



ROAD SAFETY & SIMULATION  
INTERNATIONAL CONFERENCE 2017

**RSS2017**

# Safety culture in professional road transport in Norway and Greece

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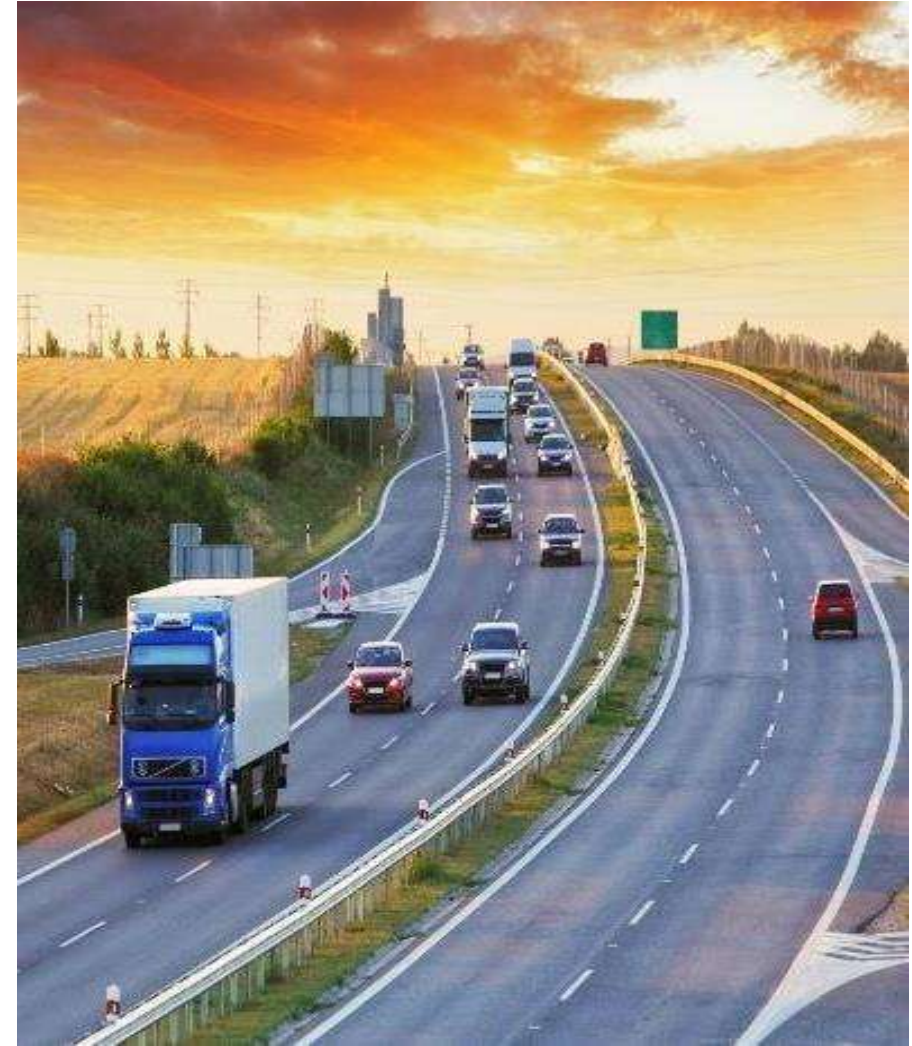


