URBANISM NEXT EUROPE 2021

Session: Future labor market for the sustainable and livable cities

Rotterdam, 9.6.2021

Design Judith Kozinski / Quelle: M-Five

Employment implications of the mobility transition: sustainable mobility and connected and automated driving

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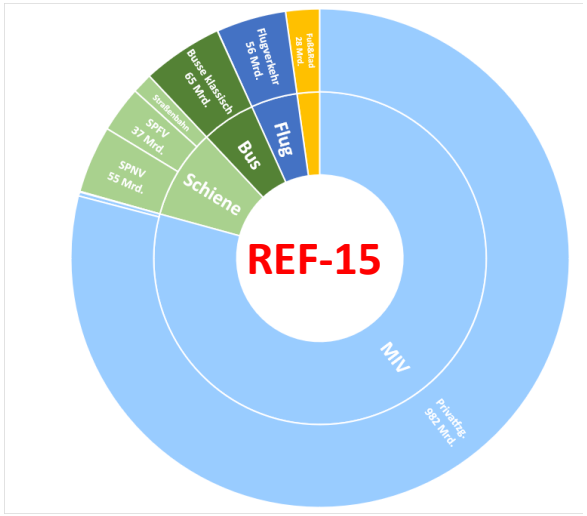
Agenda

- Two periods of job changes in transport can be differentiated:
- 2020 until 2035: transition to sustainable mobility (electrification, new mobility services)
- (2030), 2035 until 2050: transition to autonomous mobility (self-driving trucks, automated sharing modes)

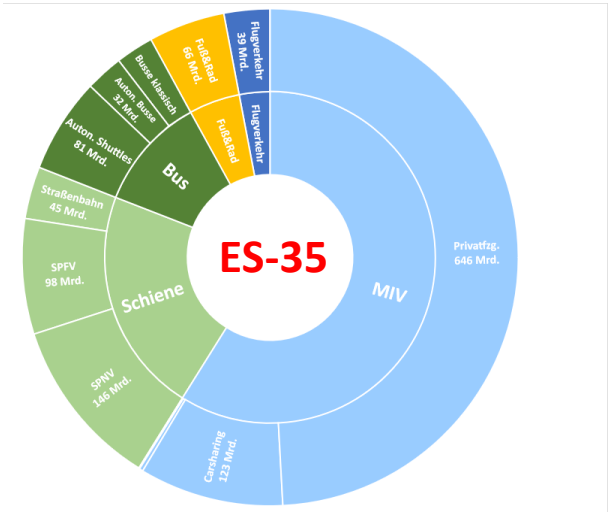
Sustainable Mobility Scenarios for Germany

REFERENCE



2015:
Car modal-share: 80%
Car-ownership rate: 560 car/1000 inh.

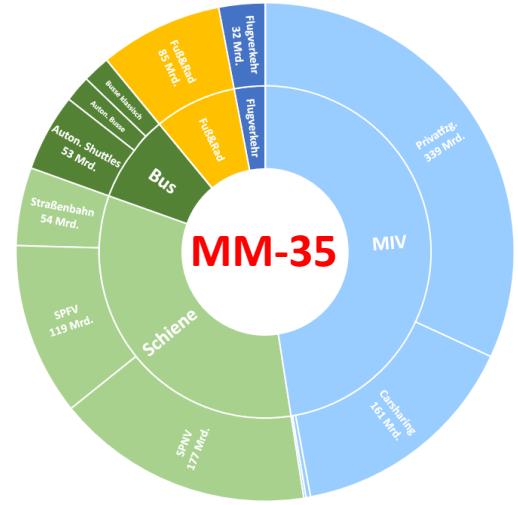
Electrification – ES-35



2035:
Transport demand: +5% pkm
Car-ownership: 430 car/1000 inh.
Policy objective: efficiency and electrification (**ES-35**)

