



Engineers Australia

A Sustainable Approach to Metropolitan People

Movement

Thursday 24th May 2018

The Future of Public Transport

Prof Graham Currie FTSE
Public Transport Research Group
Monash Institute of Transport Studies
Monash University



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STUDIES



Introduction

The End

The Great AV Lie

The Great Shared Mobility Lies

Why Transit?

Transit Fusion



This session considers urban transit futures in a changing world

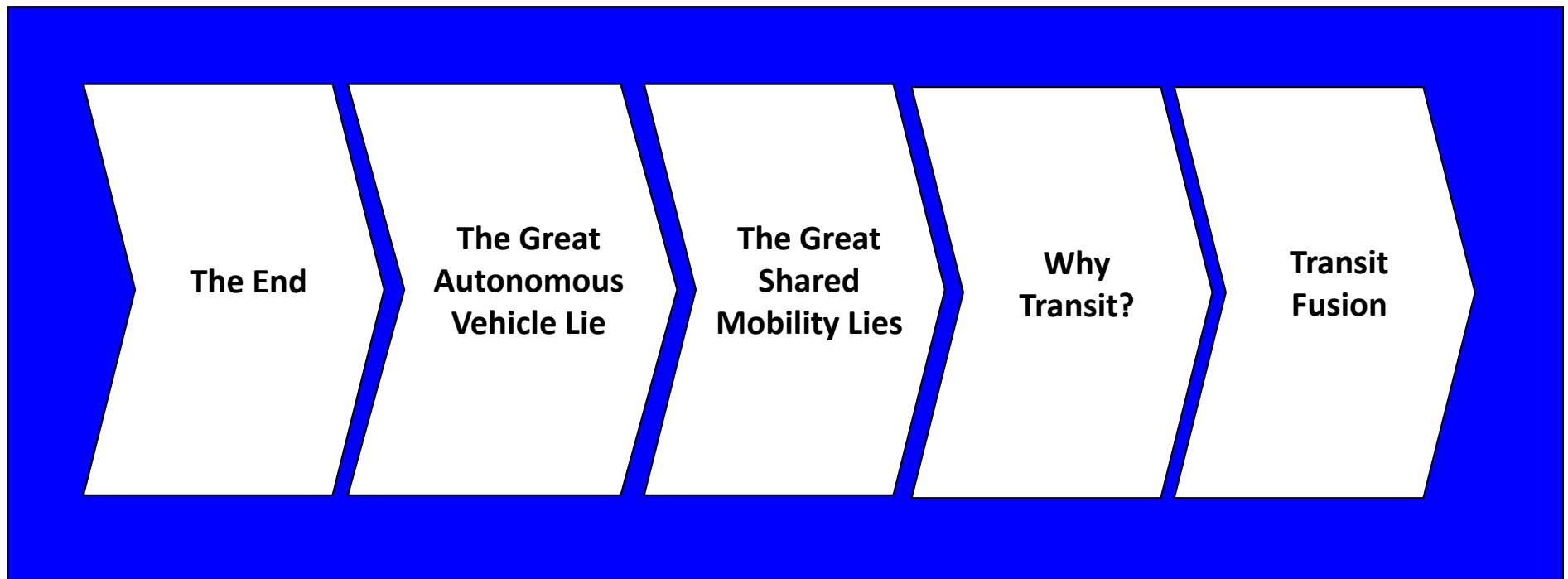
- It aims to :
 - consider how “new mobility”, “autonomous vehicles”, “shared mobility” and “ride sharing” is going to impact urban transit
 - Explore the future case for Urban Transit systems
 - Look at some new and interesting developments in the field
- It is going to debunk fallacies being promoted about new mobility and transit



Source:

Currie G (2018) 'LIES, DAMN LIES, AV'S, SHARED MOBILITY AND URBAN TRANSIT FUTURES' *Journal of Public Transportation Special Issue on the Future of Public Transport.*

...and is structured as follows



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THE END



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The End of Transit and the Beginning of the New Mobility: Policy Implications of Self-Driving Cars

SHARE

Policy Forum

October 14, 2014
12:00PM to 1:30PM EDT
Hayek Auditorium

Featuring **Randal O'Toole**, Senior Fellow, Cato Institute; **Marc Scribner**, Research Fellow, Competitive Enterprise Institute; and **Adam Thierer**, Senior Research Fellow, Mercatus Center; moderated by **Matthew Feeney**, Policy Analyst, Cato Institute.

Experimental self-driving cars have successfully operated more than 700,000 miles on American highways. Such cars will be on the market by 2020 and will radically transform the 21st century. What should Washington policymakers know about the future of American mobility? Randal O'Toole will describe the implications of self-driving cars for urban transit and regional transportation planning. Marc Scribner will discuss the laws and regulations that should govern self-driving cars. Adam Thierer will review the privacy implications of self-driving cars. Please join us for a preview of the future of American transportation.

THE ATLANTIC
COULD TRANSIT START-UPS BE THE
TRANSPORTATION?



in San Francisco

Start-ups like
disrupted the
revolutionized
have to rely on
However, they
on public trans

Public transportation is often funded by
the amount of people riding it regularly,
s harder for cities. The problem begs the question, should cities privatize
ortation? After all, the New York City subway system was
companies, not the government



The End of Public Transit?
are proving more efficient than government in areas like
Should some services be privatized?