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The Hague, 17 October 2017

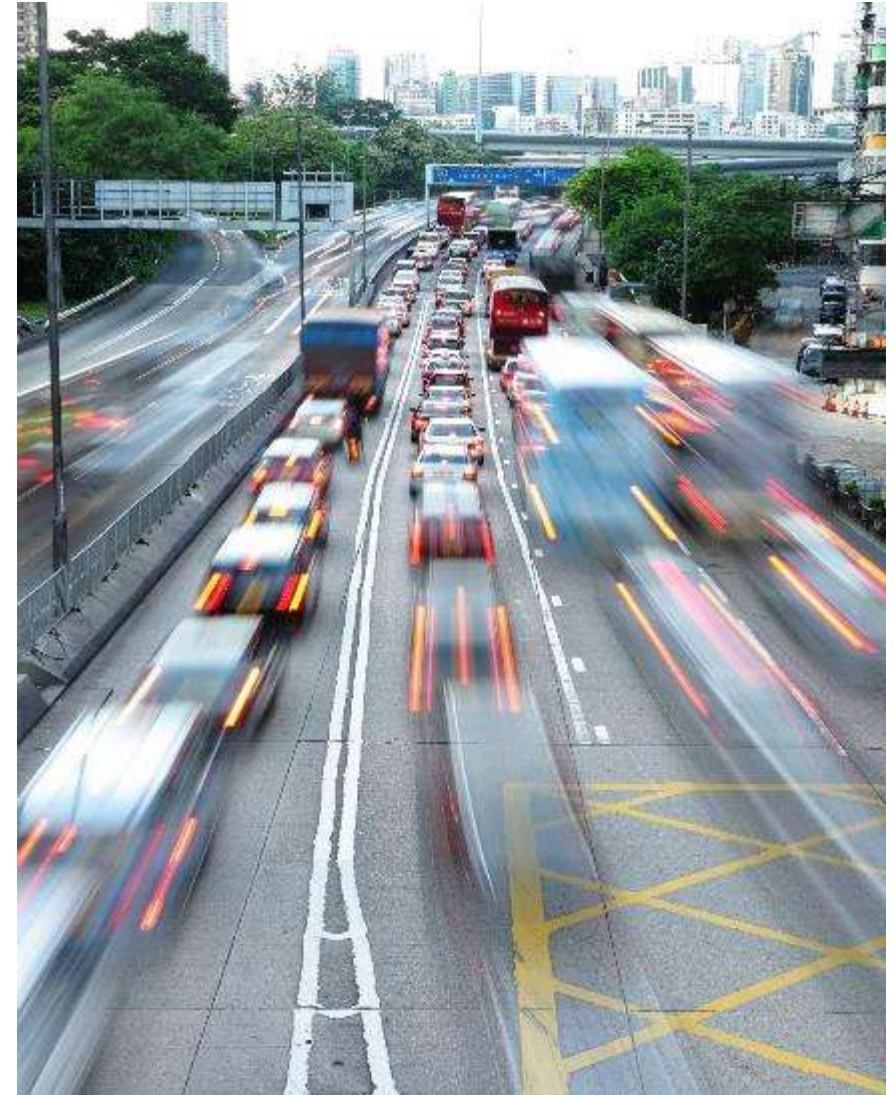
# Safety culture in transport

- The concept of safety culture is applied to an increasing range of sectors, including **professional and private transport**.
- Safety culture explains **considerable variation** in safety behaviour in various transport forms operated by private and professional drivers.
- Transport safety culture (TSC) is defined as: *“**shared norms** prescribing certain transport safety behaviours, shared **expectations** regarding the behaviours of others and shared **values** signifying what’s important (e.g. safety, mobility, respect, politeness)”*.



# Safety culture in transport

- Safety culture is by definition shared, thus, it must be related to **social units**.
- Safety culture has traditionally been ascribed to **organizations**, and since professional drivers are part of organizations, they can be subjected to traditional safety culture studies and interventions.
- **National** cultures are also known to influence safety behaviour and risk in professional transport.



# The SafeCulture project

SafeCulture - ***Safety culture in private and professional transport: examining its influence on behaviours and implications for interventions***

Aims to compare the safety culture in different transport modes and social contexts between Norway and Greece.

Land transport: Examination of car users, powered two-wheelers, HGV and bus drivers.

Funded under the "Transport 2025" program of the Norwegian Research Council.



