



# Road Accident Causation Indicators

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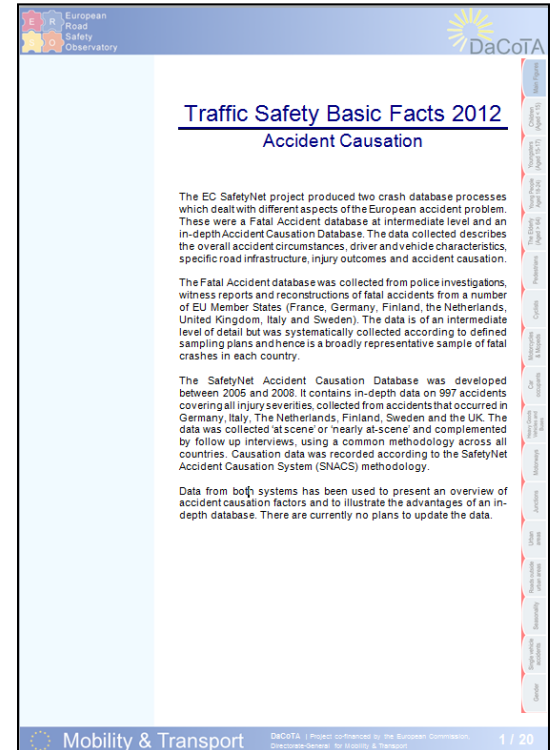
Directorate-General  
for Mobility  
and Transport

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# Introduction

## Why create a causation Basic Fact Sheet?

- Understanding the causes of accidents
- Decade of Action
- Helps prioritise interventions
- Helps develop countermeasures
- Identifies the need for in-depth data
- Development and monitoring of technical measures

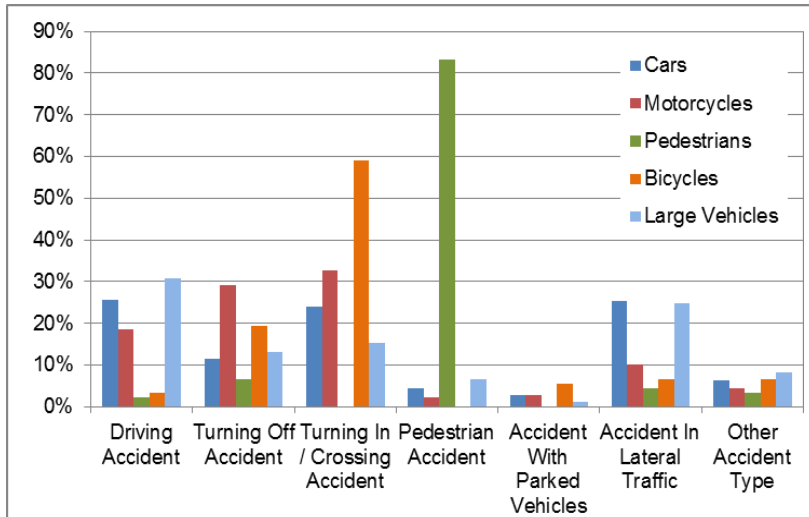


The screenshot shows a webpage from the European Road Safety Observatory. The page title is "Traffic Safety Basic Facts 2012" with a sub-heading "Accident Causation". The content includes three paragraphs: 1) "The EC SafetyNet project produced two crash database processes which dealt with different aspects of the European accident problem. These were a Fatal Accident database at intermediate level and an in-depth Accident Causation Database. The data collected describes the overall accident circumstances, driver and vehicle characteristics, specific road infrastructure, injury outcomes and accident causation." 2) "The Fatal Accident database was collected from police investigations, witness reports and reconstructions of fatal accidents from a number of EU Member States (France, Germany, Finland, the Netherlands, United Kingdom, Italy and Sweden). The data is of an intermediate level of detail but was systematically collected according to defined sampling plans and hence is a broadly representative sample of fatal crashes in each country." 3) "The SafetyNet Accident Causation Database was developed between 2005 and 2008. It contains in-depth data on 997 accidents covering all injury severities, collected from accidents that occurred in Germany, Italy, The Netherlands, Finland, Sweden and the UK. The data was collected 'at scene' or 'nearly at scene' and complemented by follow up interviews, using a common methodology across all countries. Causation data was recorded according to the SafetyNet Accident Causation System (SNACS) methodology." A final paragraph states: "Data from both systems has been used to present an overview of accident causation factors and to illustrate the advantages of an in-depth database. There are currently no plans to update the data." The footer of the page includes "Mobility & Transport" and "DaCoTA | Project sponsored by the European Commission, Directorate-General for Mobility & Transport" along with a page number "1 / 20".

