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Joint Research Centre



# **An analysis of possible socio-economic effects of a Cooperative, Connected and Automated Mobility (CCAM) in Europe**

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ERAdiate Lecture Series, Zilina, 8 October 2018

# JRC's Mission - Sites

***“As the science and knowledge service of the Commission our mission is to support EU policies with independent evidence throughout the whole policy cycle”***





## Test



### Technology

## Apple, VW reportedly sign deal for driverless vehicles

Posted on May 25, 2018

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electric vehicle. After facing development and management problems, Apple shifted its focus to autonomous technologies that control vehicles.

Apple is using fewer than two dozen of VW's T6 Transporter vans, which are being customized by Apple. Both companies reportedly declined to comment on the deal. For the full story, [click here](#).

SAN FRANCISCO — *The New York Times* reports [Apple](#) and Volkswagen struck a deal late last year that allows Apple to equip VW vans with [self-driving](#) technology to transport its employees between offices.

The agreement is part of an internal Apple program called "Project Titan," which started in 2015 as an effort to build an

## Rental

### ESTABLISHED RENTAL COMPANY FOR SALE

Retirement forcing the sale of one of Texas' largest independent off-premise automotive rental companies located in Lubbock, Texas. Ideal investment for any franchise player wanting a turnkey operation in a thriving community. One acre of prime real estate in the epicenter of a rapidly growing section of Lubbock featuring a high visibility location surrounded by dealership groups, a car bay with lift, wash rack and a 250 vehicle fleet!

Visit [www.allstarforsale.com](http://www.allstarforsale.com) for pictures and more information or email [AllStarRentACar@gmail.com](mailto:AllStarRentACar@gmail.com).





AUTOS

# Millions of Professional Drivers Will Be Replaced by Self-Driving Vehicles

by Paul A. Eisenstein / Nov.05.2017 / 4:58 PM ET



1131 Comments

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The Tesla Model 3 unofficial road trip in Europe has ended with a crash in Macedonia Greece.

# Context

- **3<sup>rd</sup> Mobility Package:**
  - On the road to automated mobility: An EU strategy for mobility of the future (*COM(2018) 283 final*)
  - Anticipating effects of automated mobility on **society** and the **economy**
- Published on **17 May 2018**
- **Download at:**

<https://ec.europa.eu/jrc/en/publication/eur-scientific-and-technical-research-reports/analysis-possible-socio-economic-effects-cooperative-connected-and-automated-mobility-ccam>