Duration: 36 months (Jan 2016 – Dec 2018)

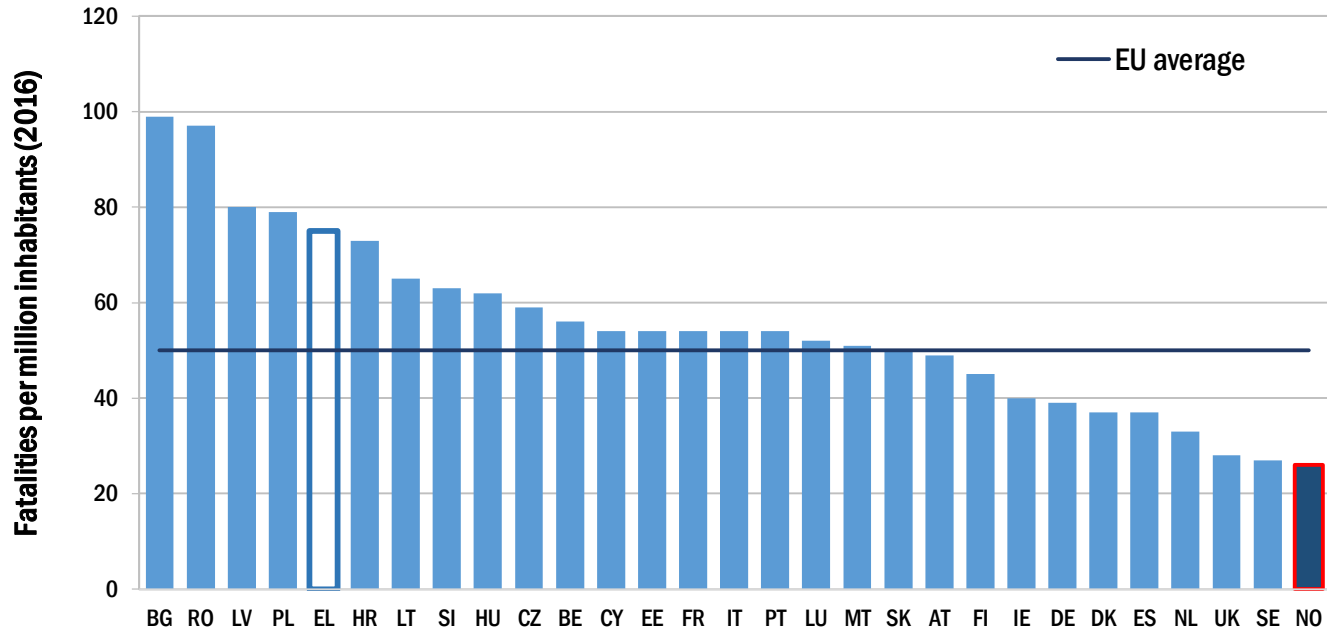
Partners:



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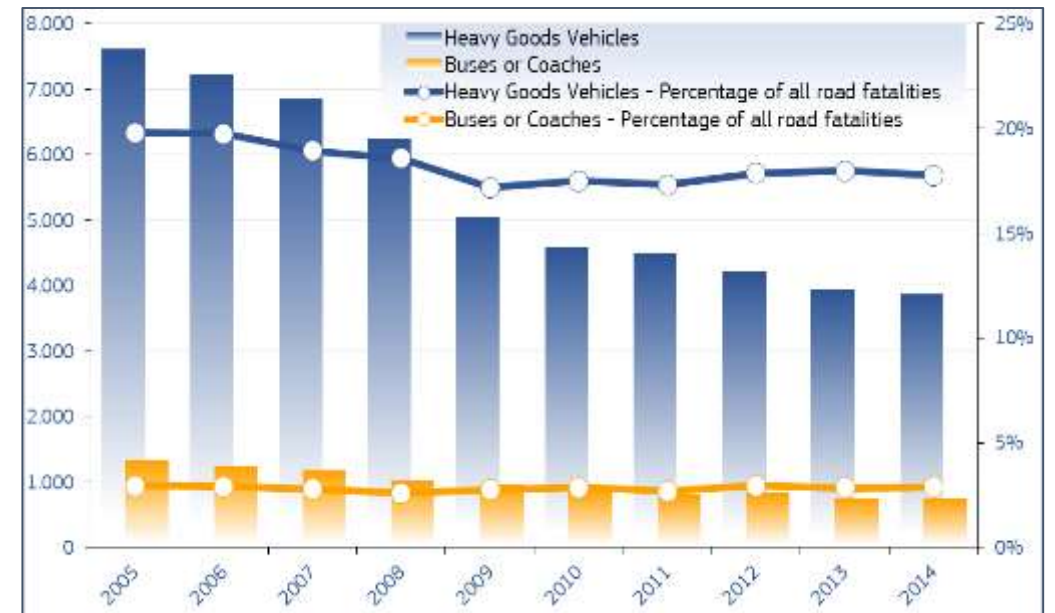
# Key road safety facts



Source: CARE, 2017

The number of fatalities in accidents involving HGVs and buses in EU fell by nearly 50% between 2005 and 2014. However, the percentage of fatalities in accidents involving **HGVs and buses didn't decrease** considerably.

