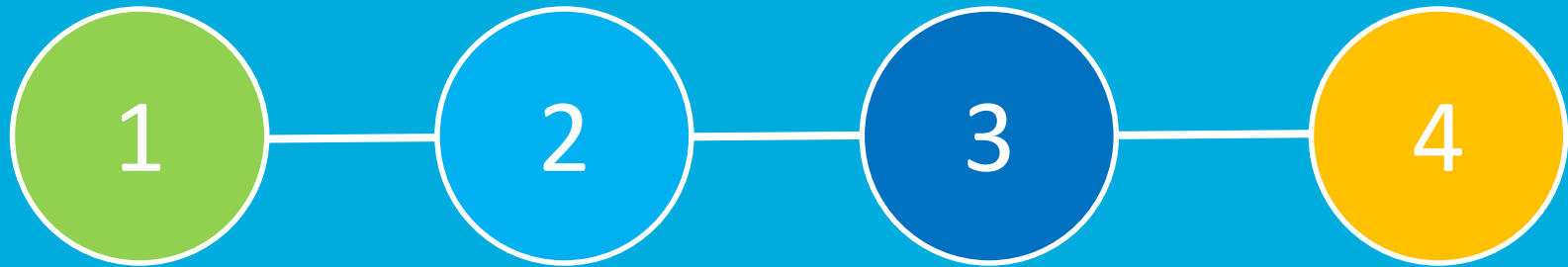
# PUBLIC TRANSPORT 2045

A working paper on urban  
transport in the shared  
mobility era



- ▶ What's in the working paper
- ▶ Insights from 50+ interviews
- ▶ 4 scenarios
- ▶ Implications for our future

