



IT TAKES VISION

Autonomous Vehicles

Sinead Clarke

3 November 2016

What are Autonomous Vehicles and why are we talking about them?

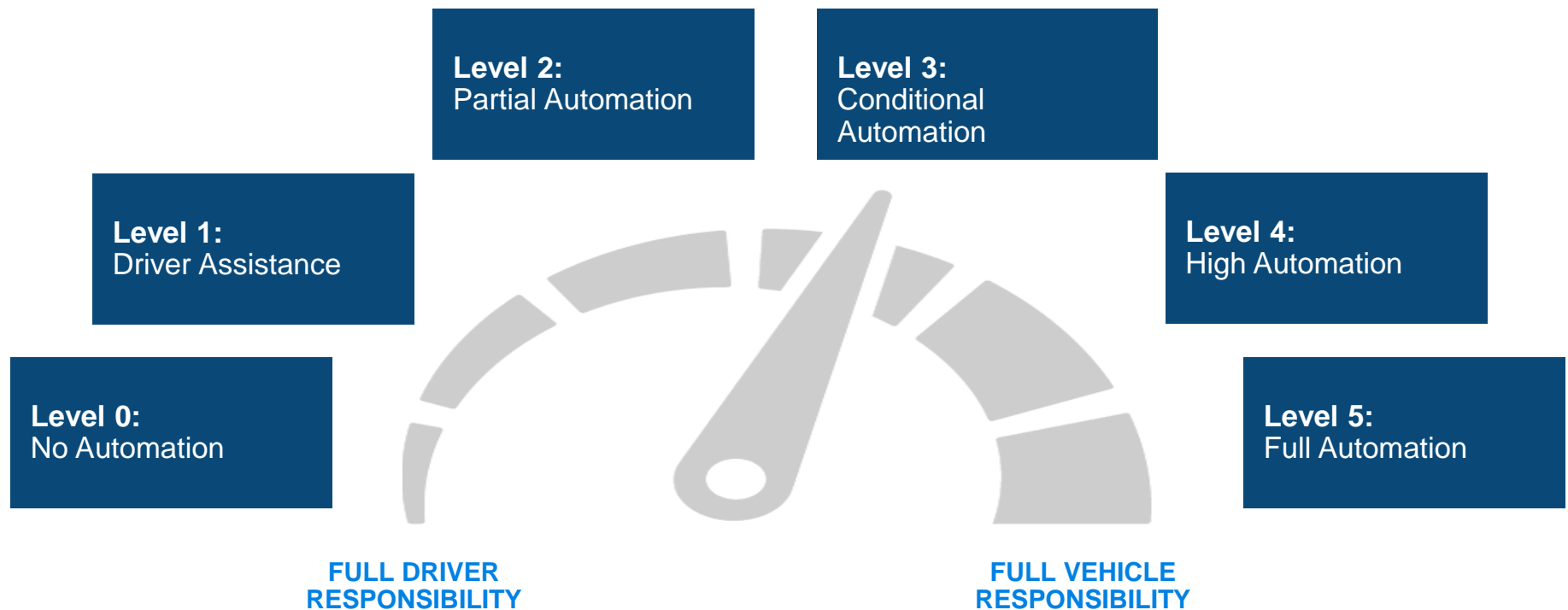
Autonomous Vehicles: What are they?

Definition: A robotic vehicle that is designed to travel between destinations without a human operator.



Levels of Autonomous

The Society of Automotive Engineers (SAE) International defines vehicle automation according to following six levels:



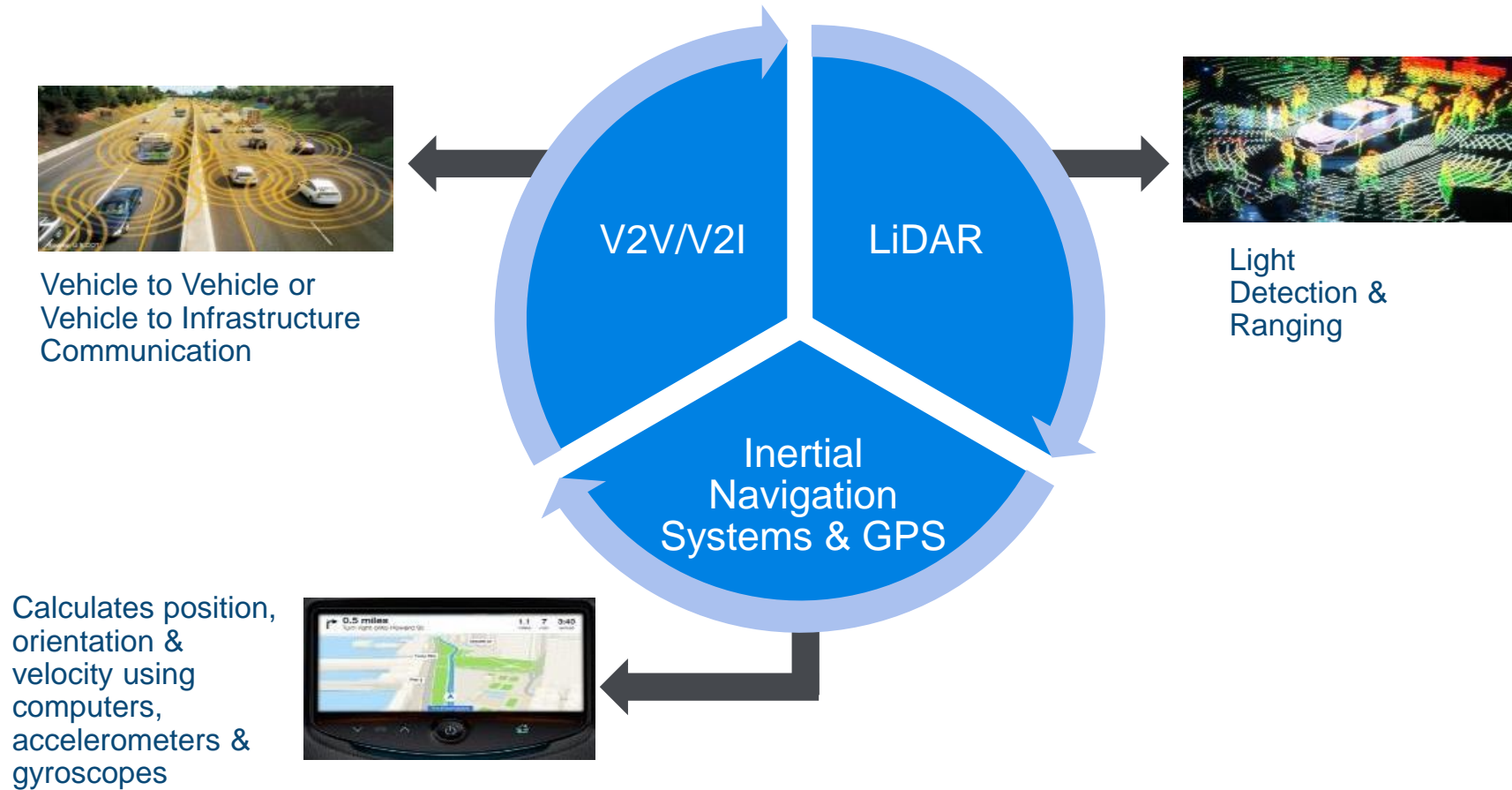
A vision from 1957



“Electricity may be the driver”

As early as 1956 the Central Power and Light Company inserted this ‘inspired’ advertisement in leading US newspapers.