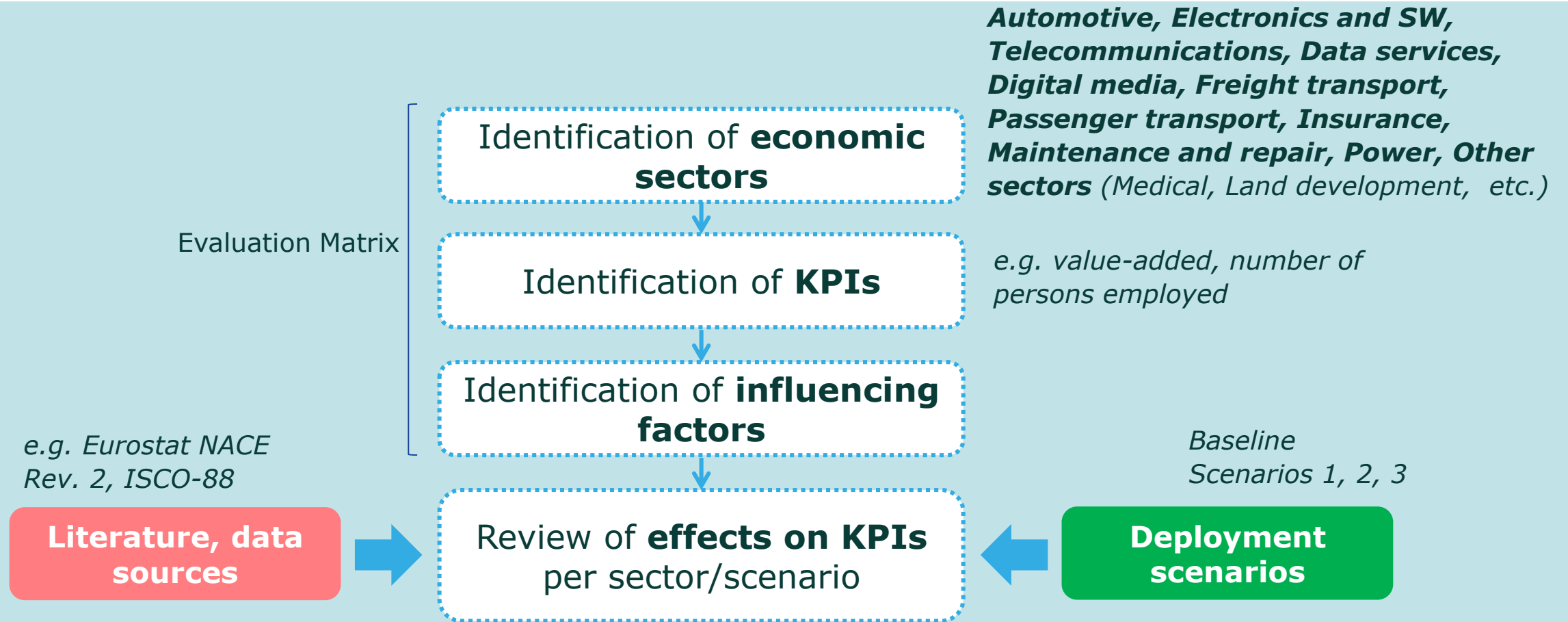


# Objectives

- Conduct a comprehensive analysis of the potential effects of a **CCAM** on:
  - Different industrial sectors of the EU **economy** (e.g. automotive, electronics and SW, insurance, etc.)
  - Societal issues like **employment** and **skills** in the EU



# Methodology





# Deployment scenarios

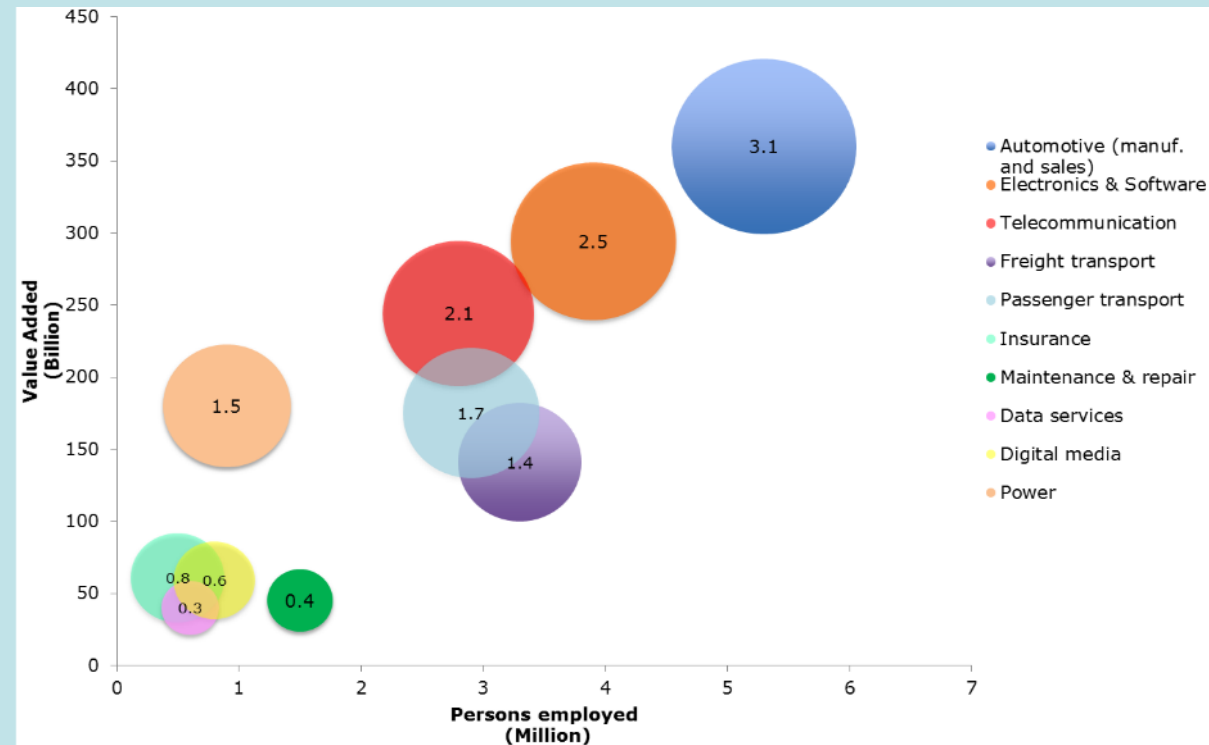
- For 2025 and 2050, both passenger and freight transport
- Relying on vehicle travel shares in *Nieuwenhuijsen et al. (2018)*