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Driverless Cars; the end of Transit

Driverless cars could make mass transit obsolete

BY DAVE ROSS
OCTOBER 25, 2016 AT 9:27 AM



A group of self driving Uber vehicles position themselves to take journalists on rides during a media preview at Uber's Advanced Technologies Center in Pittsburgh. Driverless

The Great AV Lie:

AV's will take over public transit because public transport is old, too old to be involved in the modern AV technology trend and hence car based AV's will take over.

Driverless Cars; the end of Transit

Driverless cars could make mass transit obsolete

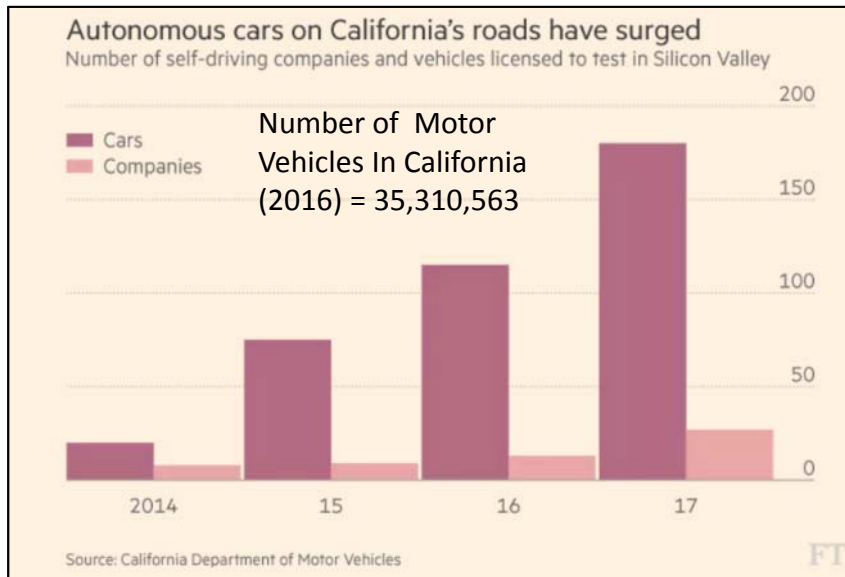
BY DAVE ROSS
OCTOBER 25, 2016 AT 9:27 AM



A group of self driving Uber vehicles position themselves to take journalists on rides during a media preview at Uber's Advanced Technologies Center in Pittsburgh. Driverless