# What we'll cover today



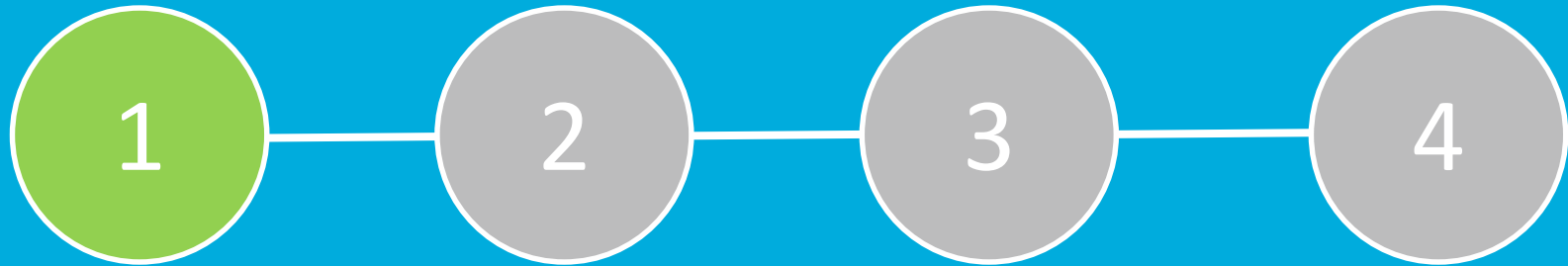
**Why PT2045**  
*A new era*

**Value of public  
transport**

**Opportunities  
and challenges**

**Key messages  
from PT2045**

# Why this is important



**Why PT2045**  
*A new era*

**Value of public  
transport**

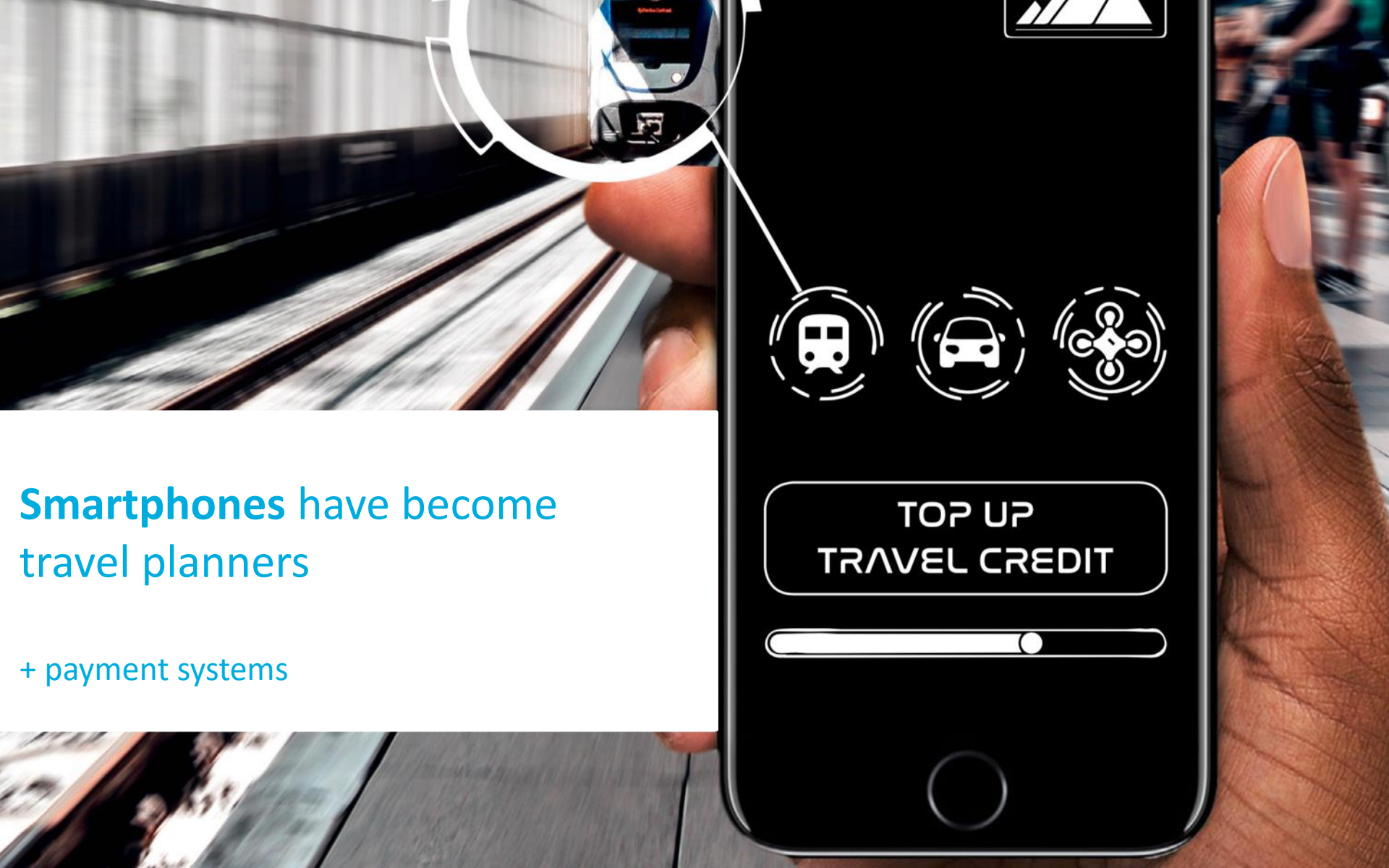
**Opportunities  
and challenges**

**Key messages**



# Transport is attracting intense innovation in technologies and services





# Smartphones have become travel planners

+ payment systems



# Ride hailing and sharing services have become common



Car sharing is becoming more popular

A photograph of two women laughing joyfully next to a blue car. The woman on the left has long brown hair and is wearing a denim jacket over a pink top. The woman on the right has curly hair and is wearing an orange jacket. The background shows a clear blue sky and distant hills. The text is overlaid on the image in white, with some words in a script font.

IT'S LIKE OWNING  
A CAR *without all the*  
SUCKY PARTS.

