



Smart Transportation Alliance

# **New infrastructure for new vehicles**

**Mr. César Bartolomé**  
**[cbartolome@ieca.es](mailto:cbartolome@ieca.es)**

**IECA**

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# Electric vehicles

- Green vehicles H2020. Challenges:
  - Improvements in energy efficiency.
  - The use of new types on non-conventional energies.
- Research and innovation will include:
  - Advanced power-train technologies
  - New vehicle architecture
  - Interfaces between the vehicle and the recharging infrastructure

# Autonomous vehicles

## PROJECT ACRONYMS RELATED TO AUTONOMOUS VEHICLES

AINARA	CARTRE	HFAuto	TransAID
AdaptiVE	C2ART	INFRAMIX	TrustVehicle
ADASANDME	CITYMOBIL2	i-GAME	MAVEN
AutoDrive	CoEXist	interACT	PAKoS
AutoNet2030	Detect and React	L3Pilot	MATRIX CHARGING
AutoMate	ENABLE-S3	SCOUT	RobustSENSE
BRAVE	HAVE-it	VRA	

Source: Elena de la Peña

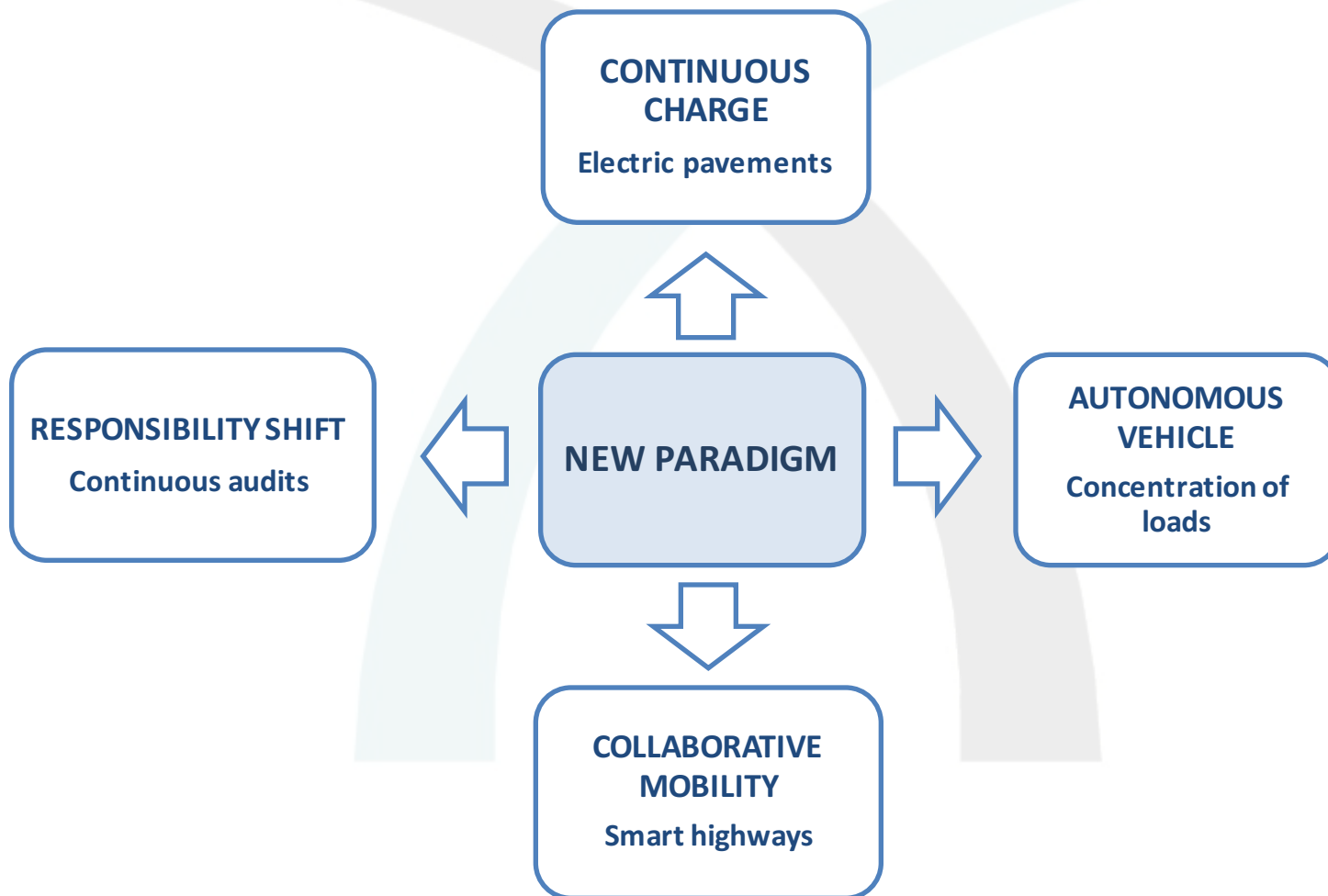
Only three projects partially cover road infrastructure as part of the research (10%)



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# Infrastructure?