Driverless Cars; current status



Australia's first self-driving car ready for the road this week

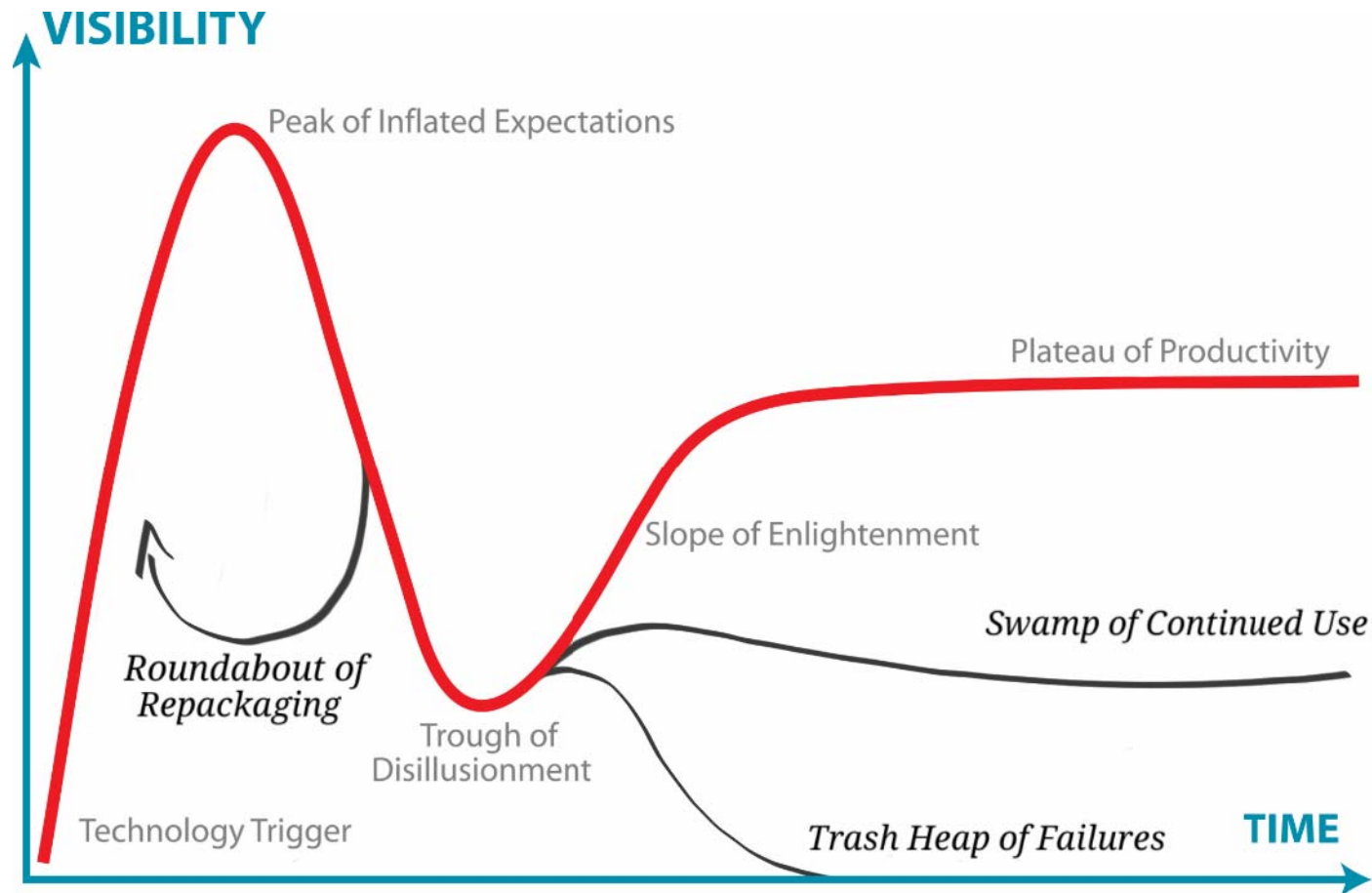
The World Today By Tim Lamacraft

Updated 6 Oct 2016, 2:05am

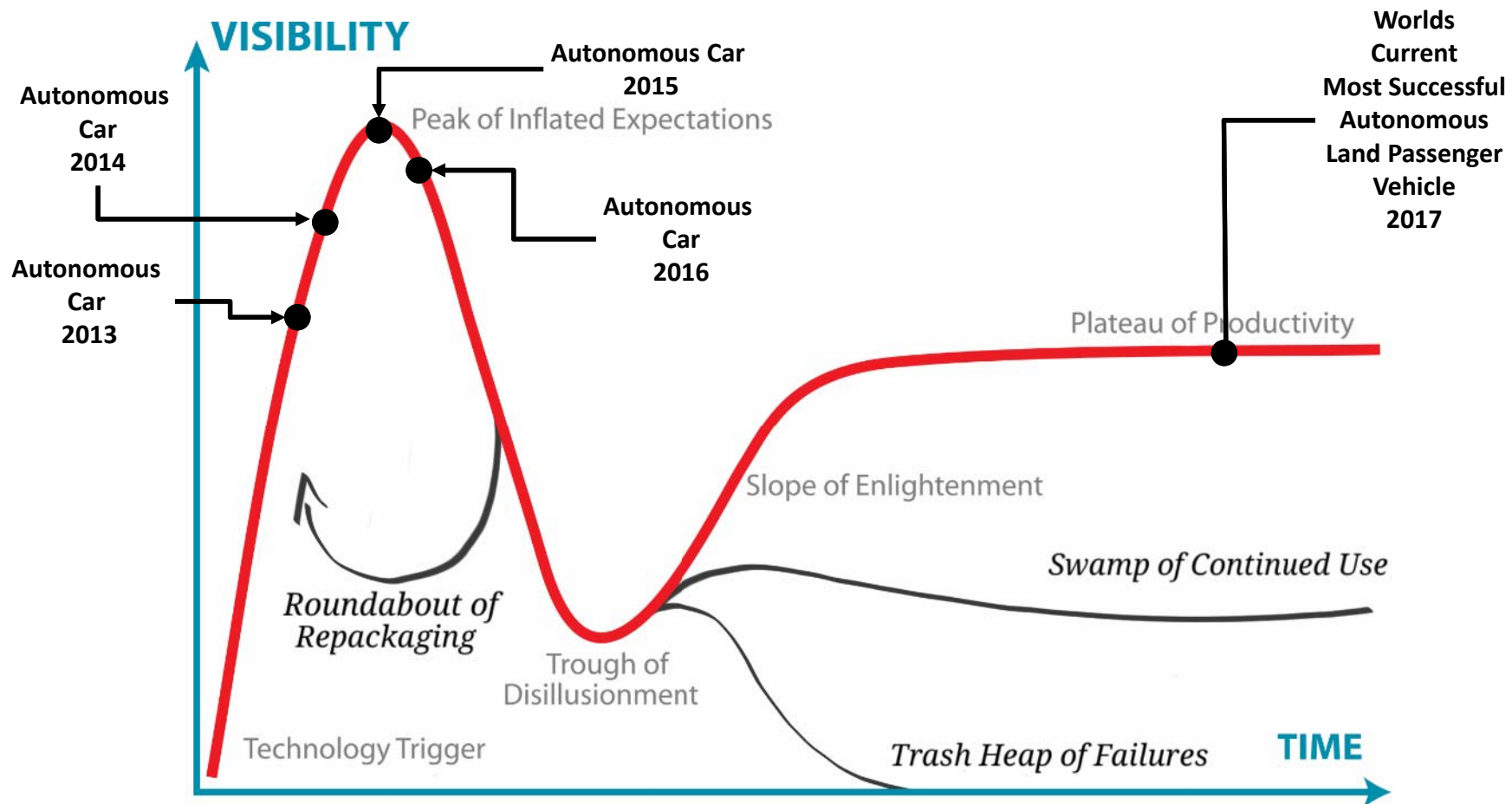


PHOTO: The car still needs someone behind the wheel, but it is designed to navigate roads with or without driver input.
(ABC News: James Hancock)