Norway and Greece were selected to be compared since their road safety status **differ significantly**.



Source: ERSO, 2016



# Key road safety facts

The **accident risk** of buses is in general relative **low**, but because of the **mass** and **size** of these vehicles, accident consequences are very **severe**.

Research reveals large **national differences** in such risk figures, in spite of common European safety rules and driver training.

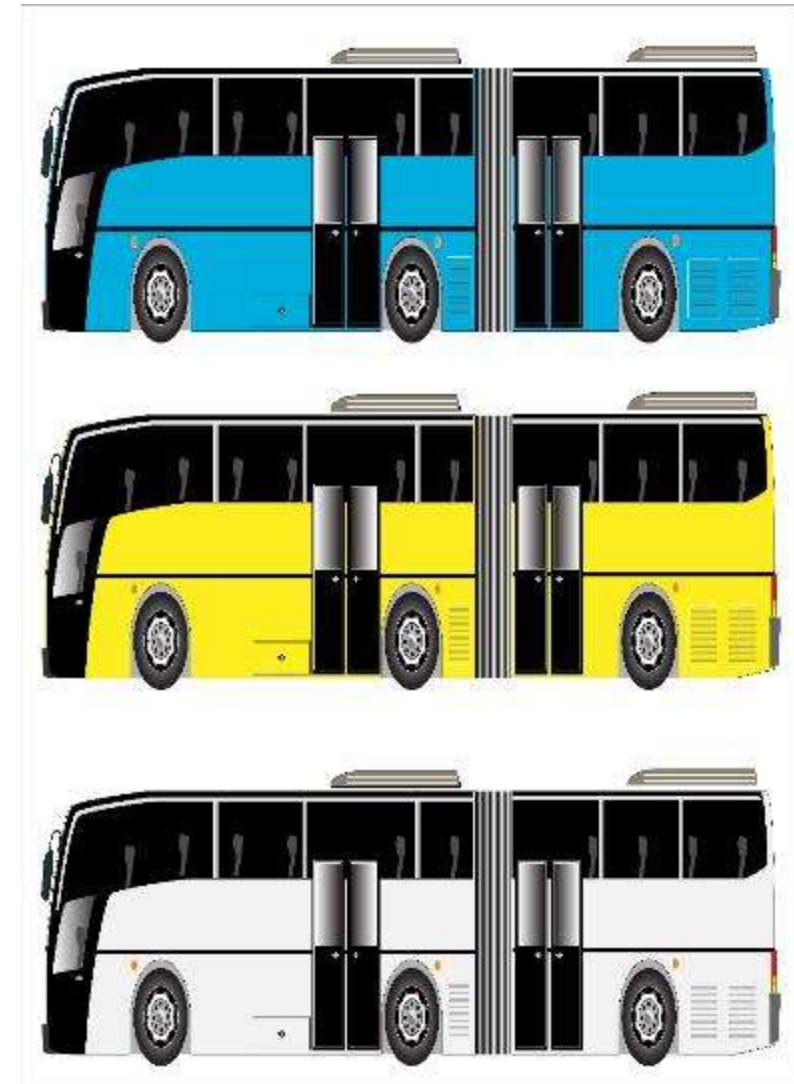
In 2014, the share of bus occupant fatalities was **5%** in **Norway** and lower than **1%** in **Greece** while the respective EU average was 1%.

The **EU average** fatality rate in accidents involving buses is **1,5 per million population**. The respective number was 2,3 in Norway and 1,6 in Greece.



**Objective:** to examine the influence of national, sectorial and organizational safety culture on transport safety behaviour among Norwegian and Greek bus drivers.

