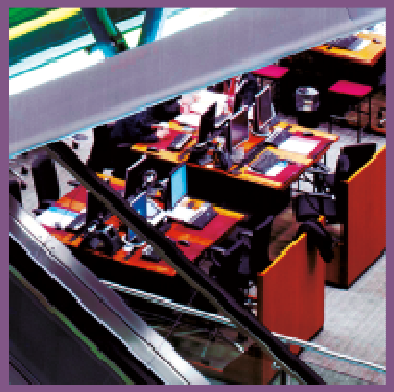
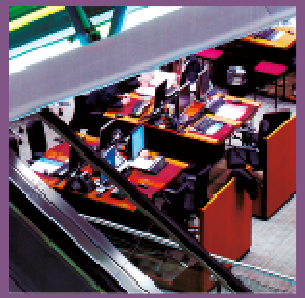


Autonomous Vehicles: Implications for Insurance

David Powell,
Non-Marine Manager, LMA

22nd October 2015

INSIGHT CONSENSUS INFLUENCE



Key Issues:

- Different models of autonomy
- Benefits for road users; safety, efficiency and logistics
- Liability
- Long-term outlook for car insurers
- Cyber risk

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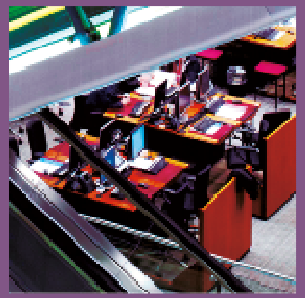

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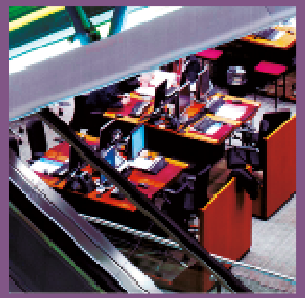
Different models of autonomy

- 1) The fully autonomous ‘Google car’

- NOTE: No driving controls



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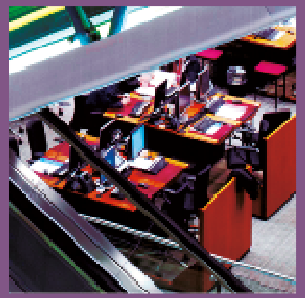

Different models of autonomy

- 1) The fully autonomous ‘Google car’
- 2) Ever-increasing levels of ADAS; Advanced Driver Assistance Systems:
  - Automated Emergency Braking (AEB)
  - Adaptive cruise control
  - Lane departure
  - Steering assist
  - Self-parking
  - …eventually = optional full autonomy

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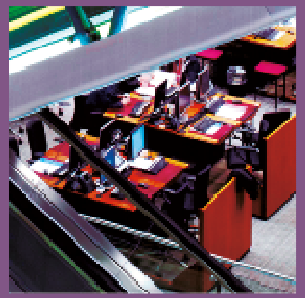