The Hype Curve; technologists as experts in spin



The Autonomous Car – Contemporary Progress

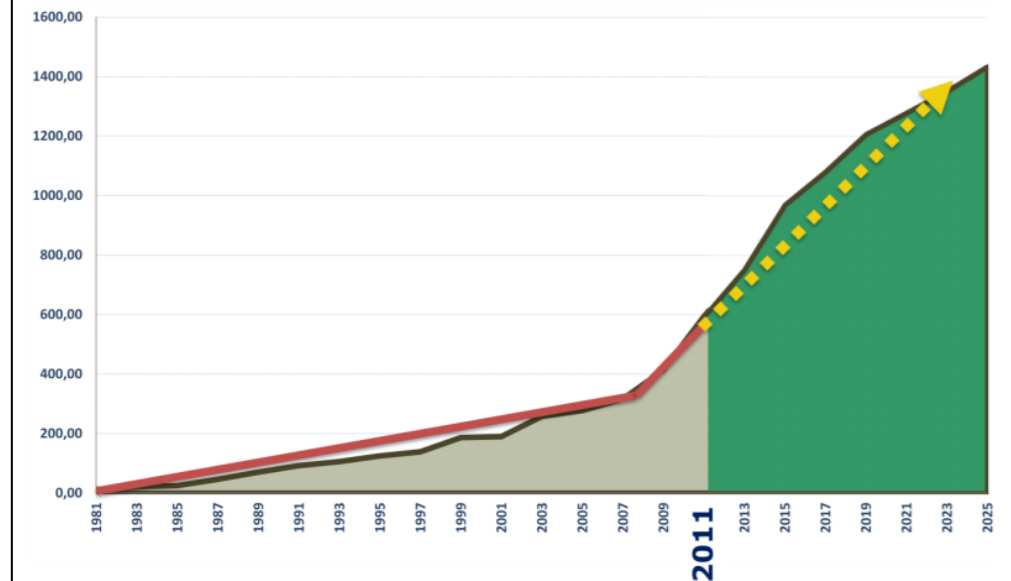


Source: Gartner; <https://www.gartner.com/newsroom/id/3784363>

Real Driverless Vehicles; trains



Figure 9: Expected evolution in automated lines (km)



Automated Trains are more efficient

Allowing for shorter journey times and more trains operating on the line at the same time.

2011



The Jubilee Line has increased the number of trains running in peak hours by 18 per cent, allowing an additional 5,000 people an hour.

2012

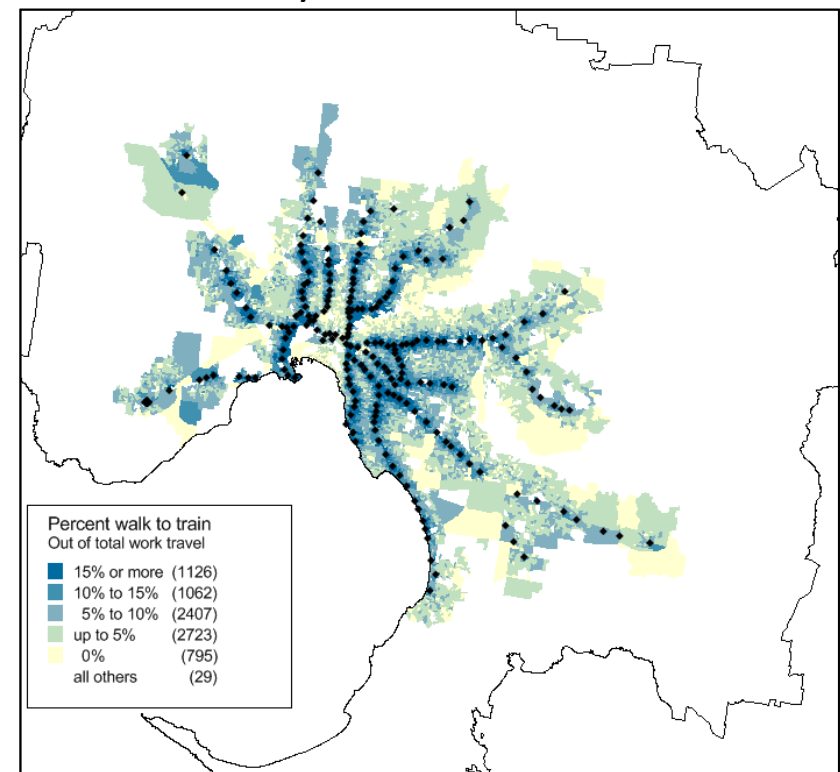


January 2012, overall capacity will increase by a third, this means the Jubilee can carry about 12,500 more passengers an hour.

Autonomous Buses – first/last mile solutions



Metro Trains Walk Market Penetrates only 7% of Melbourne



Source: PTRG Analysis of Census Journey to Work (2011)



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Shared Mobility

Is Sharing Sharing?



Is Sharing Sharing?



The Great Shared Mobility Lie 1:

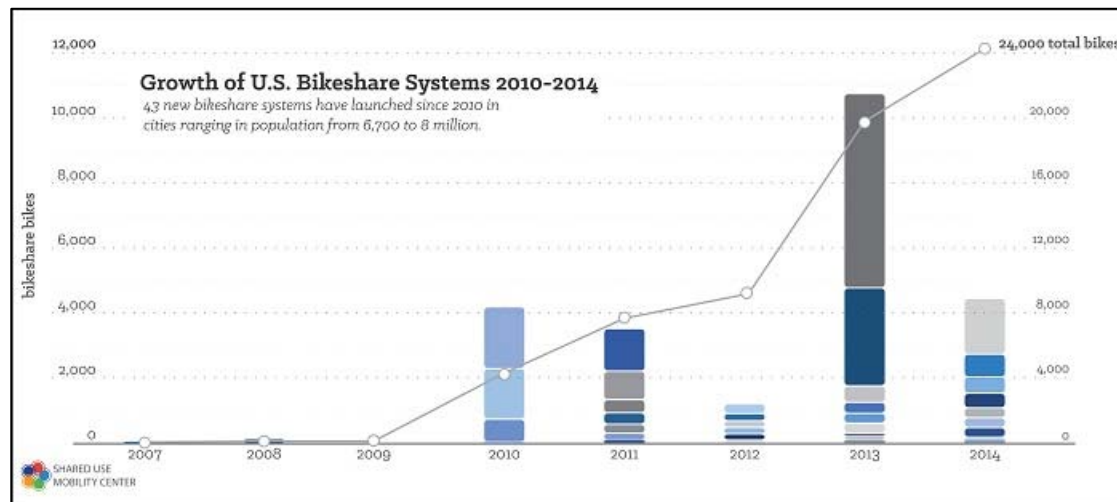
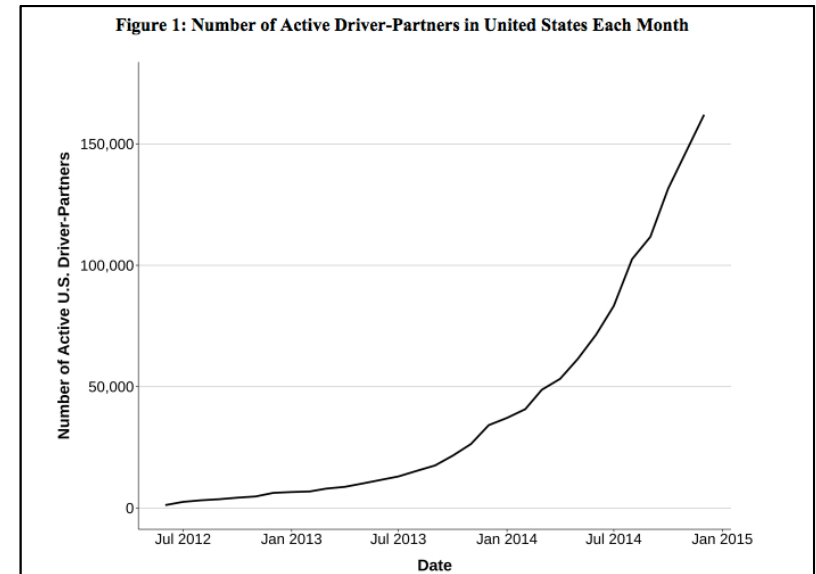
Shared Mobility is growing transforming cities and improving the efficiency of urban transport through increased vehicle shared occupancy

The Great Shared Mobility Lie 2:

Shared Mobility involves vehicle sharing



Shared Mobility is growing; but is it transforming cities?



Shared Mobility is growing; is that BAD for transit?

Bloomberg Technology

Uber and Lyft Want to Replace Public Buses

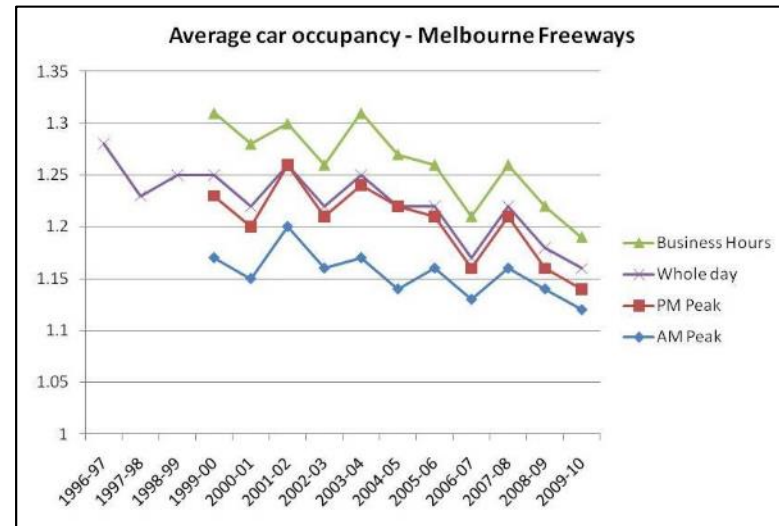
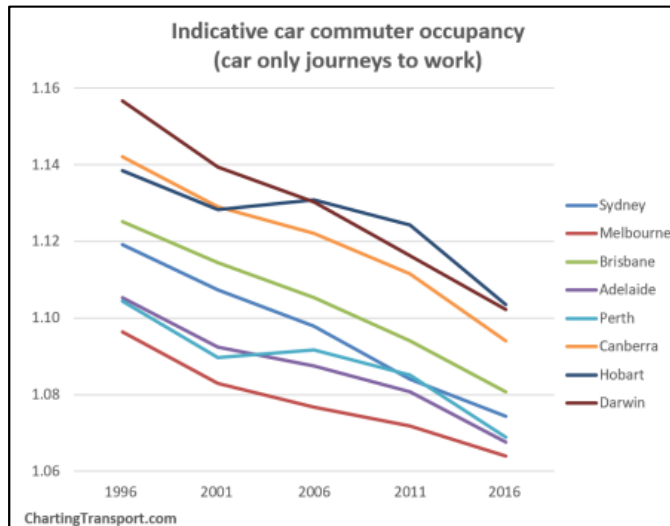
Pressed by tight budgets, some towns are cutting transit lines and subsidizing car rides.