Multi-Modality – MM-35

Quelle: WS



2035:
Transport demand: -15% pkm
Car-ownership: 300 car/1000 inh
Policy objective: Modal-shift and Multi-modality (**MM-35**)

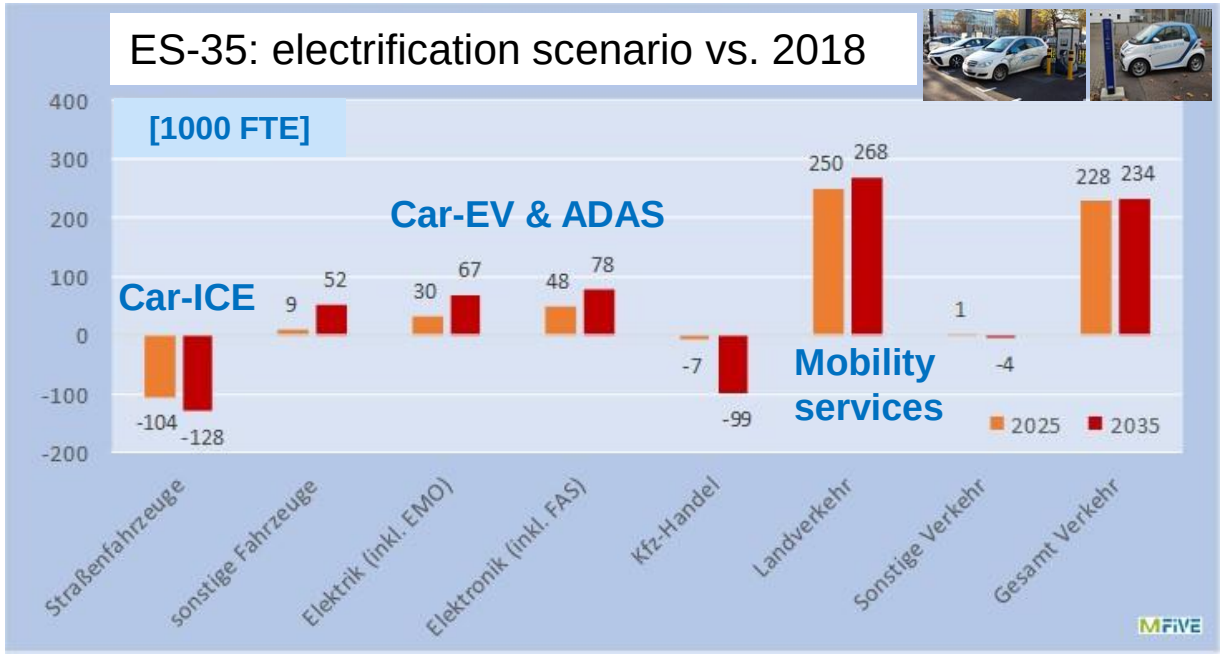
CAR
Rail
Bus
Act. modes
Air

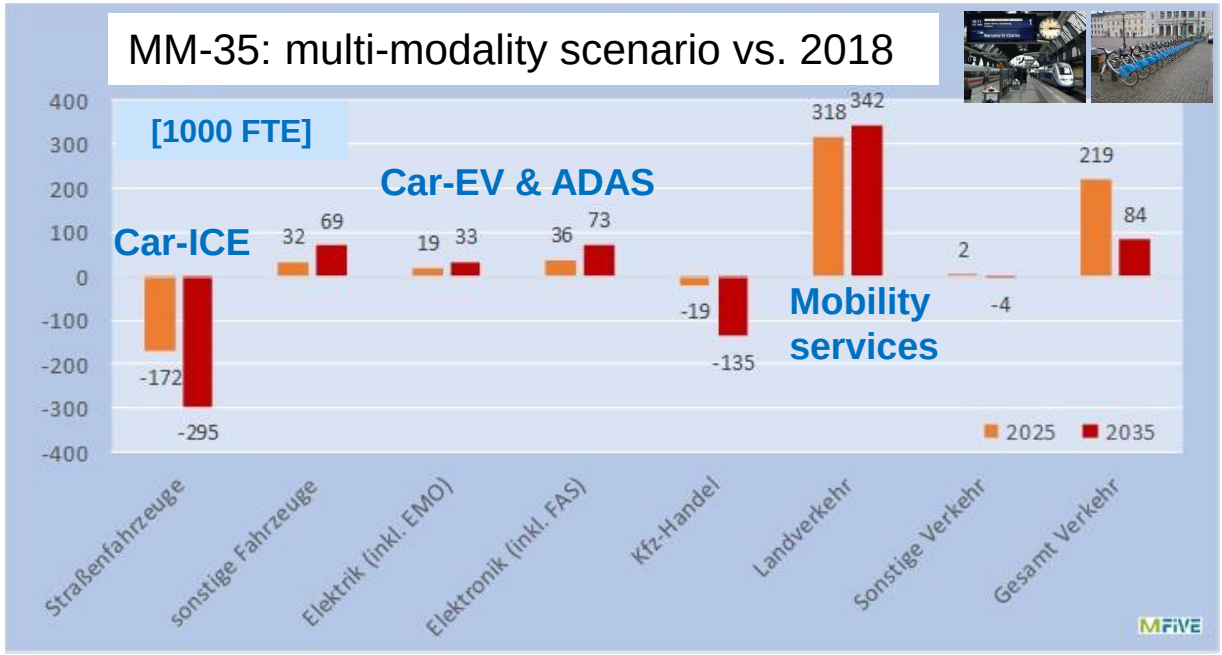
Quelle: M-Five Abschätzung

Hans Böckler Stiftung
Mitbestimmung · Forschung · Stipendien

