# Future of Transport

## Impacts for Auckland and New Zealand

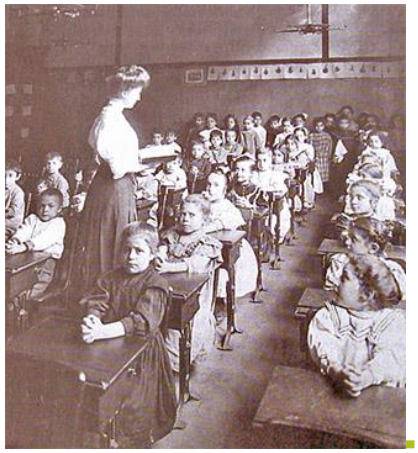
NZ TRANSPORT AGENCY
WAKA KOTAHI

New Zealand Government

# Overview

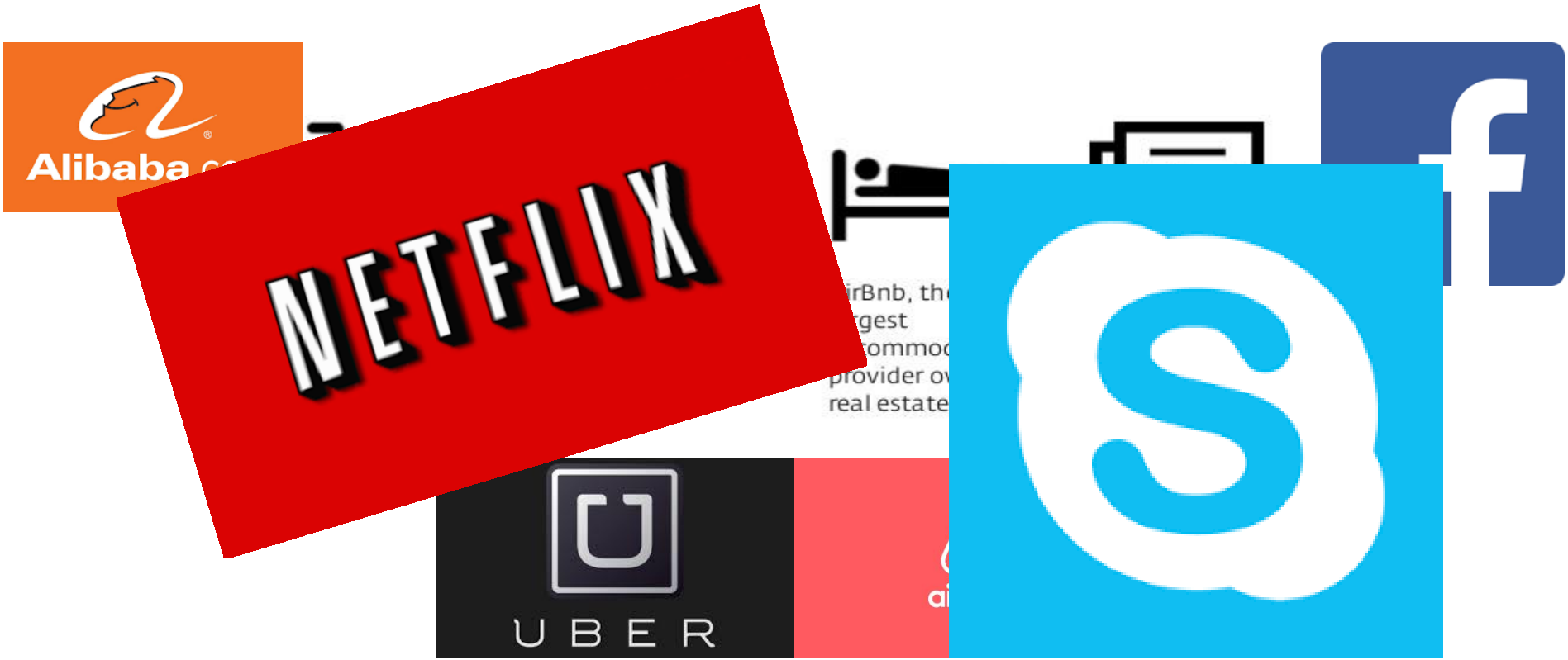
1. Rapid pace of change
2. Disruption
3. Transport and Technology
4. Challenges and Opportunities
5. To infinity and beyond?