SCENARIOS	LEVELS OF DEVELOPMENT PER AREA		
	TECHNOLOGY	POLICY	USERS
Baseline	Eurostat (2015 data: SBS and NA) and EU Reference Scenario 2016 (2015-2050 data from the modified baseline in Hill et al., forthcoming 2018), without accounting for CAV technologies		
Scenario 1. Low uptake	Slow	Little	Few
Scenario 2. Medium uptake	Moderate	Moderate	Moderate
Scenario 3. High uptake	Fast	Strong	Many

*Source: Nieuwenhuijsen et al. (2018)*

# Economy (1/4)

- Current state of the sectors likely to be affected by CCAM:



# Economy (2/4)

- **Automotive sector**

**2.3**  
trillion  
turnover

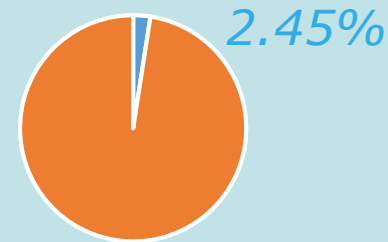
**5.3 mil.**  
persons  
employed

**360**  
billion  
Value  
Added

**372,000**  
enterprises

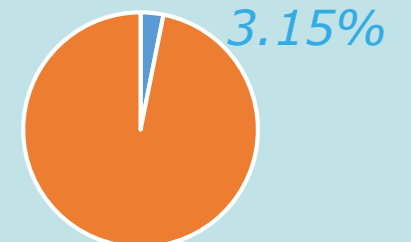
**Including:** vehicle manufacturing (including vehicle components like engines or electric lighting equipment) and vehicle sales activities (both wholesale and retail)

Share of **employment** in the EU



■ % Persons employed Automotive  
■ Total employment EU28

Share of **GVA** in the EU



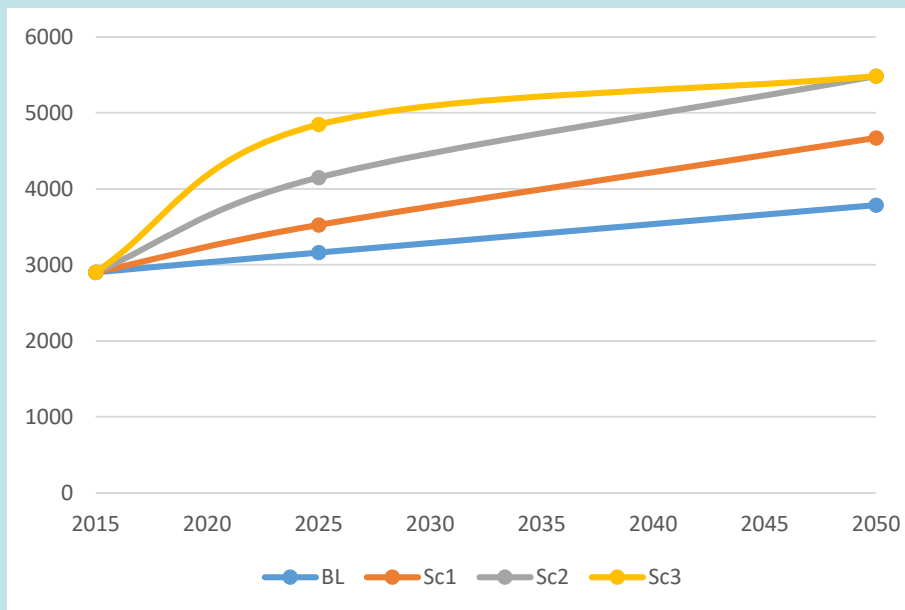
■ % GVA Automotive  
■ Total GVA EU28

Source: Eurostat NACE Rev. 2 (EU28 2015 data; C27.11, C27.40, C28.11, C29, G45.1, G45.3)