# SafetyNet Accident Causation Database

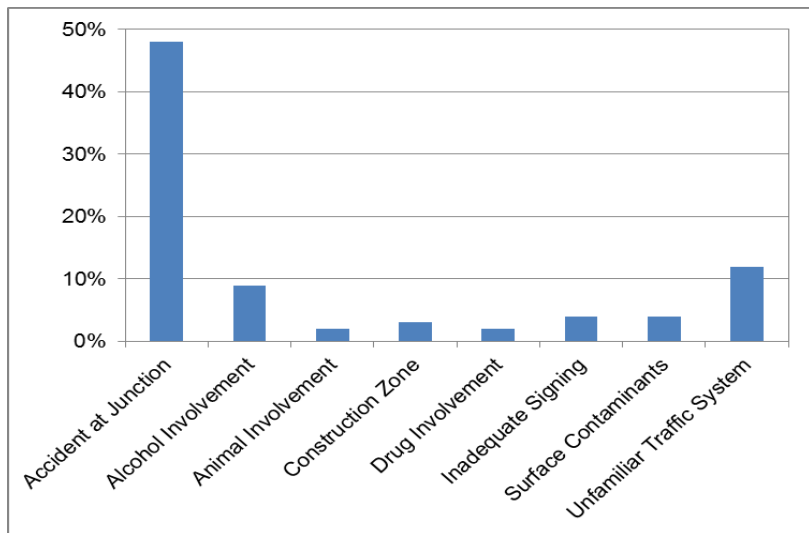
- 977 crashes, 1801 road users.
- Crash investigations carried out in 6 EU countries:
  - Finland (VALT), Germany (MUH), Italy (CTL), the Netherlands (TNO), Sweden (CHALMERS), UK (TSRC).
- In-depth level – at scene/nearly at scene methodology.
- Covers all injury severities.
- Type of data:
  - General variables (crash description, vehicles, roadway environment, road users).
  - Contributory factors (SafetyNet Accident Causation System).

# Results



## Distribution of Accident Type by Road User Type

- The most common accident types were ‘Driving Accidents’, ‘Turning In/Crossing Accidents’ and ‘Accidents in Lateral Traffic’.