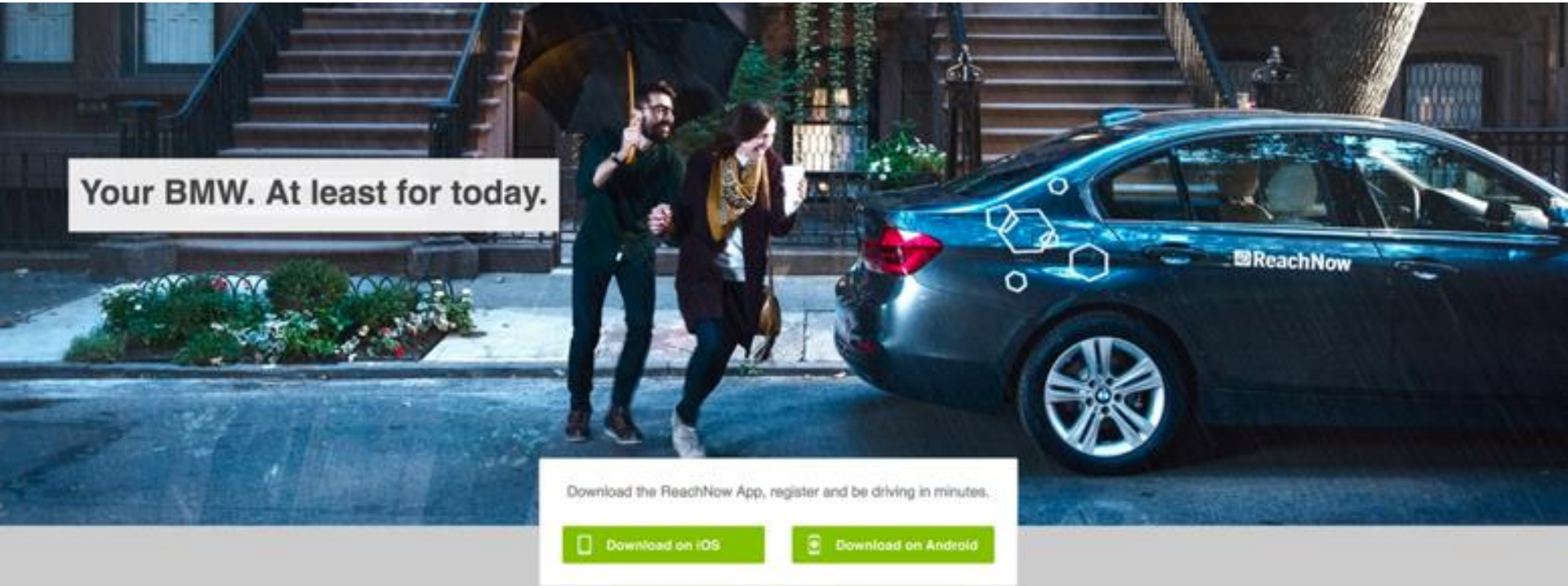
► Zipcar ad (2013)



## Other shared transport options have become a focus of debate



Many companies, include big auto makers, are aiming to **sell mobility**, rather than just vehicles



► Screenshot from BMW's ReachNow car-sharing service



Vehicles are also becoming increasingly automated





# Dozens of companies are competing to offer the first shared automated vehicle fleets



Public tests of **autonomous taxi services** started in Singapore and Pittsburgh in 2016

Waymo (Google) is about to launch a fully autonomous taxi service and has ordered 82,000 cars

# We could be entering a new **shared mobility era** for urban transport

NZ TODAY



**Private car era**

- 90% households own a car
- Most own 2 or 3 (among highest rate globally)
- 70%+ trips by car
- <5% urban trips by public transport

2045?



**Shared mobility era**

- Access doesn't depend on ownership
- Sharing cars, bikes, vans, scooters etc
- Fleets of fully autonomous cars
- *Where could public transport fit?*