# Rapid Pace of Change




# Disruptive Technologies

## How we evolve…



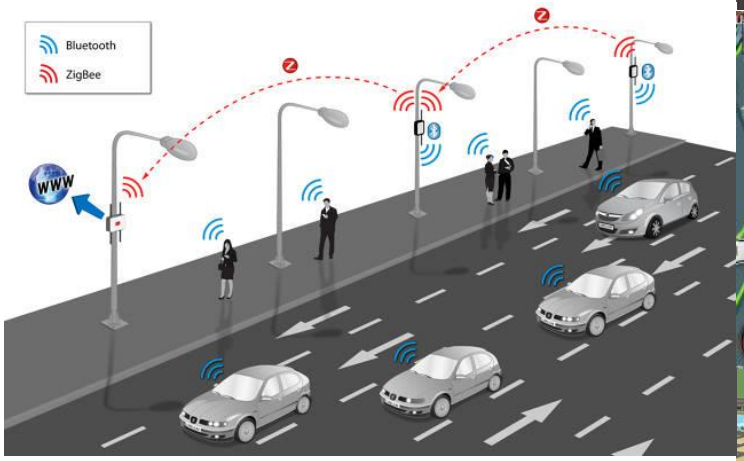
# Technology and Transport

## Five Key Themes

1. Big Data
2. Alternative Energy
3. Automation
4. Sharing
5. Network Management, in support of the above

# 1. Big data


Flow
Road sensor
Traffic camera
Commercial GPS Probe
Consumer GPS Probe
Smartphone Probe
Cellular Network Probe
Vehicle Data
Vehicle Health
Weather
Incidents
Driver Generated Report
Accident
Construction
Event


Bluetooth
ZigBee
WWW


40° 45' 36"N,73° 58' 56"W
Weehawken
Hudson River
Lenox Hill
Astoria
New York
Turtle Bay
Long Island City
Hunters Point
Tudor City
Chelsea
Hoboken
Flatiron
West
0.5 mls

# Case study: Big data + new IS = new transport (parking) solutions


LUXE

# 2. Alternative Energy

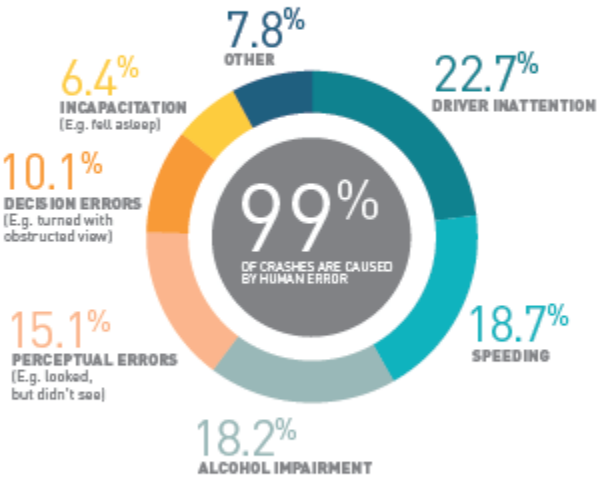

National Drive Electric Week™

DRIVE ELECTRIC

# 3. Automated and Connected

## REDUCING HUMAN ERROR

Fully automated vehicles will significantly reduce driving incidents caused by human error. In a study of 723 crashes, driver error caused or contributed to 717*




*Relative frequency of unsafe driving acts in serious traffic crashes; summary technical Report, USDOT NHTSA Traffic Safety Programs, January 2001