Die HBS förderte das Projekt unter dem Titel „Beschäftigungseffekte nachhaltiger Mobilität“

Change of transport related employment **until 2035**





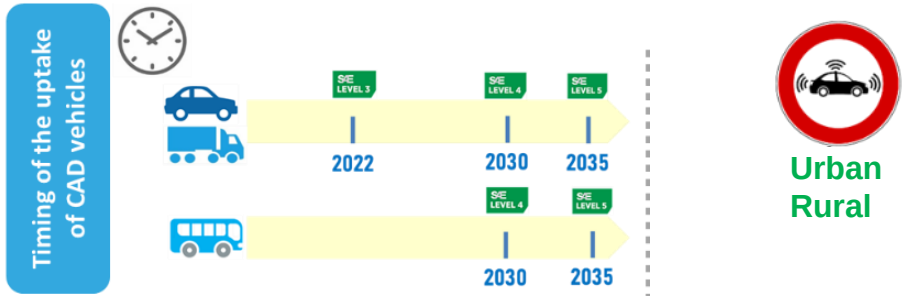
Quelle: ASTRA-HBS, eigene Berechnungen M-Five

Strong structural change of employment in sustainable mobility scenarios!

https://m-five.de/wp-content/uploads/M-Five_AP5_Gesamtwirtschaftliche_Analyse_Nachhaltige_Mobilit%C3%A4t_200131_FINAL.pdf