# What could this mean for public transport?

*There are divergent views of the future....*



*or*



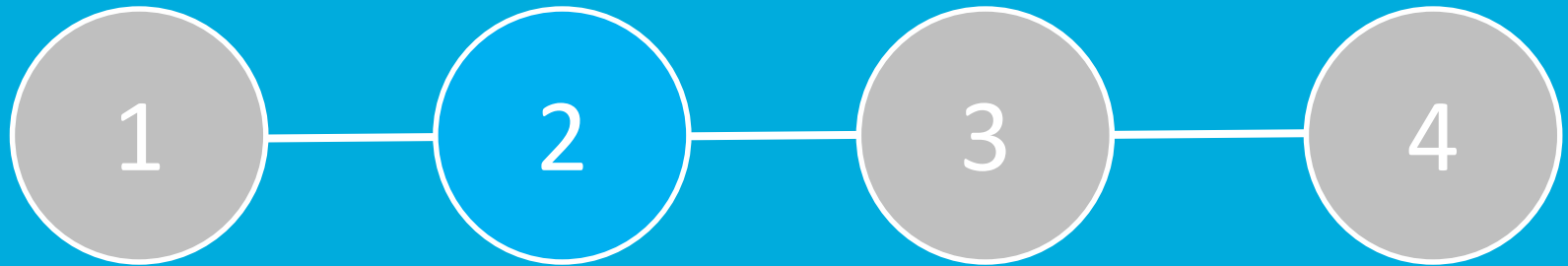
PT could play a **crucial role**

PT could **cease to exist**

That's why we did this project



# The value of public transport



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# Public transport benefits wellbeing

Enables **access** for those who do not drive / own a car

The **safest** form of transport

People who use PT regularly **walk more** than people who go by car

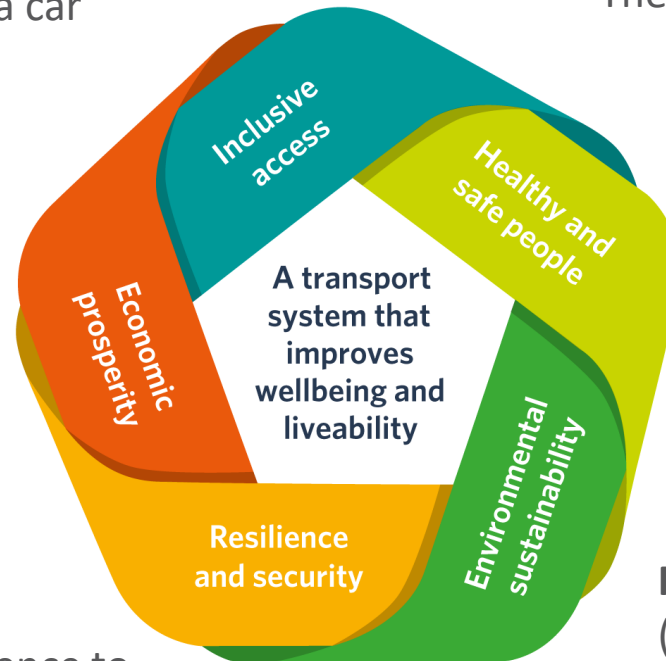
**Less harmful emissions** than cars (depending on vehicles / fuels / localised areas)