by **Joshua Brustein**
August 15, 2016, 9:00 PM GMT+10
Updated on August 16, 2016, 1:16 AM GMT+10



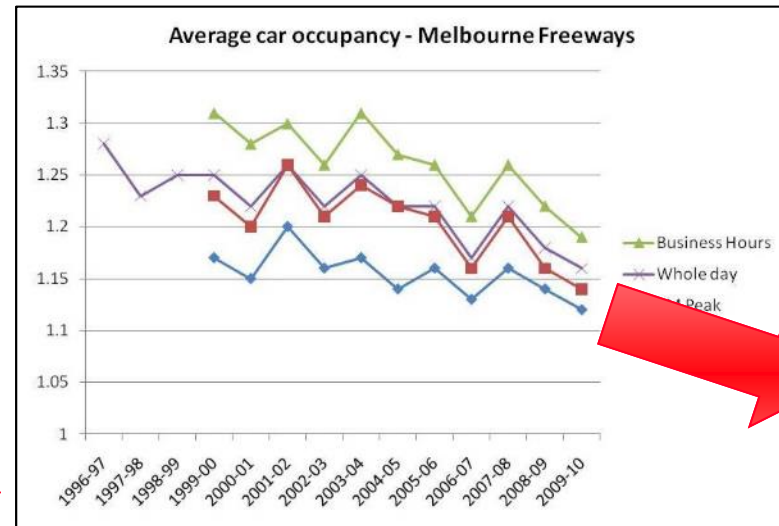
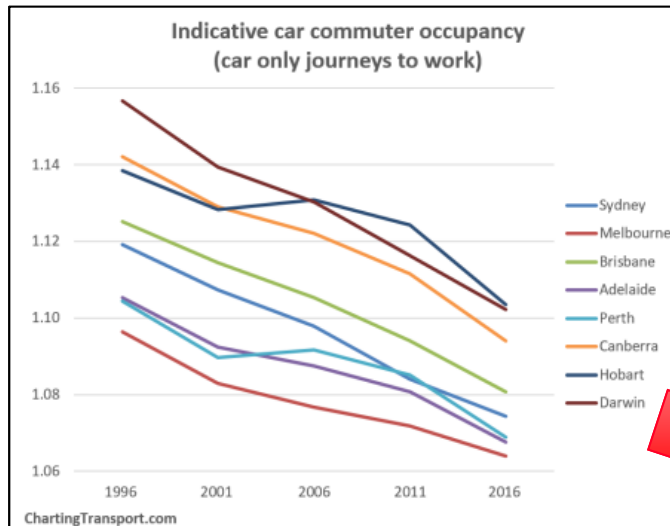
Illustration by Stephanie Davidson

Shared (car) travel is NOT growing; its been DECLINING for 30 years



Source: Charting Transport (2017)

With AV's we can now achieve occupancy ; BELOW 1!



Source: Charting Transport (2017)



Are Driverless cars the solution or another part of the problem?



When Ride Sharing Isn't – TNC's and Carshare

- Uber assumed to have the same occupancy as Taxi at 1.66 per vehicle (including the driver)

- Source: San Francisco County Transportation Authority (2017) 'TNC's Today'



It isn't much
in the way of
sharing

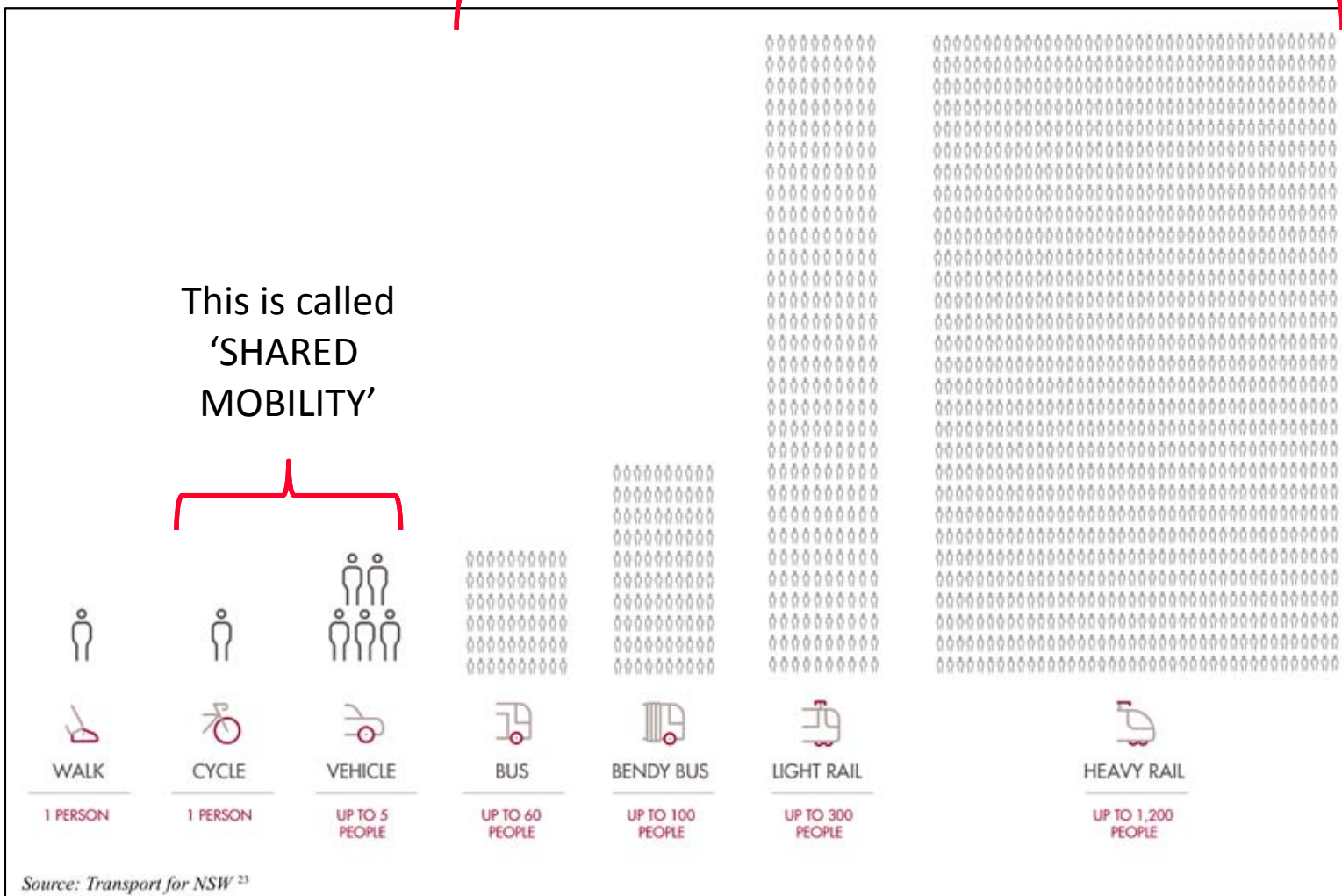
- CarShare – average vehicle occupancy is 1.44 (including the driver)