## IECA new line of research

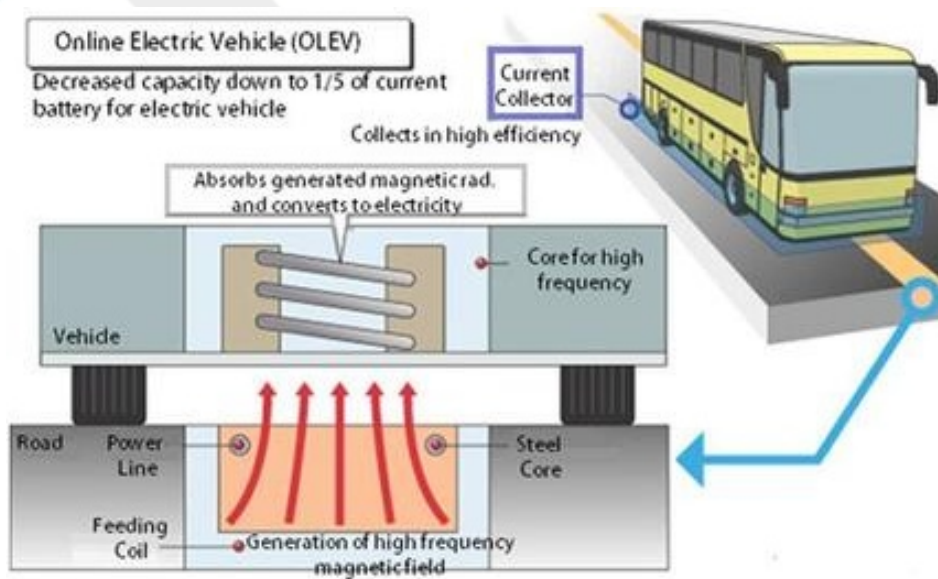


# Continuous charge



Belgian case of inductive charging (source Anne Beeldens)

**Continuous inductive charge leads to road automation**



OLEV System developed by KAIST in South Korea

**Guided vehicles will concentrate loads on the same section, increasing permanent deformation in 30% in traditional pavements: cost334**

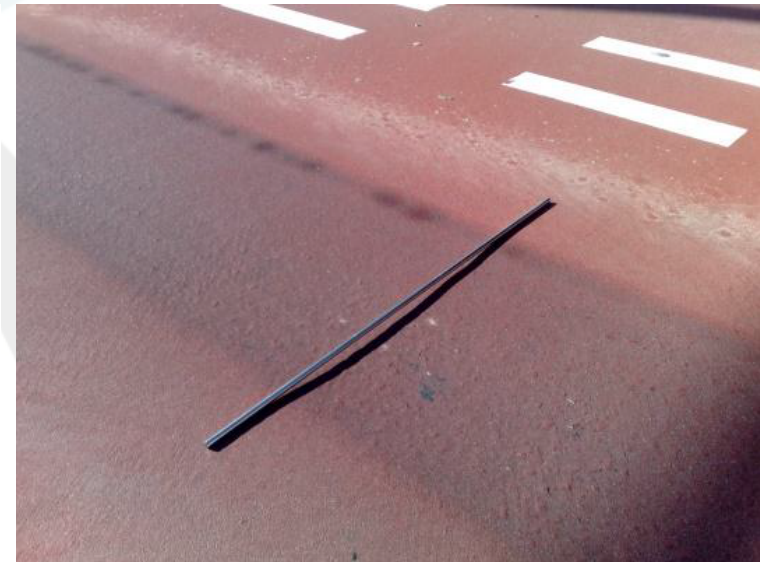
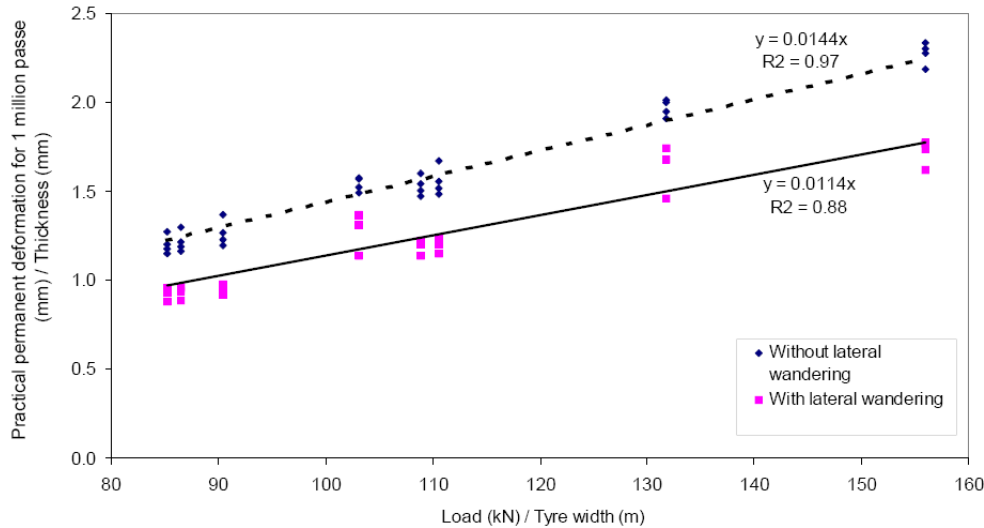