**Fewer GHG emissions** than cars (at high occupancy)

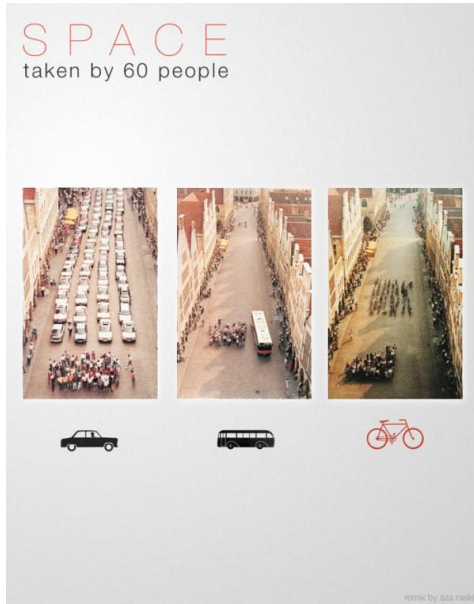
Helps to manage **congestion**

Enables efficient **high value use of urban space**

Supports resilience to rising/fluctuating oil prices



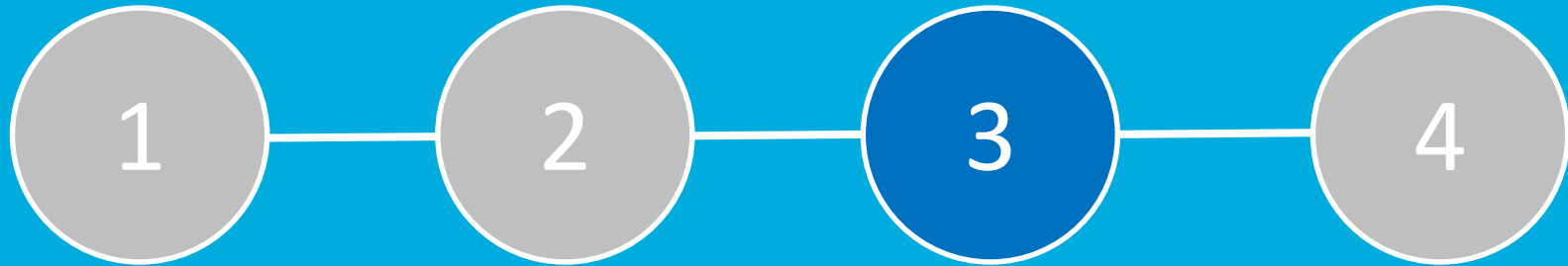
# Public transport also enhances liveability



- ▶ Less space needed for vehicles
- ▶ Less space needed for car parking
- ▶ Freeing up urban space for higher value purposes
- ▶ More people-friendly streets for living, walking, resting, shopping



# Opportunities and challenges in the shared mobility era



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The innovation that could really accelerate shared mobility?



No

The innovation that could really accelerate shared mobility



*Fleets of fully autonomous vehicles (AVs)*



# Shared AVs will make it cheaper and more convenient to travel by car

Car travel costs could fall by **65+ percent** with fleets of autonomous vehicles

+ Zero parking costs

*Avoiding these hassles...*



Got Insurance?



# AVs will compete with PT

*What would you choose?*



VS

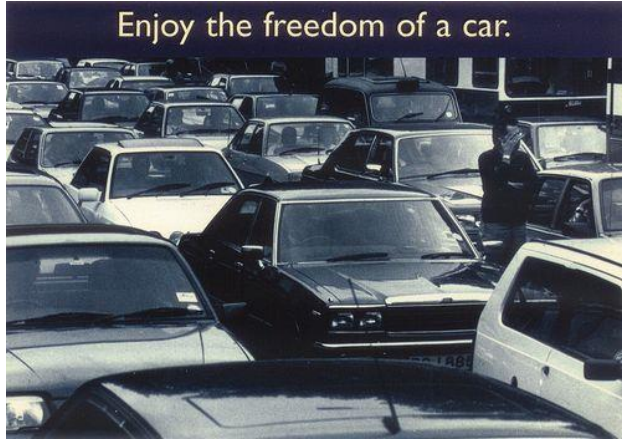


A car arriving on-demand outside your door, carrying you in comfort, and dropping you directly at your destination, with no parking worries or parking costs

Walking to the bus stop, waiting for a bus, standing if the bus is full, and walking at the other end