Main Technologies will work together for AVs

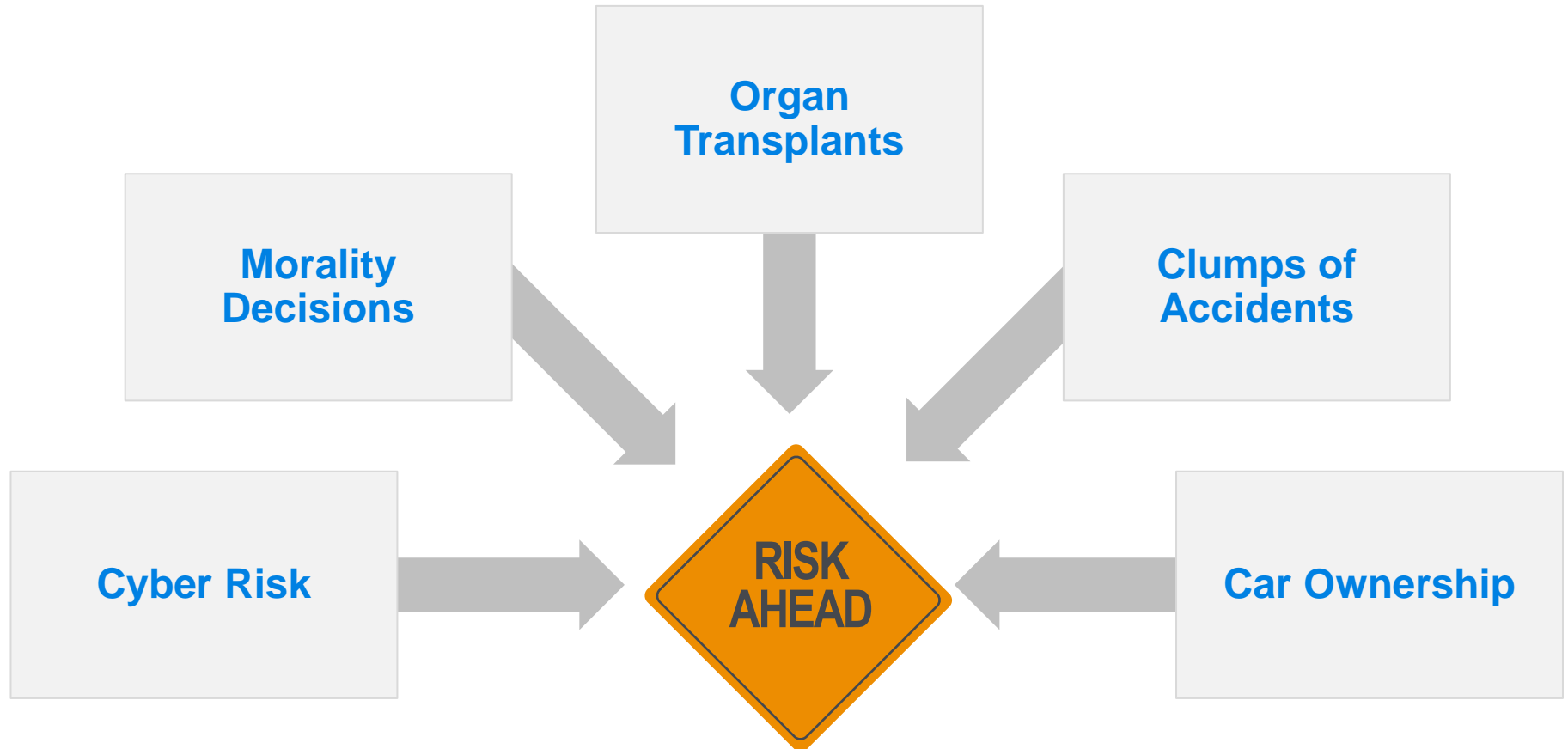


Road Fatality Stats



- In 2015, there were **1.25m** road death fatalities worldwide
- **94%** of accidents are human error
- Biggest single killer of young people
- Even imperfect technology can reduce these numbers substantially

What are the risks associated with AVs?



What does this mean for the motor insurance industry?

Risks & Rating Factors



	“Old”	“New”
Demographic Factors	<ul style="list-style-type: none"> • Where you live • Age • Profession 	<ul style="list-style-type: none"> • Where you live – quality of satellite imagery coverage • GPS maps
Car related Factors	<ul style="list-style-type: none"> • Make • Model • Type • Size • Age • Likelihood of Theft 	<ul style="list-style-type: none"> • Who is the software engineer? • Cyber security • Hacking • Make • Model • Software version
Personal Driving Habits	<ul style="list-style-type: none"> • Driving Activity • Driving History 	<ul style="list-style-type: none"> • ???