INSIGHT CONSENSUS INFLUENCE

2015

ASSIST

- SENSOR
- DRIVER ACTIVE
- FAIL SAFE

2020

AUTOMATE

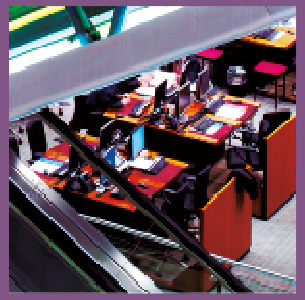
- SENSOR FUSION
- CO-PILOT
- DEPENDABLE

2030

AUTONOMOUS

- HIGH ACCURACY MAPS
- DRIVERLESS
- SAFETY COCOON

freescale

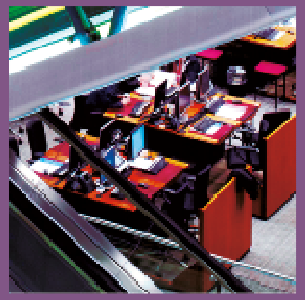


Benefits for users

- Safety
  - Fewer collisions
  - Mitigated collisions

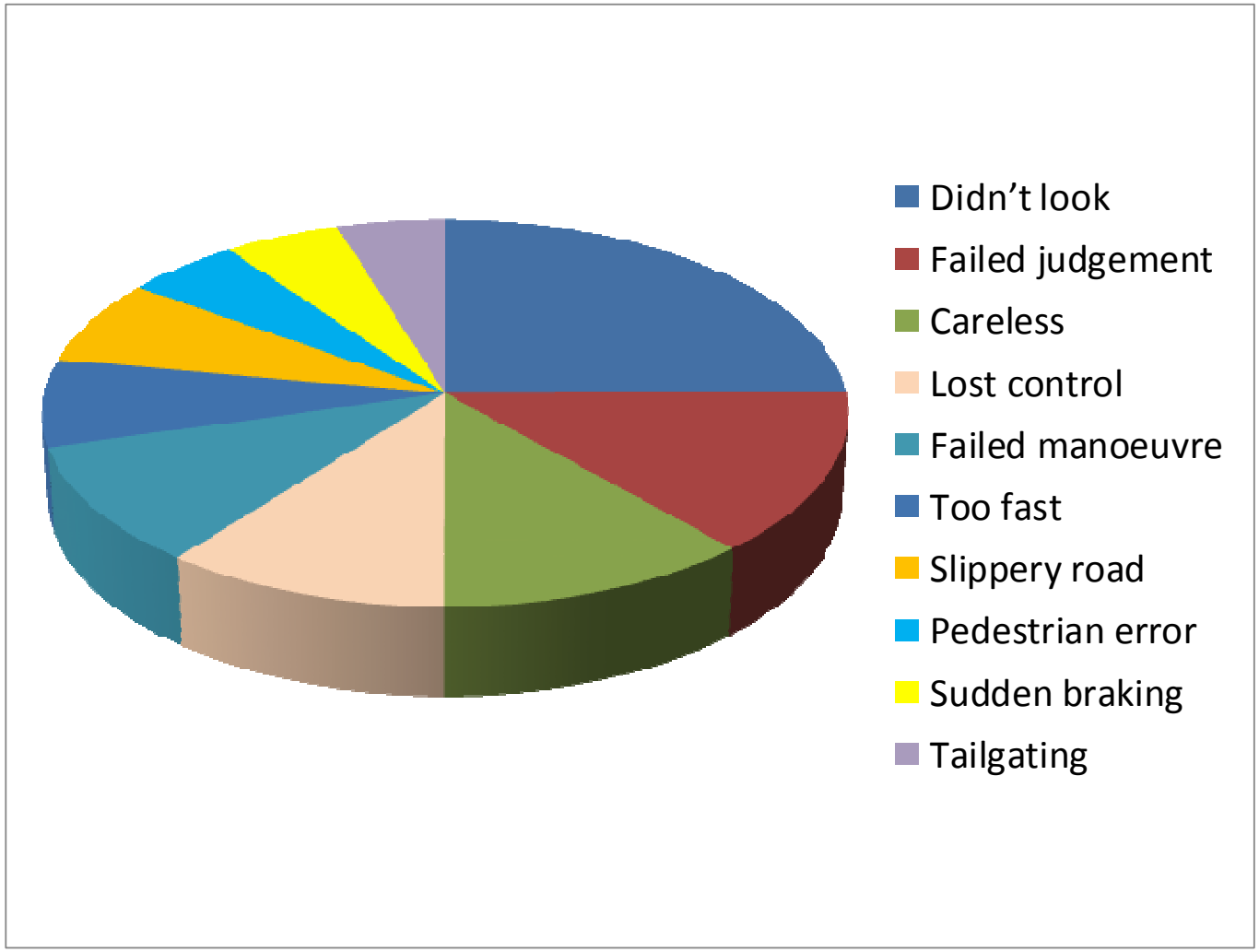
- Logistics flow from improved safety:
  - Less congestion; shorter and more predictable journey times
  - Improved fuel economy
  - Less pollution