4 Scenarios of CAD deployment in Europe

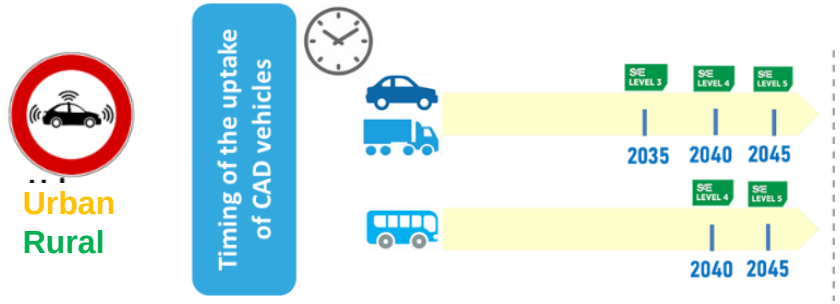
- **Scenario 1**: **Fast**, focused on **private** transport and **unrestricted** usage of CAD (maximum uptake of CAD);
- **Scenario 2**: **Fast**, focused on **private** transport and **regionally restricted** usage of CAD (intermediate uptake of CAD);
- **Scenario 3**: **Moderate**, with **emphasis on shared transport** and regionally restricted usage of CAD (moderate uptake of CAD);
- **Scenario 4**: **Slow**, some emphasis on shared transport and regionally restricted usage of CAD (low uptake of CAD)



Forerunners: BE, DE, DK, ES, FI, FR, NL, NO, SE, UK

From scenarios 1 to 4

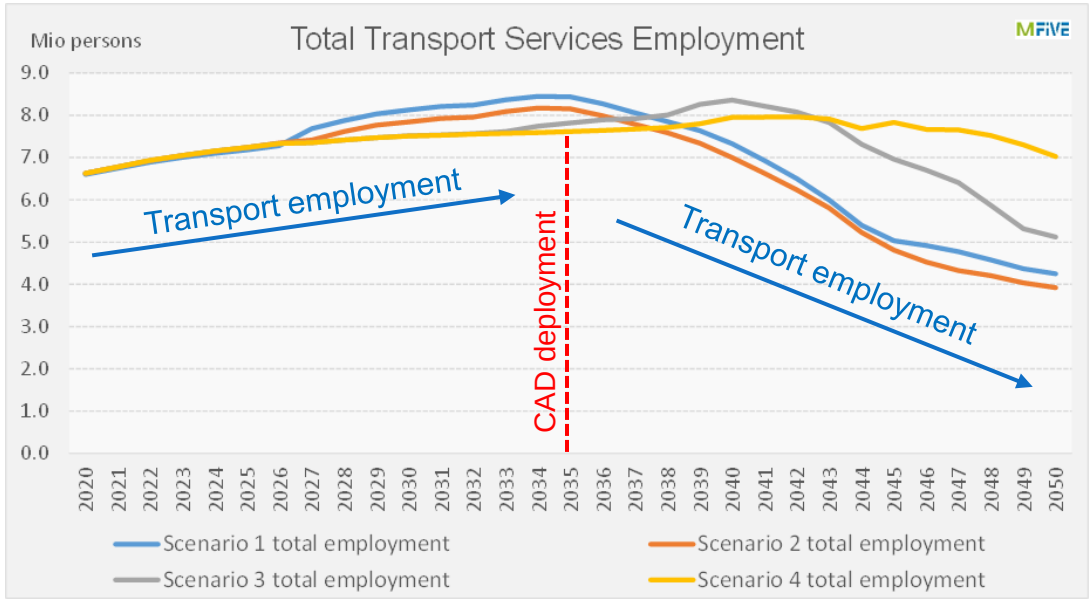
Forerunners: DE, FI, NL, NO, SE



Source: TRT, CAD employment project

Transport services labour market impacts longer term perspective 2035-2050

- Fast uptake in scenarios 1 and 2, moderate in sc. 3, slow in sc. 4 clearly visible in job development
- Largely driven by freight transport services development:
  - Higher overall employment
  - CAD transition much stronger and more rapid