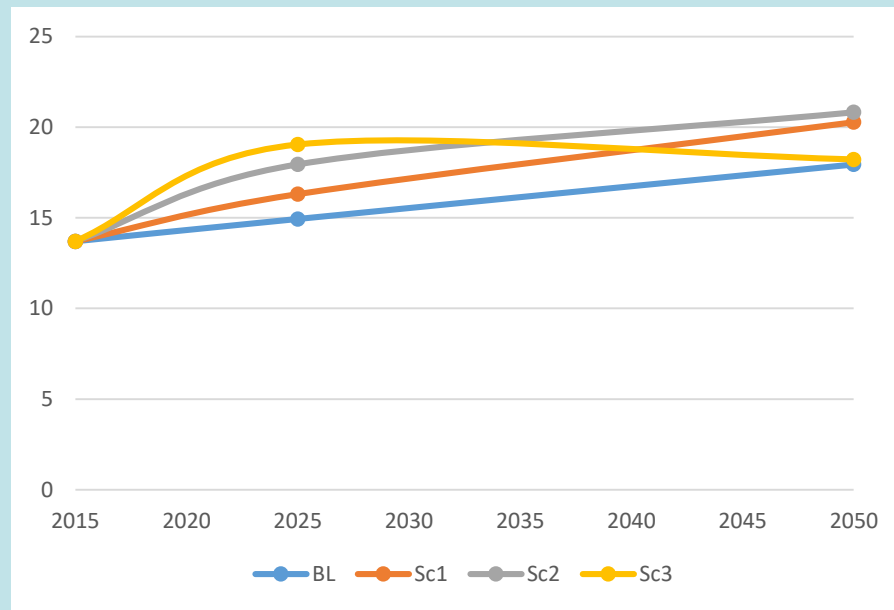
# Economy (3/4)

- **Automotive** sector (Passenger transport)

Vehicle Travel (*billion vehicle kilometres*)



Vehicle Sales (*million vehicles*)