- Personal **interviews** with professional bus drivers (10 in Norway, 10 in Greece)
- Two **surveys** among professional bus drivers from 4 companies in Norway and 2 in Greece (N=228).
- Company recruiting **criteria:**
  - Min 90% of bus drivers in each company should be of the main nationality (Norwegian or Greek),
  - Each company should have about 200 to 400 drivers,
  - Each company should have between 100-400 vehicles,
  - Recruited drivers involved in urban traffic but also drive in rural areas.



# Survey - Main examined issues

- ✓ **Working conditions** with safety implications  
*e.g. work pressure, wage arrangements and management focusing on certain safety behaviours (speeding, seat belt use)*
- ✓ **Organizational** safety culture  
*questions selected from the Global Aviation Information Network (GAIN) scale on organisational safety culture*
- ✓ **Safety behaviours**  
*questions taken from the Driving Behaviour Questionnaire to which Scandinavian and Southern European drivers scored significantly different on, and which were related to accident involvement*
- ✓ **National** transport safety culture  
*Paternalism, Trust in authorities, Expectations to other road users*
- ✓ **Sector** transport safety culture
- ✓ Safety **outcomes** (*accidents, injuries*)



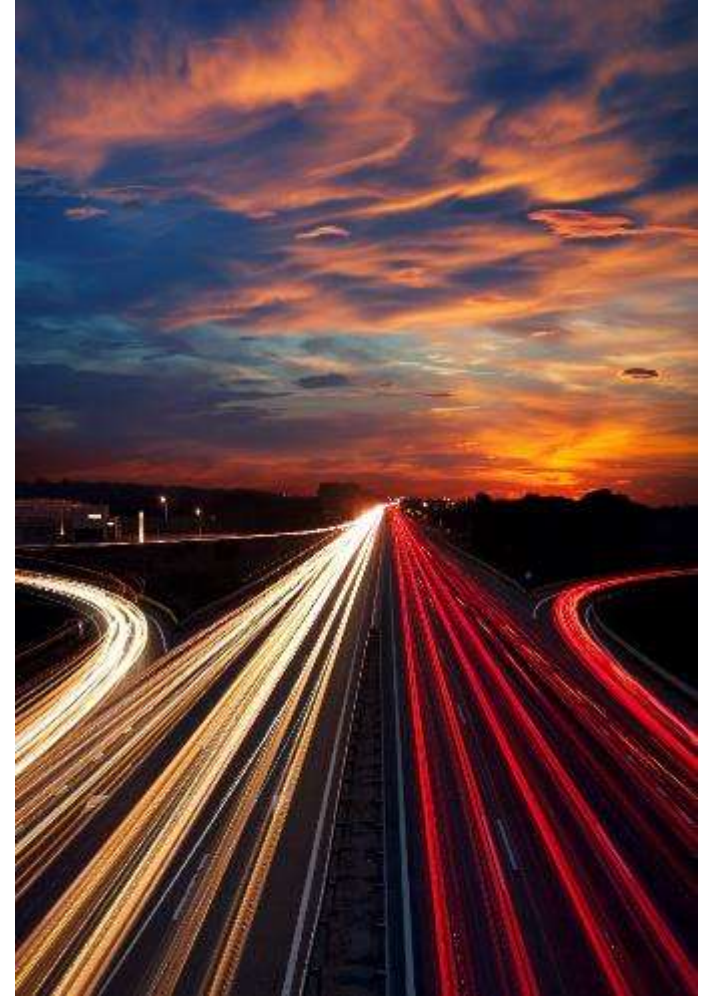


# Sample characteristics

- ✓ The majority of drivers aged **46-55** years old.
- ✓ Most drivers have professional **experience >20 years**.
- ✓ Most drivers usually drive a **local bus**.
- ✓ The mean number or **thousand km driven** during the last 2 years is much higher for Greek drivers than for Norwegians and even higher than for foreigners working in Norway.