Liability Issues



Crash Responsibility

Vehicle designer, software designer, manufacturer or vehicle operator?

Passenger?

Jurisdiction?



Software and Other Updates

Should they be necessary?

Mandatory?

Who is responsible for availability/installation?



Inclement Weather

Who is responsible for inability to function in severe weather?

Impact on non-autonomous cars...



Insurance premiums

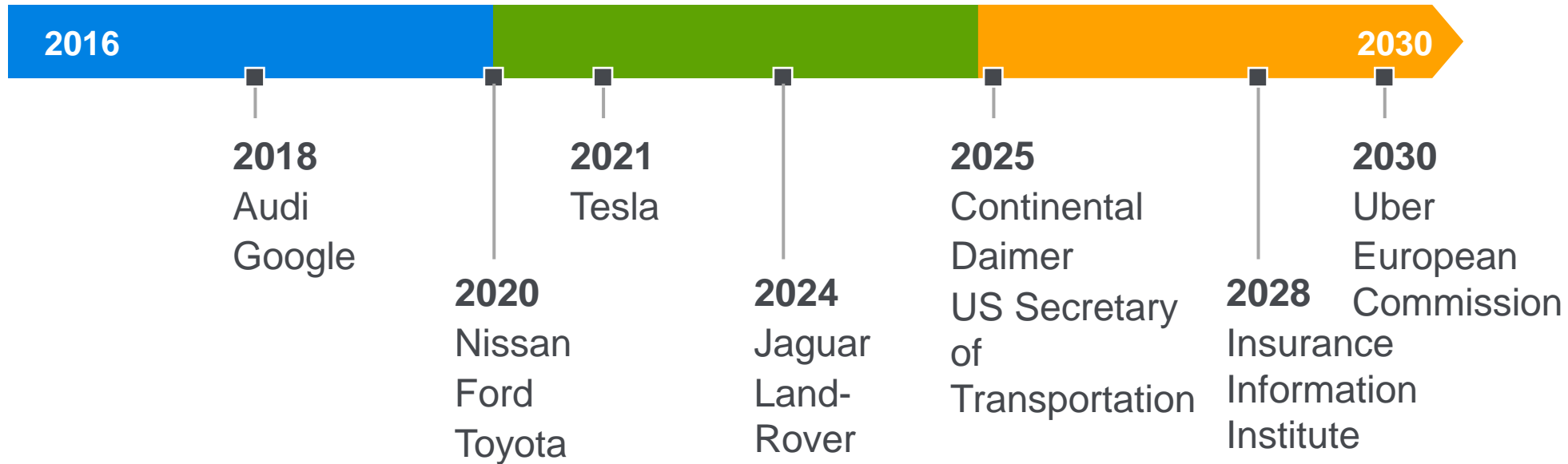


Demand for non-
autonomous cars

**... will depend on affordability and
popularity of autonomous cars**

**We don't need to
worry about this
now...right?**

Estimate of when driverless cars will come to market



http://www.driverless-future.com/?page_id=384

Possible Obstacles

- Technology moving faster than regulations
 - Current legislation not compatible with driverless cars
 - Legal changes are likely to be driven at EU Level
 - UK is at the forefront of regulatory changes
- Consumer trust
 - 75% of US drivers fear driverless cars (AAA survey)
 - 51% of respondents would “feel unsafe” or “very unsafe” in a driverless car (What Car? survey in the UK)
- Infrastructure

Department of Transport:

“The law at present does not provide for driverless cars – there is a presumption that someone must be driving a mechanically propelled vehicle. Any testing of driverless cars in this jurisdiction would therefore have to be on private land rather than on public road...The Department will continue to monitor the development of this technology and how it is being managed in other jurisdictions”



IT TAKES VISION

These slides are for general information/educational purposes only. Action should not be taken solely on the basis of the information set out herein without obtaining specific advice from a qualified adviser.

Thank you

Sinead Clarke
3 November 2016



Sinead Clarke
Consulting Actuary

Dublin, IE
T: +353 1 6475512
E: sinead.clarke@milliman.com