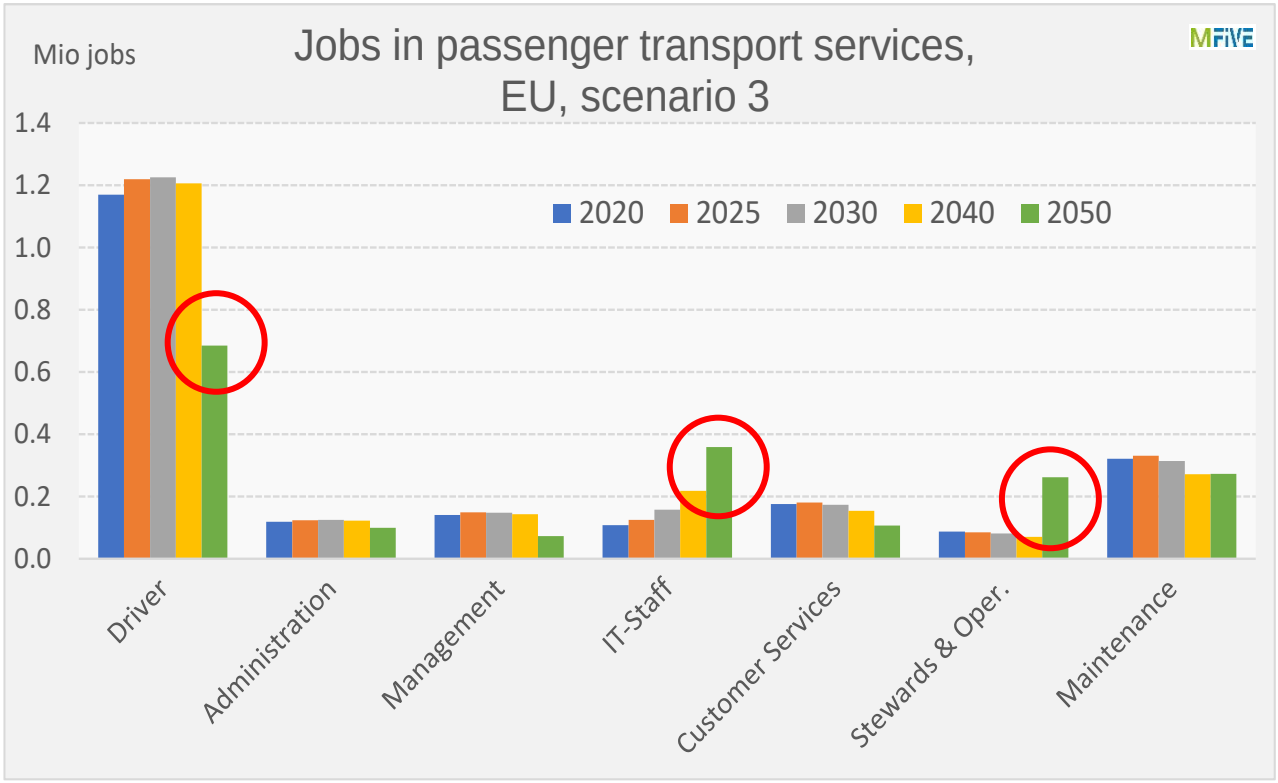


Source: M-Five, CAD employment project

Source: WS

Job categories in **passenger** transport services

- Sharp decrease in driver employment
- Job growth in
  - IT and
  - Stewards (ride-sharing, robo-bus)
- Some structural adjustments in other job categories, mostly efficiency-related