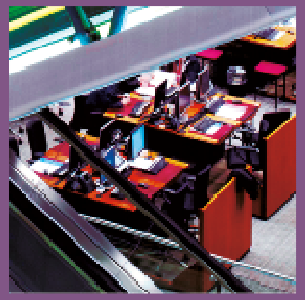
INSIGHT CONSENSUS INFLUENCE



INSIGHT CONSENSUS INFLUENCE

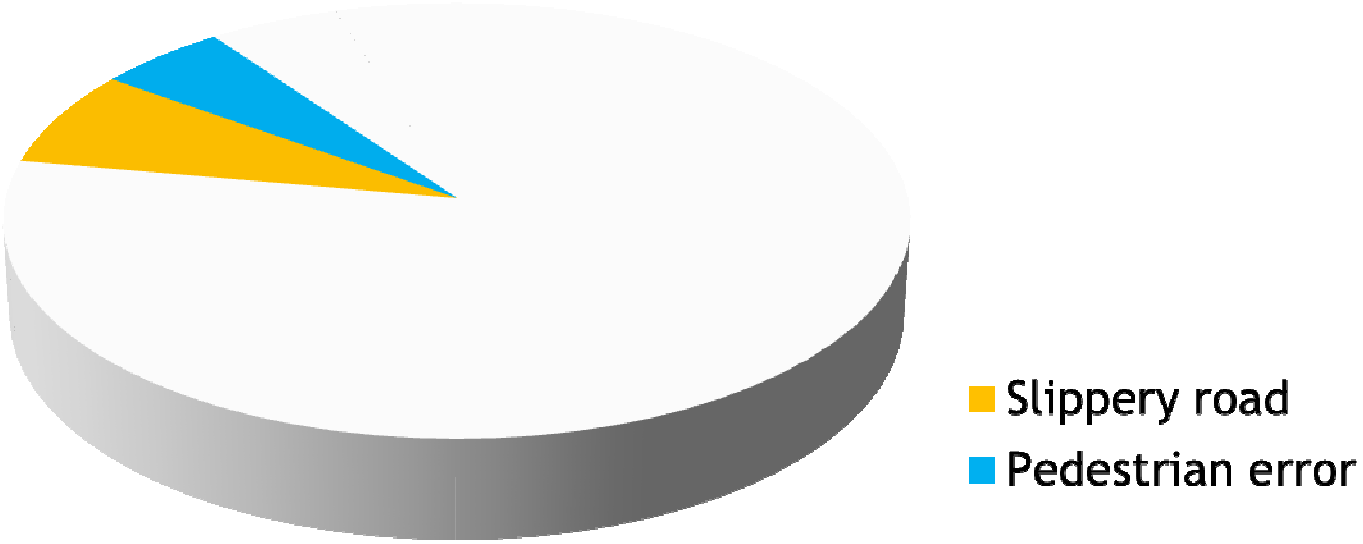
Top 10 Causes of accidents in UK



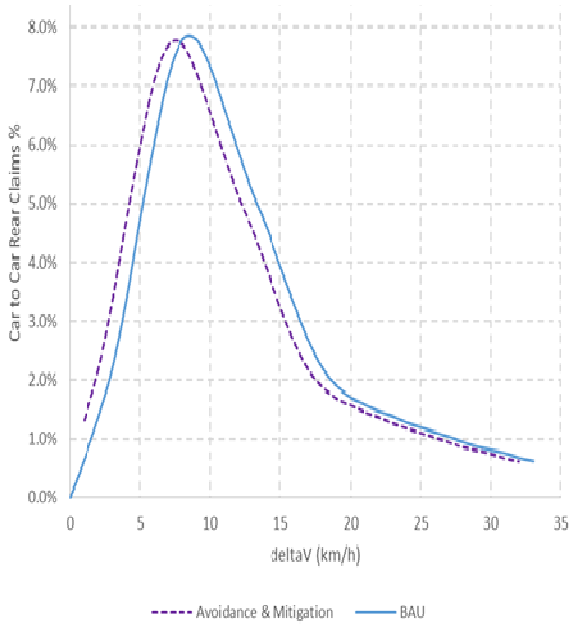


INSIGHT CONSENSUS INFLUENCE

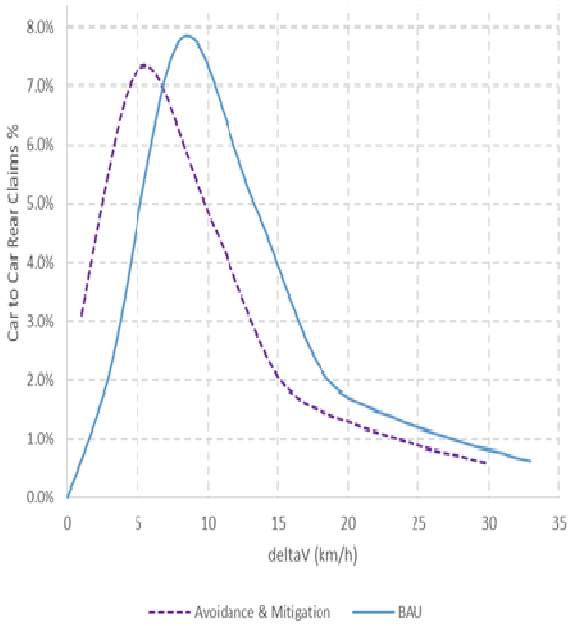
Top 10 Causes of accidents



AEB Effect on Crash speeds (predicted)

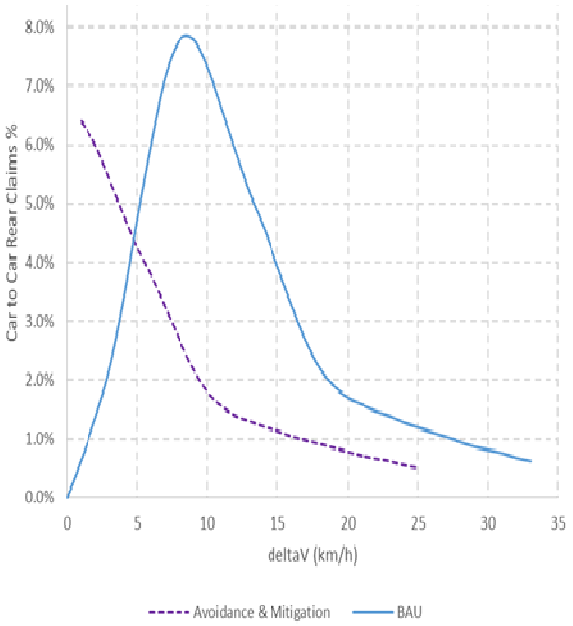


2015



2020

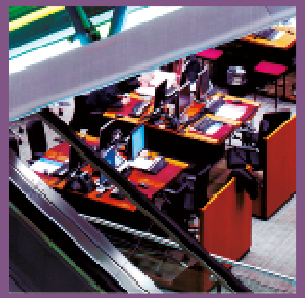
Avoidance: 1%



2025

Avoidance: 7%

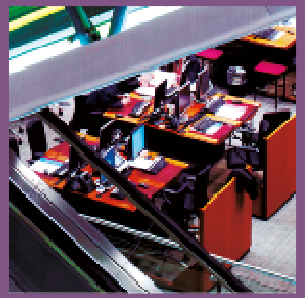
Avoidance: 18%



Wider benefits for users?

- Vehicle transport becomes easier to use
- Increased access to road travel
- Efficient use of time whilst travelling
- Social/commercial effects of connectivity
- New models of vehicle ownership
  - Decline in private ownership
  - Increase in single vehicle hire
  - Logistical and efficiency benefits

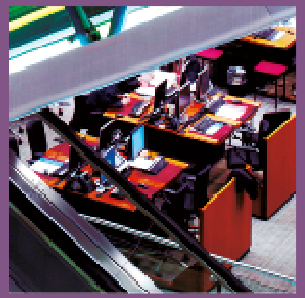
INSIGHT CONSENSUS INFLUENCE



Liability?

- Control of vehicle = liability
- When the driver is removed, liability will shift to vehicle manufacturers – product liability risk
- Big opportunities (and big risks!)

INSIGHT CONSENSUS INFLUENCE



Liability?

- Transition issue; driver/machine interchanging control?
  - Control *in potentia* = driver still liable
  - Liability arises out of the use of the vehicle (RTA 1988, s145 3(a))
- However, new legal frameworks are under construction
- Ethics?