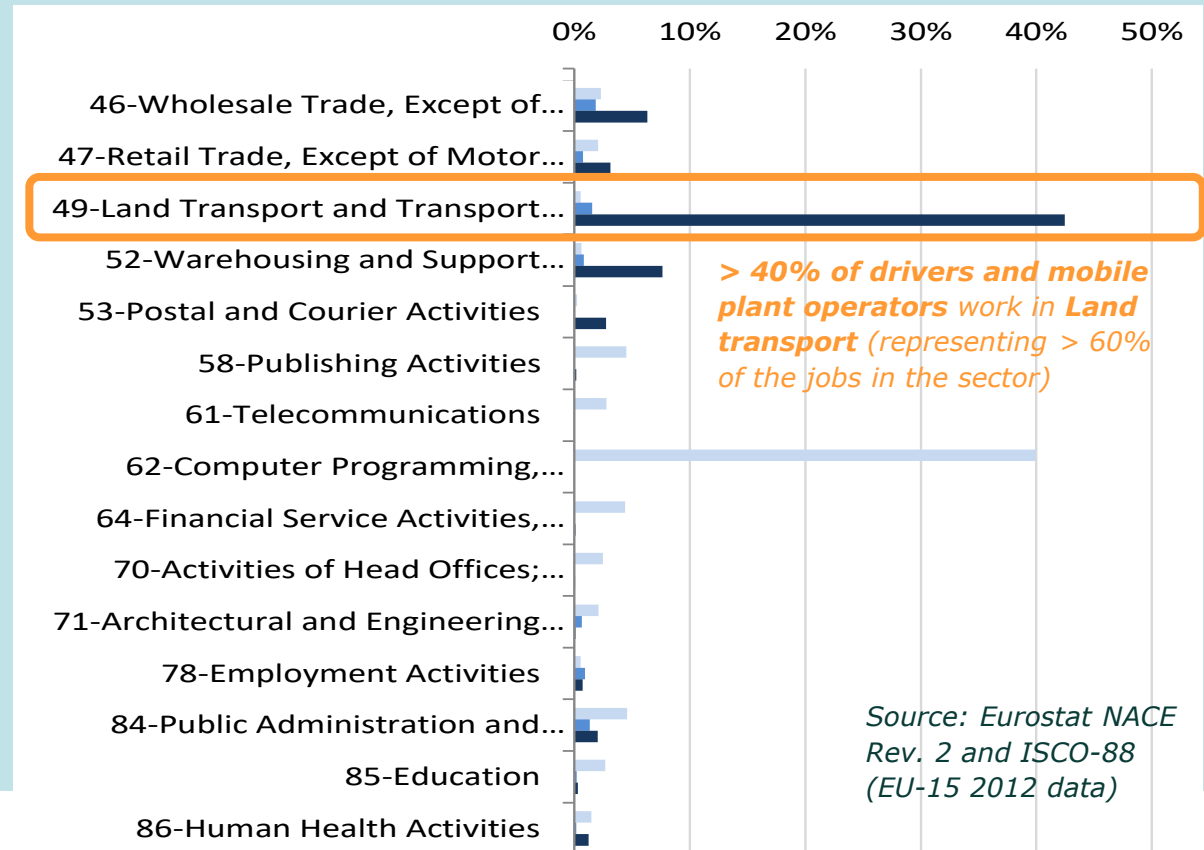
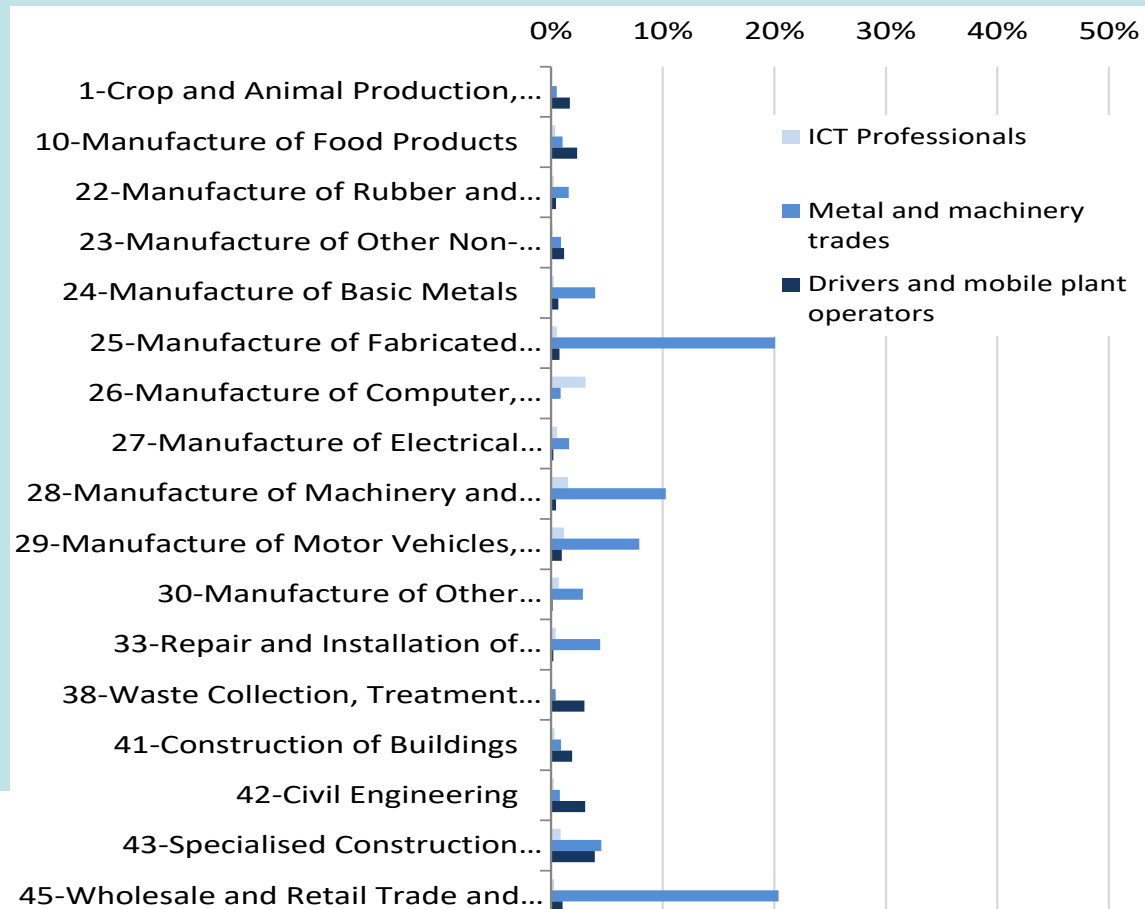