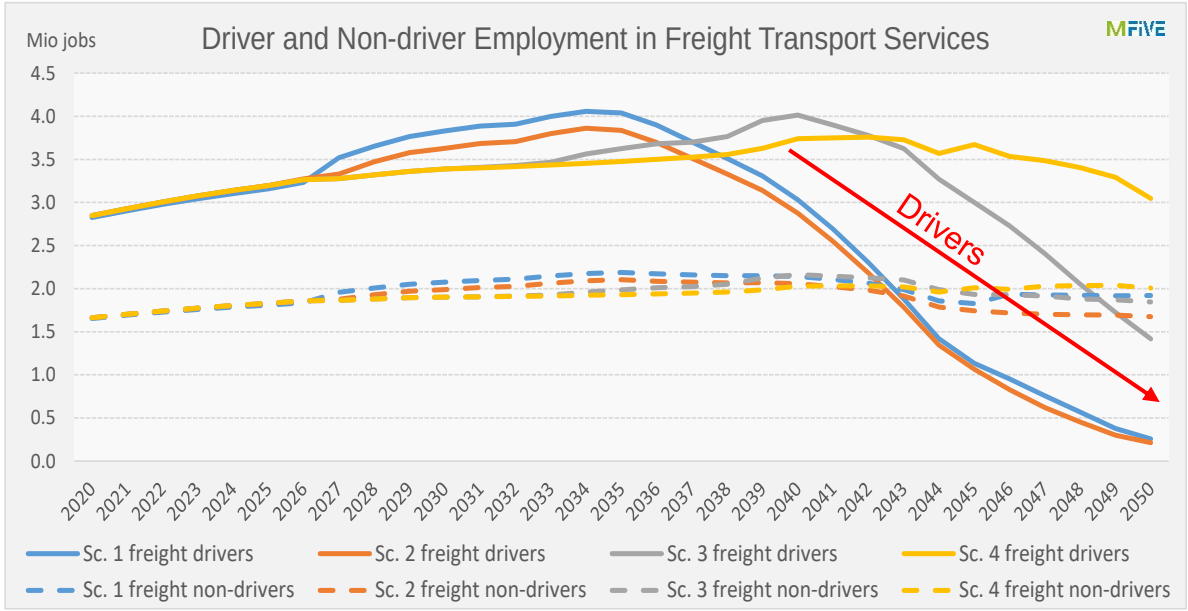


Source: M-Five, CAD employment project

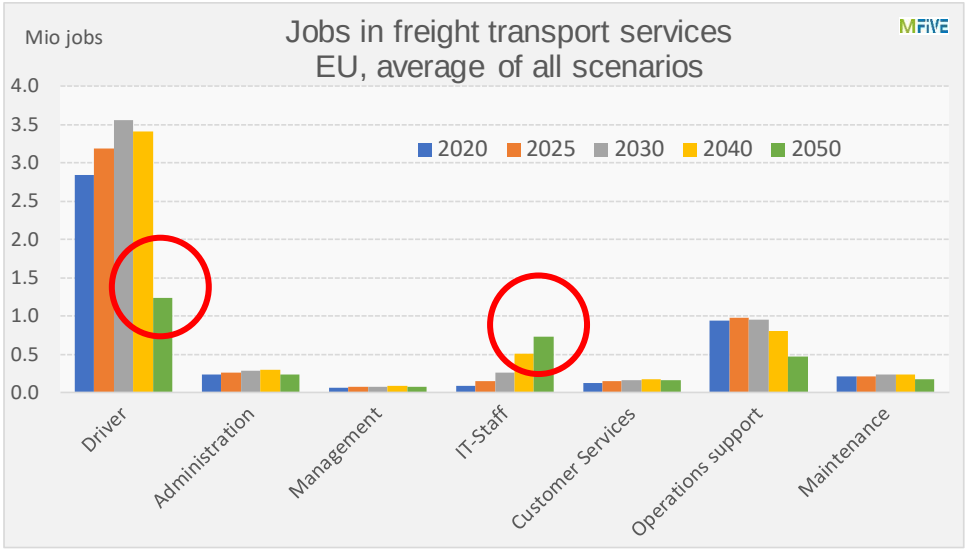
Source: WS

Impact on different job professions in **freight** transport

- Almost complete displacement of drivers in scenario 1 and 2
- Advanced transition in scenario 3, mostly in forerunner countries