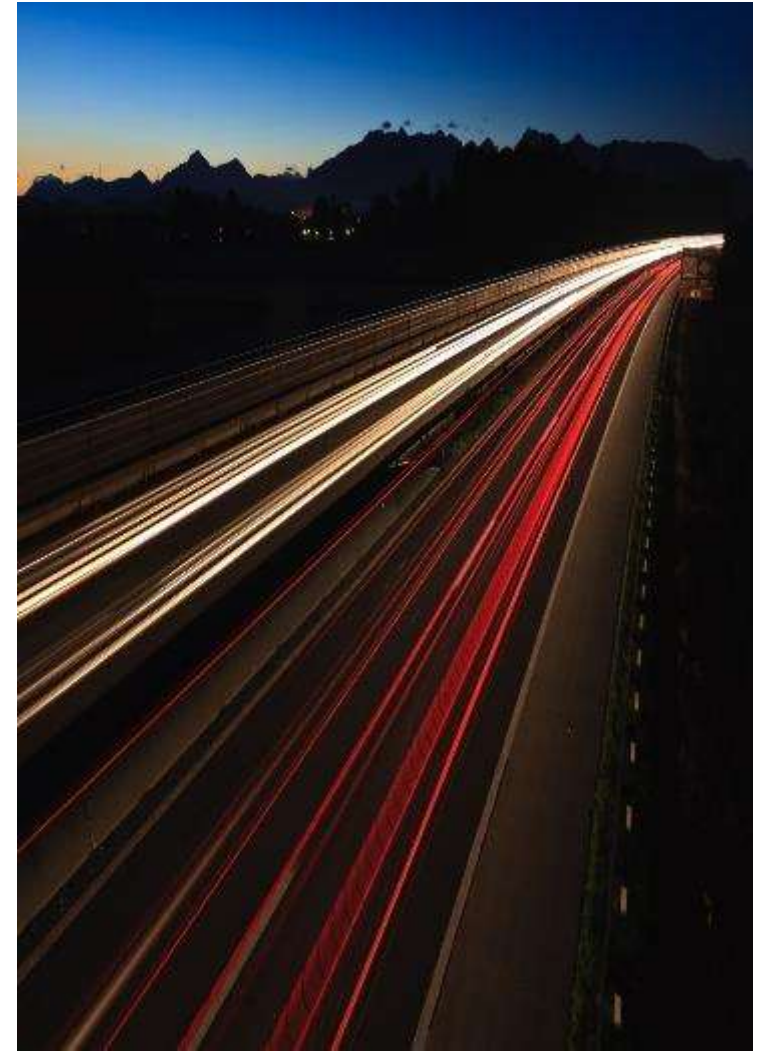


- Factor analysis of the transport **behaviour** scale
- Factor analysis of the **national** culture scale
- Factor analysis - **paternalism** and **individual freedom**
- Examination of **sector** culture - Bus sub sector index (i.e. local bus, school, long distance, express, tour, airport)
- Examination of **organizational** culture
- Regression analyses on **aggressive transport behaviours** and **accident involvement**



# Results

- Bus drivers in Greece report of **more aggressive** violations in traffic than Norwegian bus drivers.
- Aggressive violations are predicted by **national** transport safety culture.
- Respondents' aggressive violations in traffic predicted their **accident involvement**.
- **Organizational** safety culture contributes **negatively** to **aggressive** transport safety behaviours, meaning that a positive organizational safety culture may reduce (the negative impact of national transport safety culture on) aggressive violations in traffic.



The effect of national culture, (i.e. violations), may be attributed to the **false consensus effect**, (i.e. people think that other people do as they do, to justify their own behaviour). However:

- **national patterns** exist, i.e. a relationship between respondents' violations and the violations they attribute to their fellow countrymen
- a key component of transport safety culture is **shared expectations** regarding the behaviours of others
- the national culture factor contains only 3 questions with the **same wording** as the behavior questions, limiting the potential scope of a specific false consensus effect
- the "**individual freedom**" factor predicts aggressive violations, and this factor is not "derived" from the behavior questions, as the "violations" factor to some extent is.



- The relationship between national transport safety culture, transport safety behaviour and accident involvement, could also shed light on **national transport safety records**.
- For more accurate results, **future research** should cover larger driver samples, including more companies to further explore **organizational safety** culture as well as companies including more foreign drivers in order to get a clearer idea of the influence of **nationality**.





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