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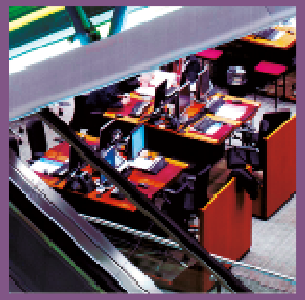
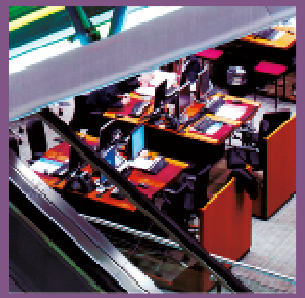


Long-term implications for car insurers?

- Low-frequency claims environment
- Simplified underwriting model (removed driver characteristics)
- Decline in private ownership
- Major shift to product liability
- = Major market contraction ultimately

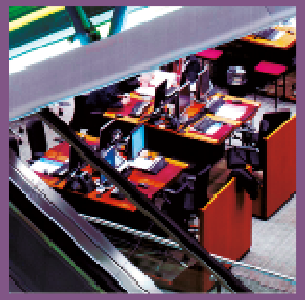
INSIGHT CONSENSUS INFLUENCE



But…

- Complicated transition process:
- VM product disclaimers will be extensive
- Could still be some appetite to insure personal risks
- Owners will want to insure 1st party risks
  - Malicious damage
  - Theft of
  - Theft from
- Classic fleet will need traditional RTA insurance

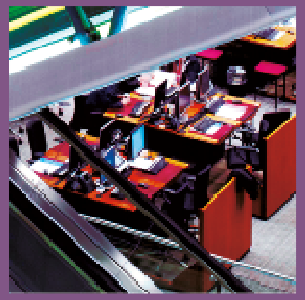
INSIGHT CONSENSUS INFLUENCE



And…

- Machines go wrong
- UK road network old and complex
- Still lots of non-automated road users
- Catastrophic injury claims tend be super-inflationary

INSIGHT CONSENSUS INFLUENCE



Also…

- VMs assuming product liability may want business partners:
  - Risk selection, Underwriting and Pricing
  - Distribution
  - Claims
  - Risk transfer

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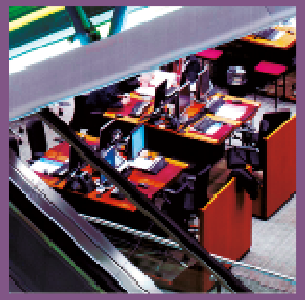
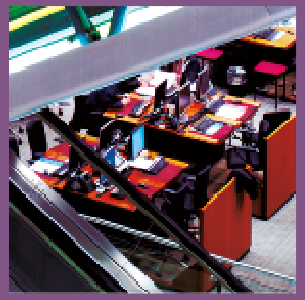


INSIGHT CONSENSUS INFLUENCE

When is all this going to happen?

"Prediction is very difficult, especially if it's about the future"