- Source: Cervero, R Golub A and Nee B (2007) 'San Francisco City CarShare: Longer-Term Travel-Demand and Car Ownership Impacts' Institute of Urban and Regional Development University of California at Berkeley



Slightly better
than
Melbourne
traffic but
known to
have positive
impacts in
reducing car
ownership

This is NOT Called 'SHARED MOBILITY'



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2007



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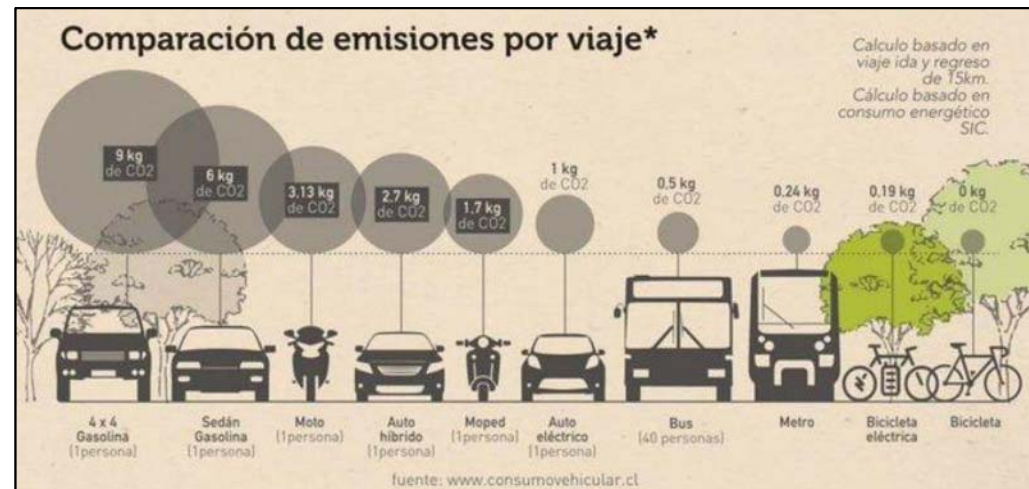
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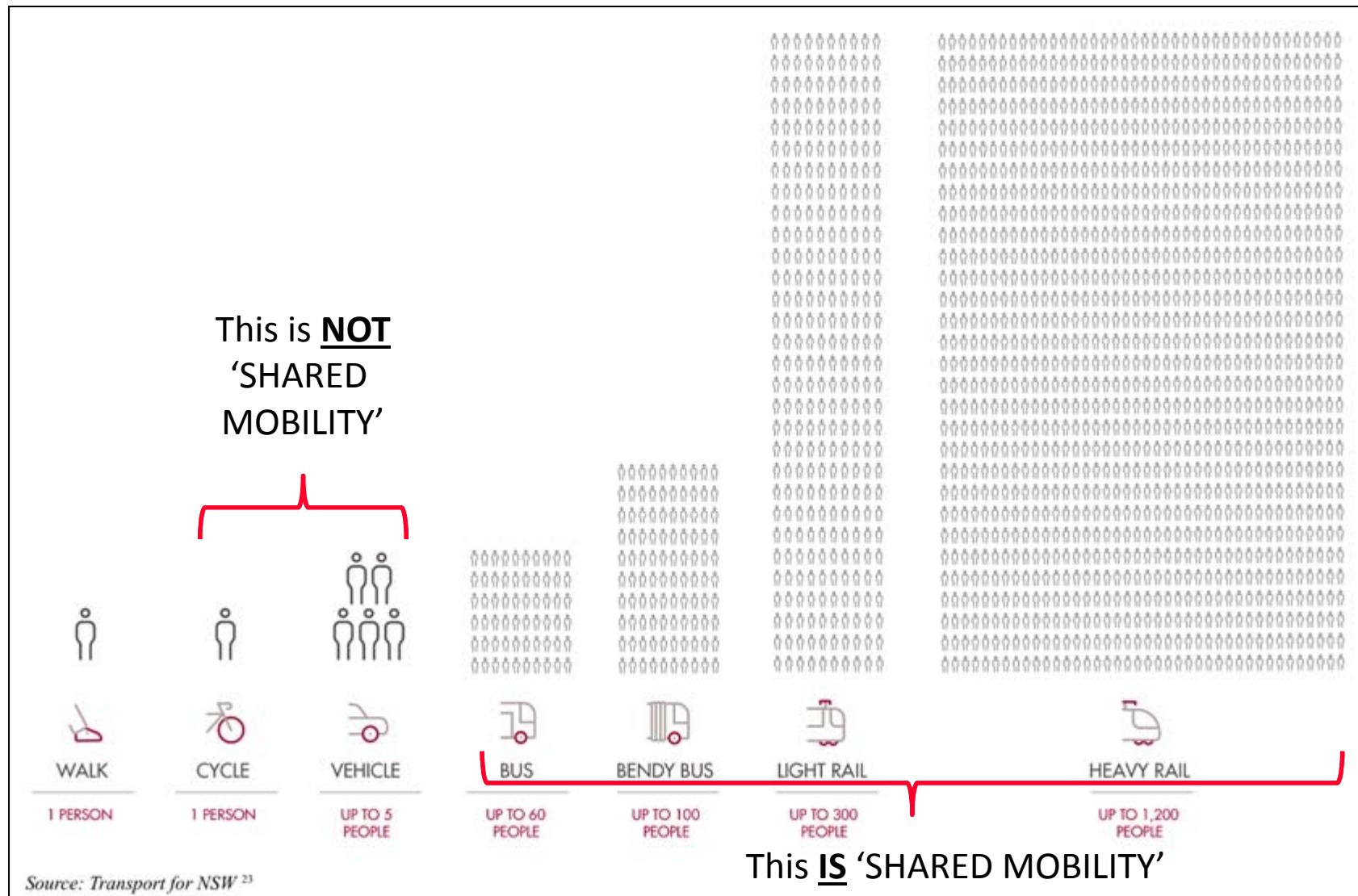
Cities; humanities future