*Unless PT is more convenient...*

*What would you choose?*



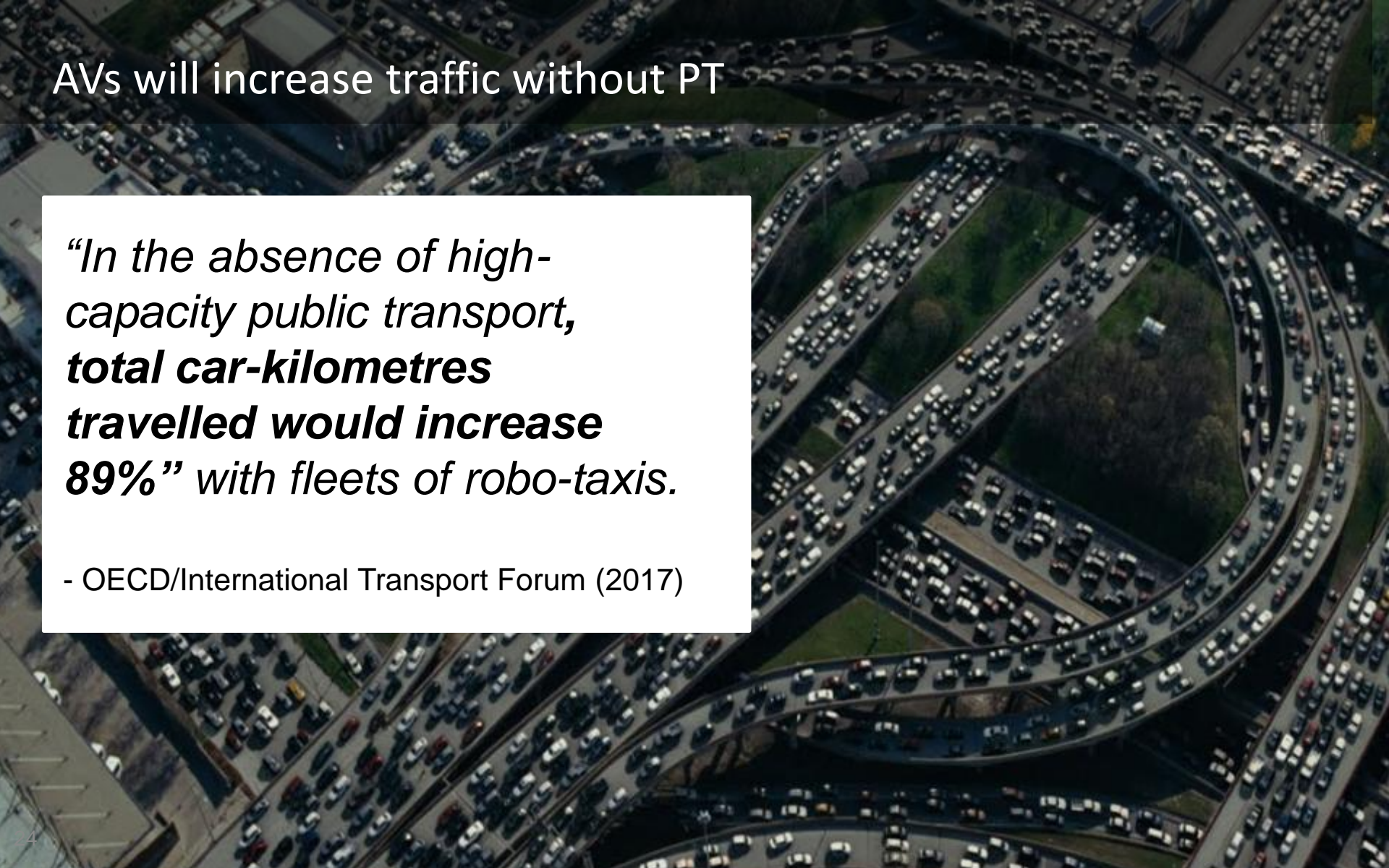
VS



Paying more (in time or money) to travel at peak periods, when many other people want to travel in AVs too

A quick journey on a dedicated rapid transit corridor



An aerial photograph of a complex multi-level highway interchange. The roads are filled with a dense flow of cars, illustrating heavy traffic. The interchange features several levels of overpasses and ramps, with a central green area. The overall scene conveys a sense of congestion and high volume of vehicle travel.

## AVs will increase traffic without PT

*“In the absence of high-capacity public transport, **total car-kilometres travelled would increase 89%**” with fleets of robo-taxis.*

- OECD/International Transport Forum (2017)



We can already see signs of this...