# Automated

| Technology | Introduced | Description |
|---|---|---|
| Adaptive Cruise Control | 2006 | Automates vehicle speed to keep a set following distance from preceding vehicle using sensors (no communication with other vehicles or infrastructure). |
| Parallel-park assist | 2006 | Uses cameras and ultrasound to guide the vehicle into a parking space. |
| Automatic emergency breaking | 2008 | Activates itself when the vehicle risks collision with another object. |
| Lane-keeping technology | 2014 | Warns the driver when the vehicle risks drifting out of its lane and in some versions prevents the vehicle doing so. |

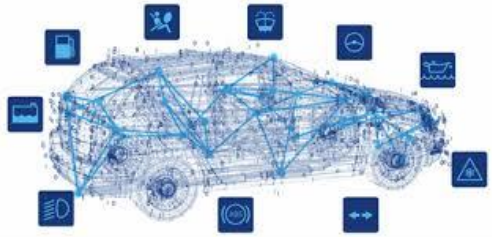
# Coming soon to a theatre near you…

1. Single Lane Autopilot (2015-2016)
2. Traffic Jam Autopilot (2017)
3. Automated Valet (2017)
4. Highway Autopilot (2018)

# 3(b)Connected

## Fundamental changes to how we work, live and play

- Wireless Access to Internet
- Connect to personal devices
- Communicate with other ‘connected’ vehicles
- Communicate with roadside infrastructure
- Communicate with Transport control centres for real-time data exchange.

# 4. Sharing


Let's Carpool!

SHARE A CAR

ride share


lyft

UBER

# Sharing benefits

- Enhancing Transport Accebility
- Extend Coverage of Services
- Reduce parking pressures
- Reduce emissions
- Reduce the cost of travel for households (fuel poverty)
  - Shared mobility to lower income households


# Shared mobility for Auckland?

## Things to keep in mind…Key drivers include

1. Trials and good communication
2. Level of private sector innovation, trials and attractiveness of service offering
3. Extent to which Govt provides an enabling environment
4. Shift in attitudes
5. Availability of parking as Auckland intensifies in longer term.

# Case study: Big data + new sharing solutions = the end of the suburban bus?



# 5. Network management – Express lanes



BAY AREA
EXPRESS LANES

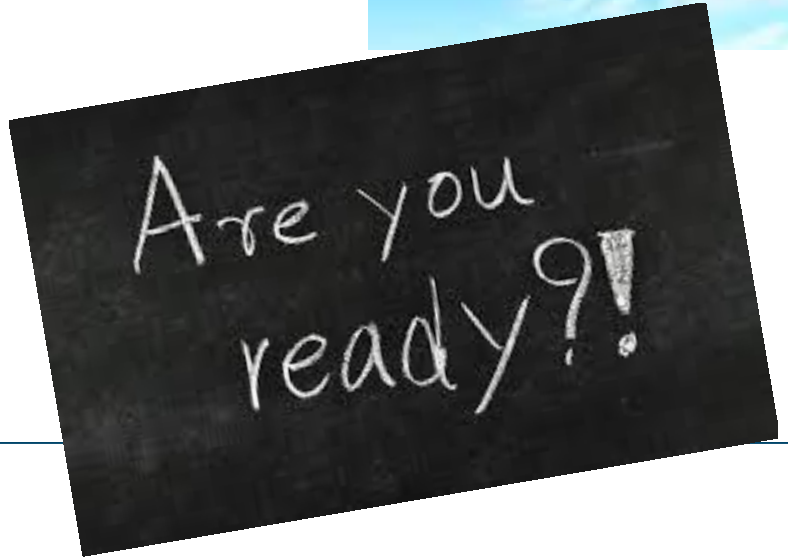
NZ TRANSPORT AGENCY
WAKA KOTAHI

New Zealand Government

# Challenges and Opportunities

## Things to think about

- Pace and uptake of technology will grow
- Behaviour changes – need an enabling environment
- Governments and Regulation – need to find the sweet spot


# To Infinity and Beyond?

## Predicting the next disrupter…

- Planning needs to be agile

- How do we get certainty for investors? (Government, private sector and communities)
- Need to find the advantage – to maximise the public good outcomes
- What's next?