Niels Bohr

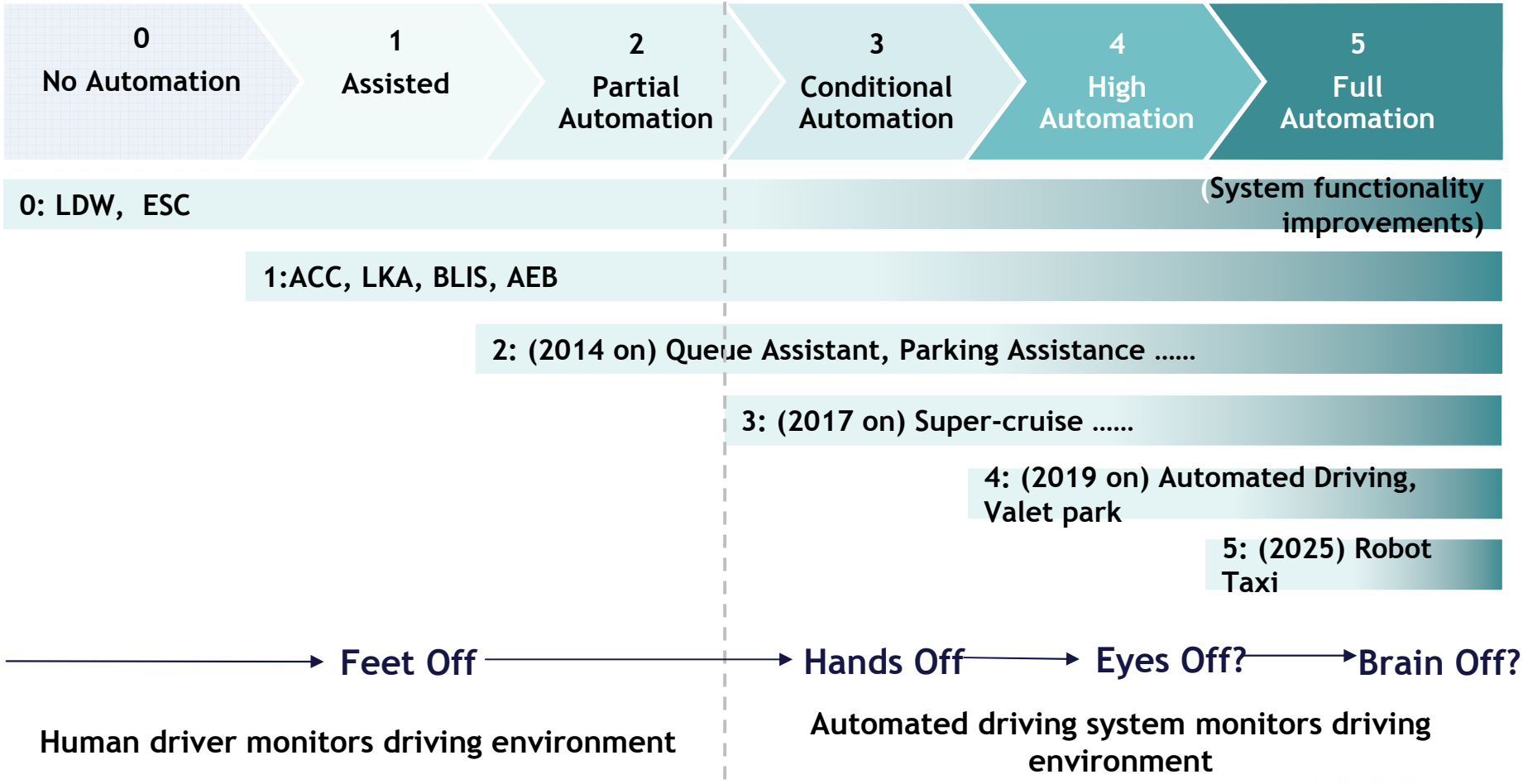


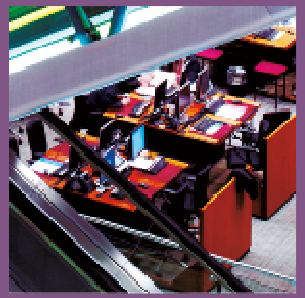
When is all this going to happen?

- Lots of uncertainties surrounding predictions:
  - Speed of development of the technology, and launch to market
  - Public acceptance
  - Cost
  - Rate of realisation of expected benefits
  - Development of legal and regulatory framework
  - Integration over next 20 years

INSIGHT CONSENSUS INFLUENCE

International Categorisation of Autonomy

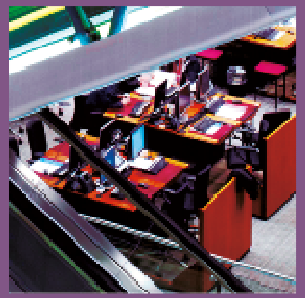




INSIGHT CONSENSUS INFLUENCE

Cyber risk

- Existing risk of connected vehicles is minimal
- In the future all (new) vehicles will be connected and reliant on autonomous systems
- Functionality creates risk:
  - Malicious attack; vehicles and networks
  - Theft
  - Data theft
- Solutions?
  - System isolation
  - Data Encryption
  - Exclusions (!)



Driverless cars

- Any questions?

INSIGHT CONSENSUS INFLUENCE