## Lyft, Uber increase traffic 180 percent in major cities, says report

3

*Riders are giving up public transit—not their cars—in favor of ride-hailing trips*

By **Adam Brinklow** | Jul 27, 2018, 12:02pm PDT

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### MOST READ



# AVs are also likely to encourage urban expansion

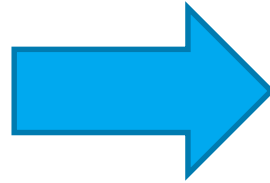
## Cheaper travel

- + Better use of time
- + No parking costs
- + Cheaper/bigger housing on city edges

= More appealing to live on the outskirts of the city and commute longer distances

*Public transport is less viable in low-density areas*

# Shared AVs will create opportunities too



Infrequent bus services in low-density areas could be replaced by **more frequent and demand-responsive services** on **smaller vehicles**



# On-demand shuttles could replace large buses in low-density areas

*We are already seeing examples of how this could work in New Zealand (with humans driving for now)*



## On-demand public transport research underway in Timaru

Date: 25 Oct 2018

CATEGORY: NEWS | Public Transport | Transport

Environment Canterbury has engaged global mobility and technology expert Via to assist in a feasibility study for an on-demand public transport service in Timaru. The service would help residents and visitors get around the city by booking a shared ride.

## Devonport ferry commuters get option of shuttle service from home to the terminal

Felicity Reid · 16:22, Jan 10 2018



DENISE PIPER/STUFF

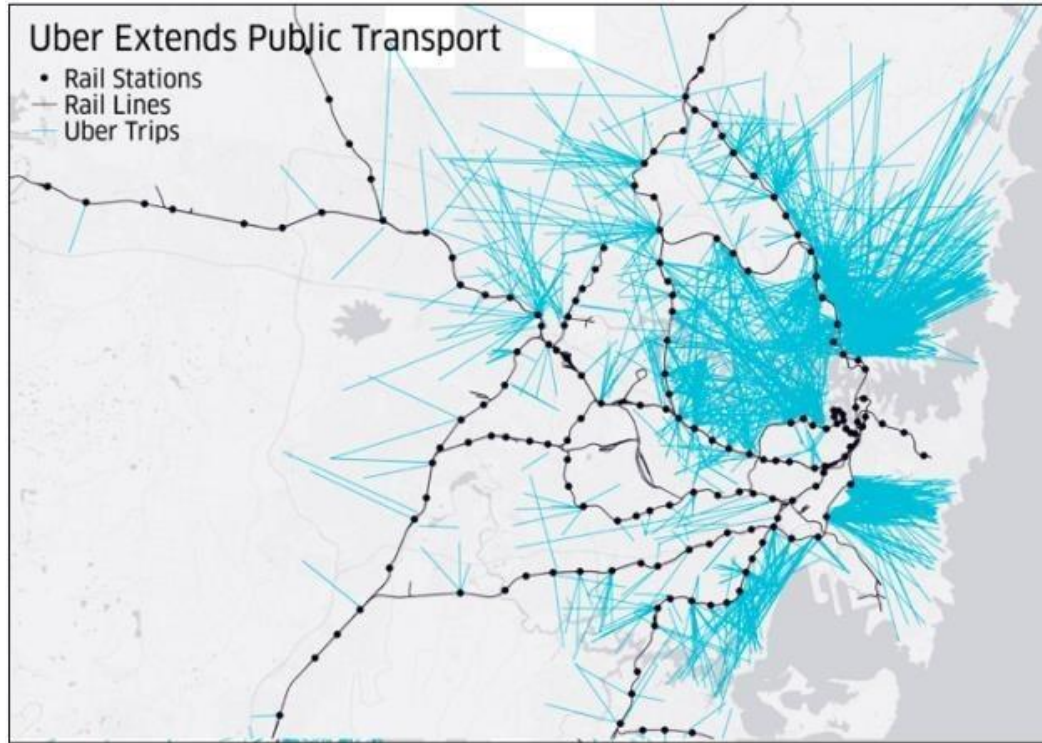
Devonport ferry commuters could have a new way to get to and from the terminal with the launch of a local ride-share service.

By mid-year Devonport commuters could be using their smartphone to book an on-demand shuttle service to take them to and from the ferry terminal.