Mass Transit=Efficiency and Volume



Public Transport is the most efficient form of SHARED MOBILITY



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Transit Fusion

New Word Definition:

“Transit fusion” is the adaptation of transit vehicles, infrastructure and service design to integrate the best features of new technologies into new transit modes and services to improve overall service performance, attractiveness and effectiveness outcomes.



Transit Fusion – Bringing the New into Transit

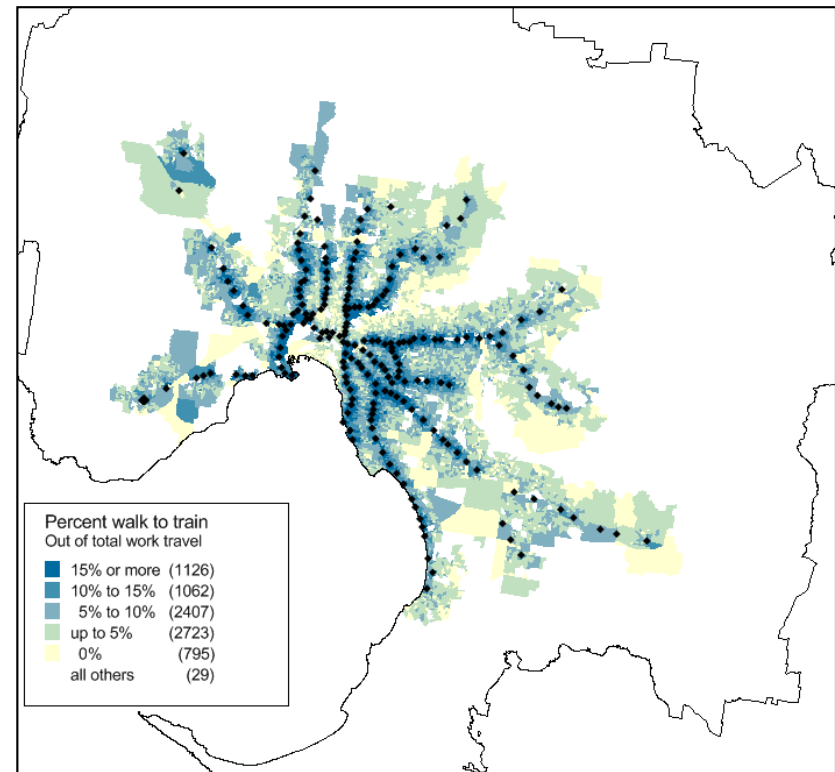


Transit runs the Car Share Scheme

Autonomous Buses, Dockless Bikes etc – first/last mile solutions



Metro Trains Walk Market Penetrates only 7% of Melbourne



Source: PTRG Analysis of Census Journey to Work (2011)

Bus Rapid Transit IS Transit Fusion; Rubber Tired Railways; cost effective adaptation of new technologies




A New Way to Bring the Train to the City



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Paper of the Day

A Genetic Algorithm for the City Coach
Station Location and Distribution of Transit Lines
Le Zhang, Xiaoping Qiu, et al.

Reader from: Curitiba, Parana, Brazil

World Transit Research February 2017 Newsletter
Institute of Transport Studies Monash University
World Transit Research Newsletter



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