Source: M-Five, CAD employment project

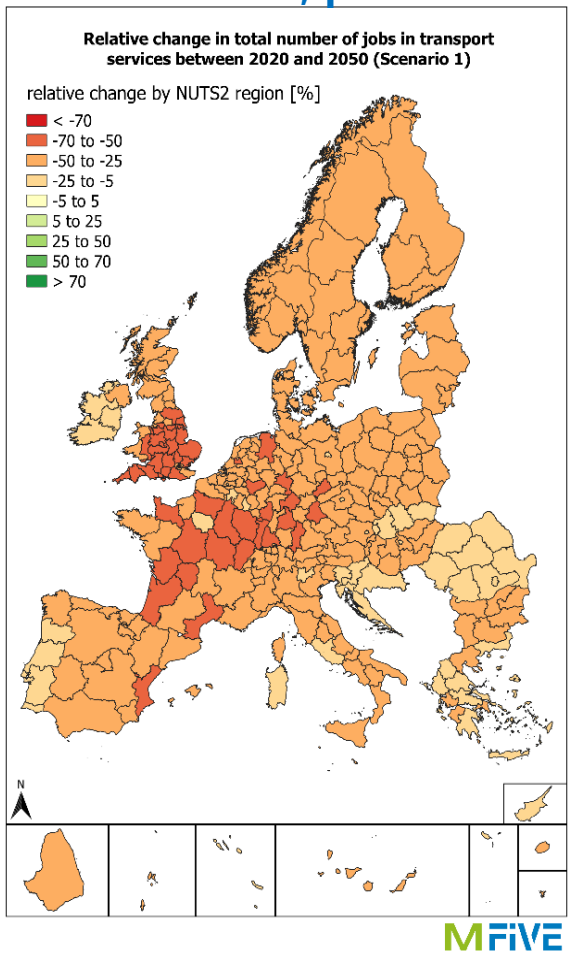


- Non-driver employment relatively stable over
- This includes mobility operators:
  - Level 4 transition between traditional drivers and fully automated vehicles