# Shared AVs could complement PT (first/last legs)

## Uber trips to/from rail connections in Sydney



Some States in the USA subsidise trips by Uber/Lyft to rapid transit hubs

# Shared fleets could accelerate the transition to cleaner vehicles



Enabling a quicker turnover of our vehicle fleet, with far less cars needed overall to provide the same/more mobility

# Shared AVs would require far less parking, creating opportunities to reshape streets



Making streets more lively?



Dedicated PT lanes?

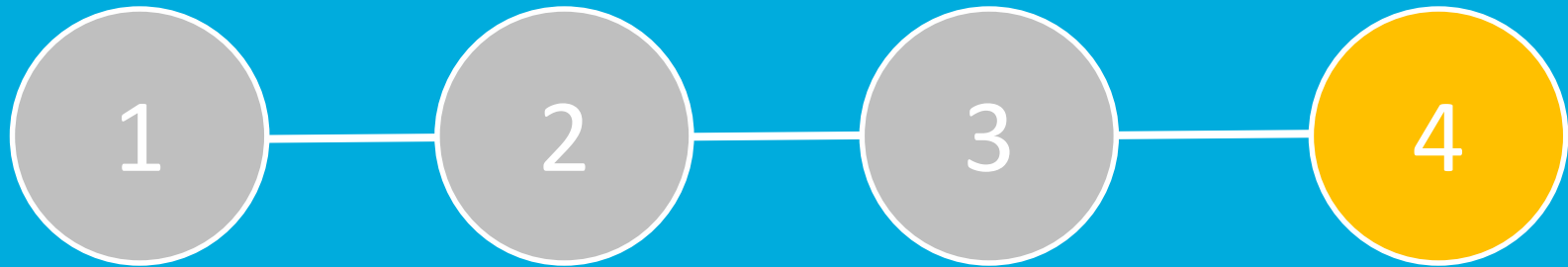


More space for other transport modes?

*... although we could do a lot of this now if communities were willing.*



# Key messages



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# PT supports many positive outcomes that we need to keep growing

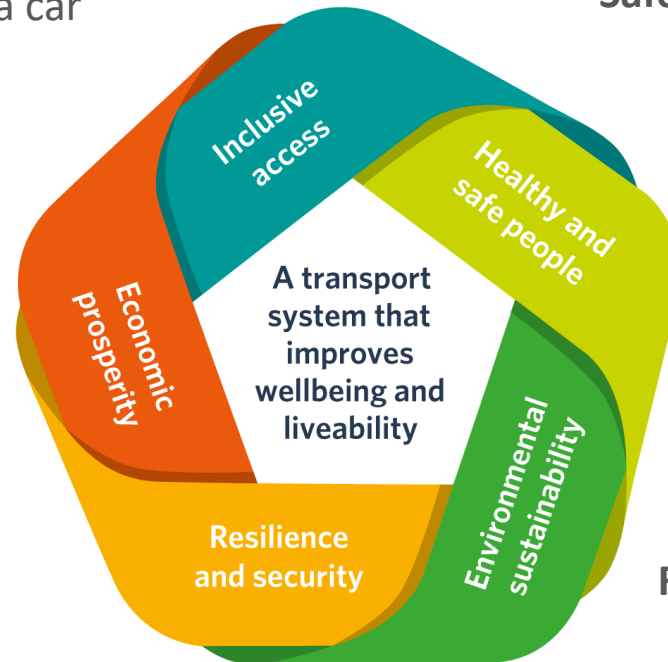
Enabling **access** for those who do not drive / own a car

**Safe travel**

Encouraging **walking and cycling**

Managing **congestion**

Enabling efficient **high value use of urban space**



Reducing harmful emissions

Reducing GHG emissions

# Key messages from PT2045

- PT needs to be at the core of our shared mobility future
- We need to shape new innovations to support positive transport outcomes
- Increasing need for rapid transit systems in higher-density areas
- Connect rapid transit with other parts of a shared mobility system and walking/cycling
- Demand-responsive buses and shuttles could replace many scheduled buses in low-density suburban areas



# PUBLIC TRANSPORT 2045

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mobility era



- ▶ Much, much more in the working paper!
- ▶ Get a copy at
- ▶ [www.transport.govt.nz](http://www.transport.govt.nz)