WISE-ACT
Wider implications of automated vehicles

November 2019
WISE-ACT Idea Jam event
Background

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Connected and automated vehicles
Progress and partnerships
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WAYMO  TESLA  comma.ai
New York, 5th Avenue, 1900
New York, 5th Avenue, 1913
Speed of transition

Where’s the car?

New York, 5th Avenue, 1900

Where’s the horse?

New York, 5th Avenue, 1913
Progress?

Where are the people?

New York, 5th Avenue, 1900

New York, 5th Avenue, 1913
Hype cycle for automated vehicles

- Innovation trigger
- Peak of inflated expectations
- Trough of disillusionment
- Slope of enlightenment
- Plateau of productivity
Fatal crashes

Uber Volvo XC90 vehicle involved in death of Elaine Herzberg, Tempe, Arizona, USA (March 2018)

Tesla P70D vehicle involved in death of Joshua Brown, Williston, Florida, USA (May 2016)

Image credits: NTSB
Reduction in harm

Over 95% of crashes where someone is killed or seriously injured are due to human error.
Road deaths in UK

- Inappropriate speed
- Substance misuse
- Fatigue / sleepiness
- Failure to wear a seatbelt
Why the plateau?

• Cars and roads are safer
• Emergency medicine is getting better
• Drivers are getting better
  • Fewer younger drivers but more older (frailer) drivers
• Distraction effects?
• More driving? Increase post-2008 financial crisis
Dilemma situations

What should the self-driving car do?

Dilemma situations

Take away message – don’t be a fat, old, male homeless criminal!

Truth about dilemma situations

- AVs *should* be much less likely to encounter unavoidable crash situations
- When AVs do encounter unavoidable crashes, behaviour may emerge organically based on accepted principles of harm minimisation
- AVs are data stores – use to review and update
- Extensive use of *(validated)* simulation to model crash scenarios
Effect on jobs

- Innovation is not new
- Full employment returns
- Impact temporary but costly
- Benefits unevenly distributed
- Policy intervention vital
Effect on jobs – U.S. predictions

Climate emergency
Jevon’s paradox

Improved technology doubles the amount of *Work* produced with a given amount of *Fuel*

Demand for *Fuel* rises

![Graph showing the relationship between Price and Quantity](image)

- **Price**
- **Costs falls by half**
- **Quantity Demanded more than doubles**
- **Elastic Demand**
What we need...

• Fewer road deaths
• Secure and prosperous future for all
• A radical transformation in mobility
• Data
• AVs deployed safely, equitably and efficiently
• Engagement between public and private sector on policy priorities
Thank you