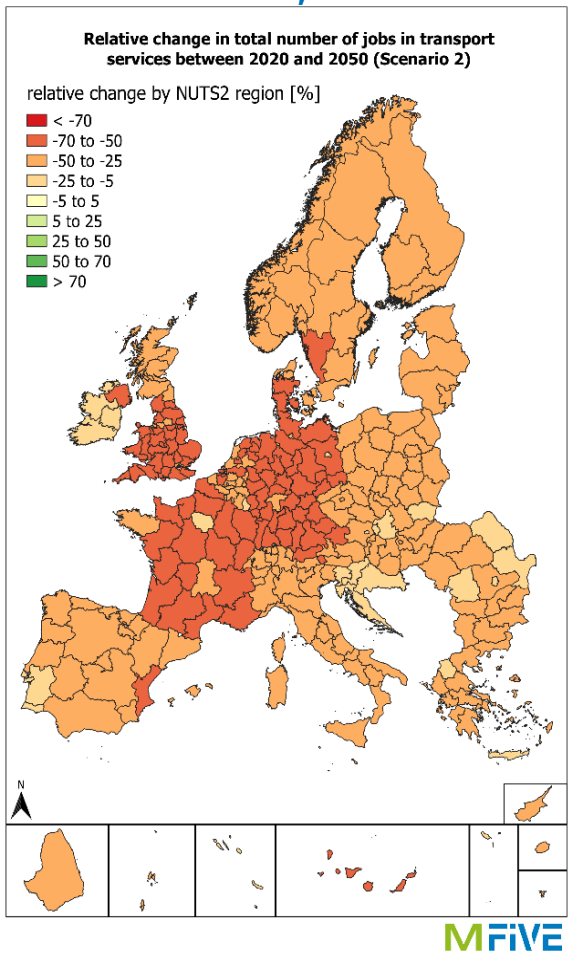

Source: WS

Transport services employment in European regions

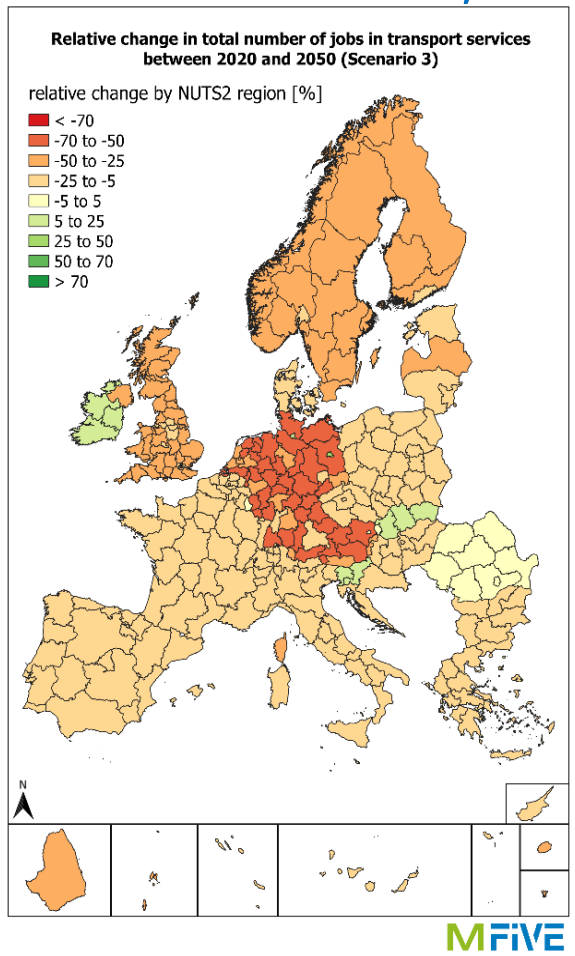
Sc-1: CAD fast, private



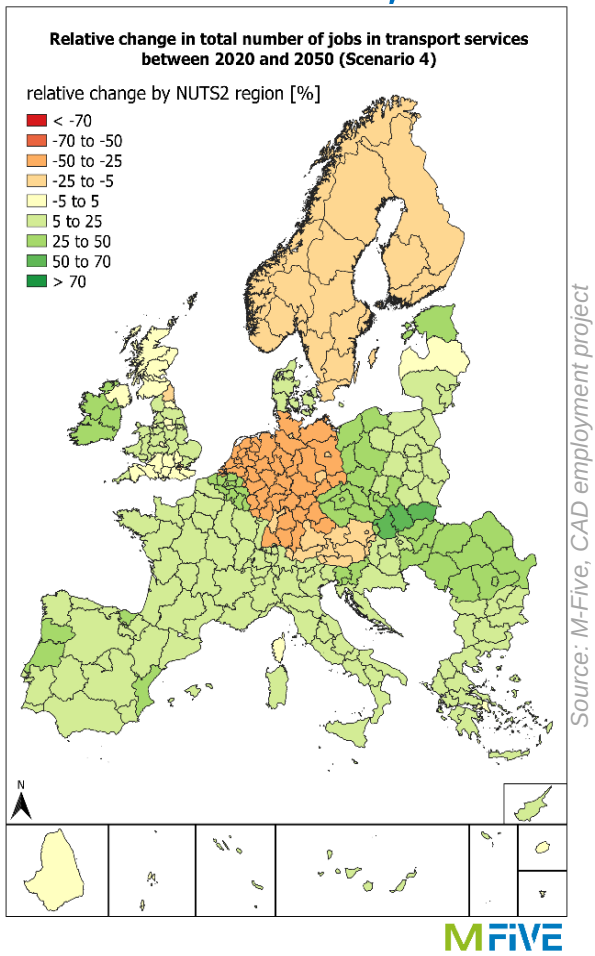
Sc-2: CAD fast, restricted



Sc-3: CAD moderate, shared



Sc-4: CAD slow, shared



Source: M-Five, CAD employment project

Conclusions on changes of skills

Increased need of:

- Supervision and selective intervention skills
- Coordination, cooperation and collaboration skills
- Awareness of the performance of the AV and the environment

Decreased need of:

- Dexterity
- Autonomy
- Routine
- Use of machine

Thank you for your kind attention!

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