# Economy (4/4)

- The **Electronics and SW** sector would clearly benefit from the production and sale of new components and systems needed for automated driving (including hardware and software components)
- The **Insurance** sector could be disrupted by the expected drastic reduction in the number of road accidents (similarly also the maintenance and repair sector)

# Employment

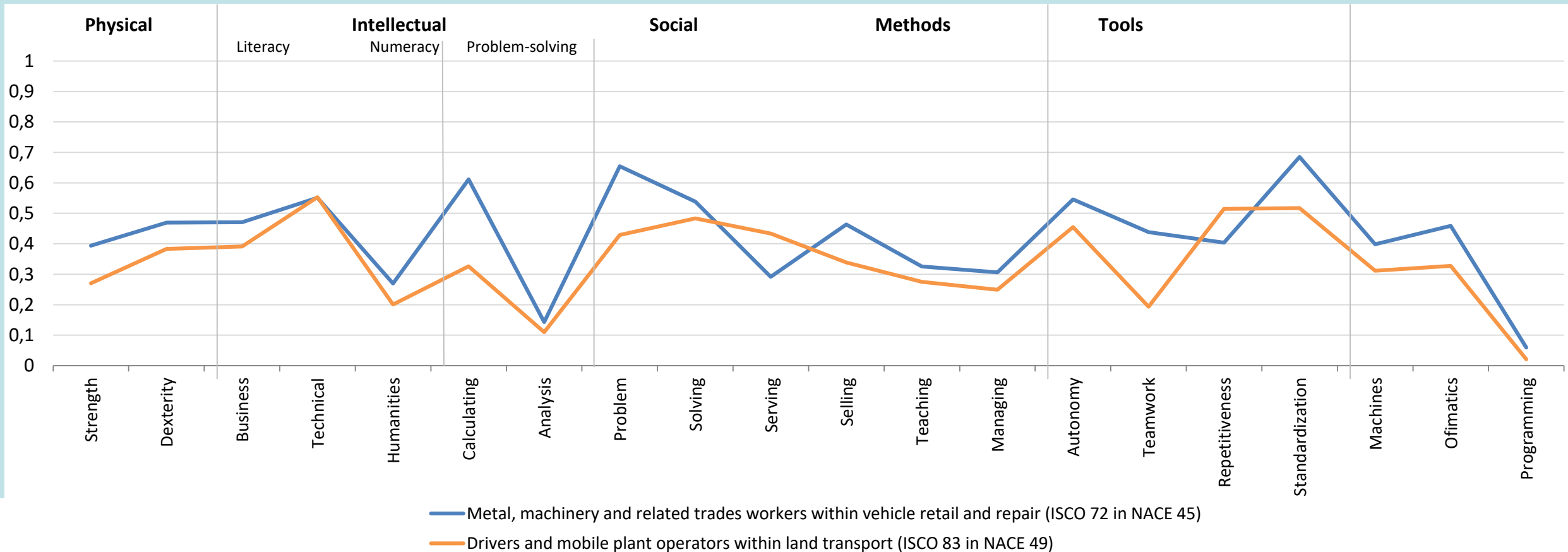
## • Selected ISCO occupations in NACE



Source: Eurostat NACE Rev. 2 and ISCO-88 (EU-15 2012 data)

# Education

- Skill levels in ISCO 72 & ISCO 83



# Conclusions (1/2)

Industries	Main effect prevailing in 2025 - 2050 scenarios
Automotive	↑
Electronics and software	↑
Telecommunication, data services and digital media	↑
Freight transport	↑
Passenger transport	↓
Insurance	↓
Maintenance and repair	↓
Power	↑

LEGEND: ↑ Positive effect, ↓ Negative effect



# Conclusions (2/2)

- Important **labour** changes lie ahead for professional drivers, decreasing driving tasks towards the acquisition of new and more technical roles.
- At the level of **skills**, ICT competences will be increasingly demanded in the future, e.g. in manufacturing, maintenance and transport-related jobs.



Source: Daimler

<https://www.2025ad.com/latest/automated-driving-and-masculinity/?type=0%2525253ftype%25253D7777>

<https://www.youtube.com/watch?v=JTPmDRkd8Ec>



# Thanks

## Questions?

You can find me at **[Maria.ALONSO-RAPOSO@ec.europa.eu](mailto:Maria.ALONSO-RAPOSO@ec.europa.eu)**

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