Figure 4.56 - Relation between practical permanent deformation rate, thickness of visco-elastic layers and load configuration for different tyres and structures.

Rutting in a dedicated platform for optical guided buses one year after construction

**COST 334 "Effects of Wide Single Tyres and Dual Tyres", source: European Commission, Directorate General Transport (2001)**

## Sensorized, redundant and surrounding

Camera



Readable lines

Continuous transmitters

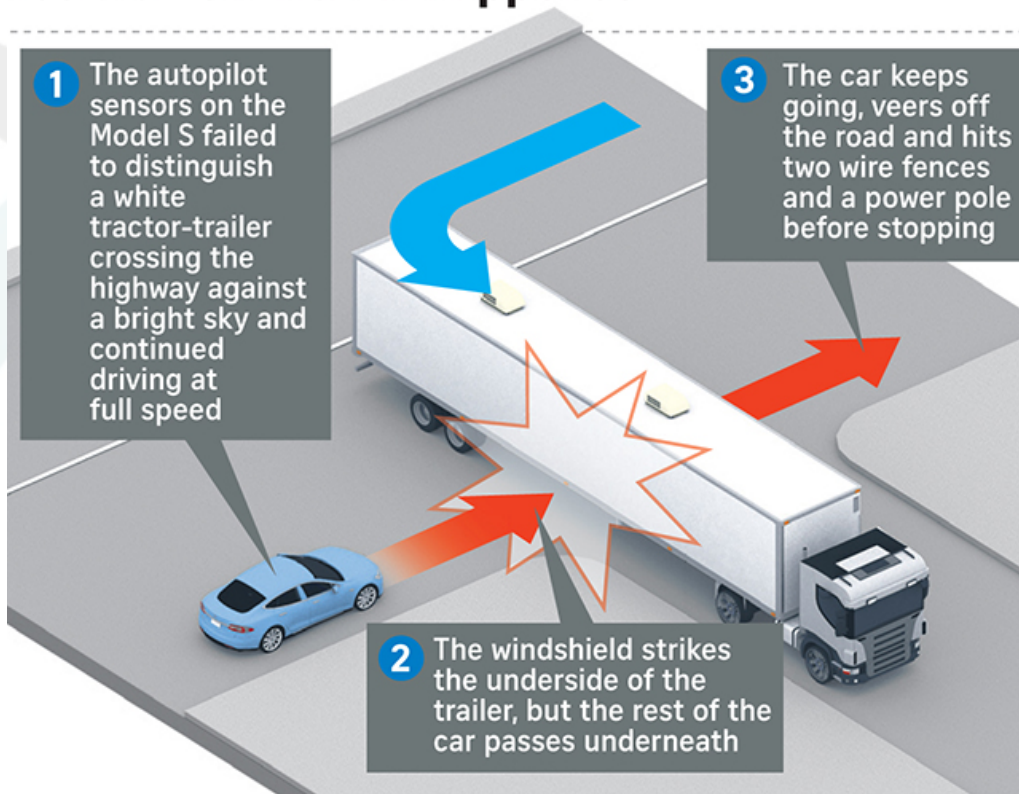
Embedded sensors

# Responsibility shift



## Tesla crash: How it happened

Autonomous vehicles will avoid risks and pavement in poor conditions will be either avoided or speed will be drastically reduced







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# Conclusion

*We need a new generation of infrastructure for a new mobility.*

*Transition will be the main issue and it has not been properly addressed (research).*



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**THANK YOU  
FOR YOUR  
ATTENTION**

40 Gracechurch Street  
London EC3V 0BT  
(United Kingdom)  
Tel: +44 20 37690538

Email: [info@smart-transportation.org](mailto:info@smart-transportation.org)

[www.smart-transportation.org](http://www.smart-transportation.org)