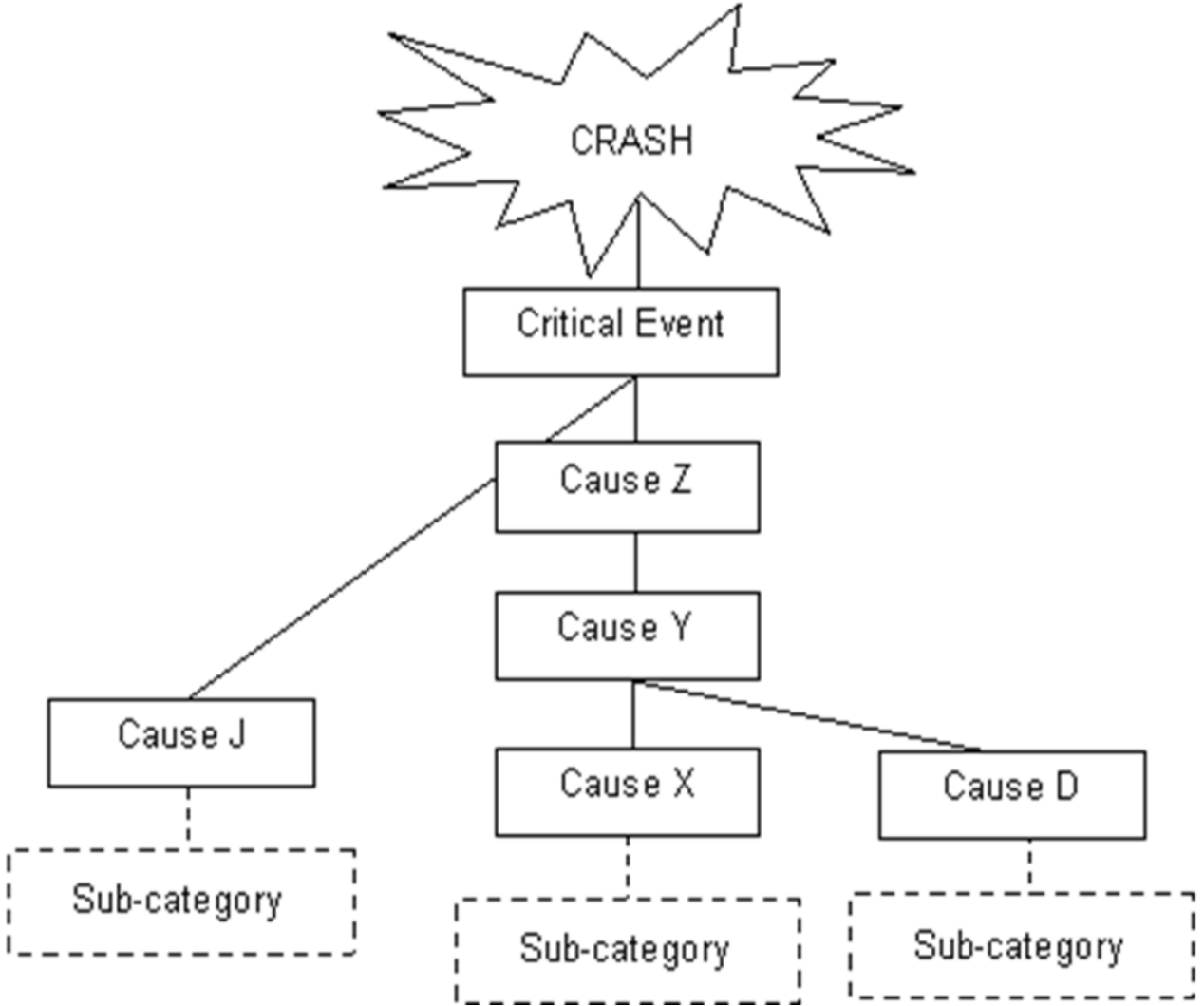
## Circumstantial Factors

- 12% of accidents occurred in unfamiliar traffic systems.
- 48% of accidents occurred at junctions.

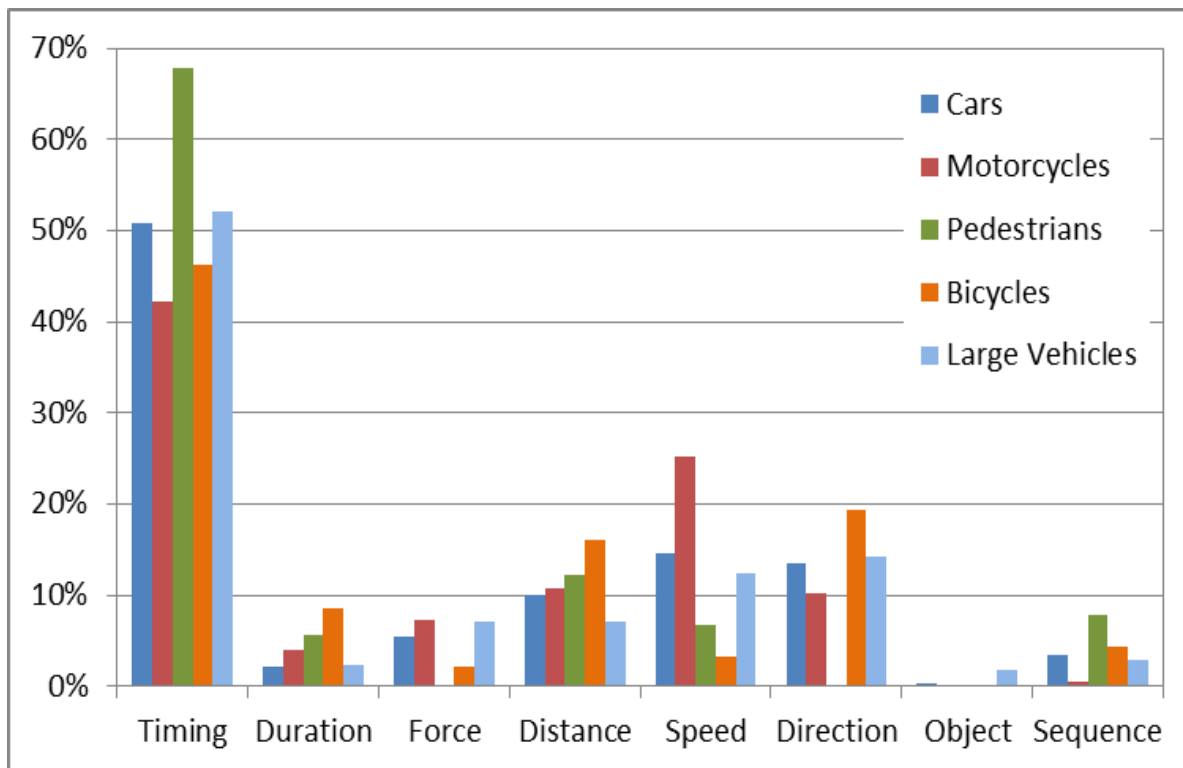
# SafetyNet Accident Causation System (SNACS)

- Philosophy: crash occurs when the dynamic interaction between humans, technology and organisation fail to meet the demands of the current situation.
- Analysing the contributing factors and the relationships between them creating a causation chart.

# SNACS Chart – 1 Driver

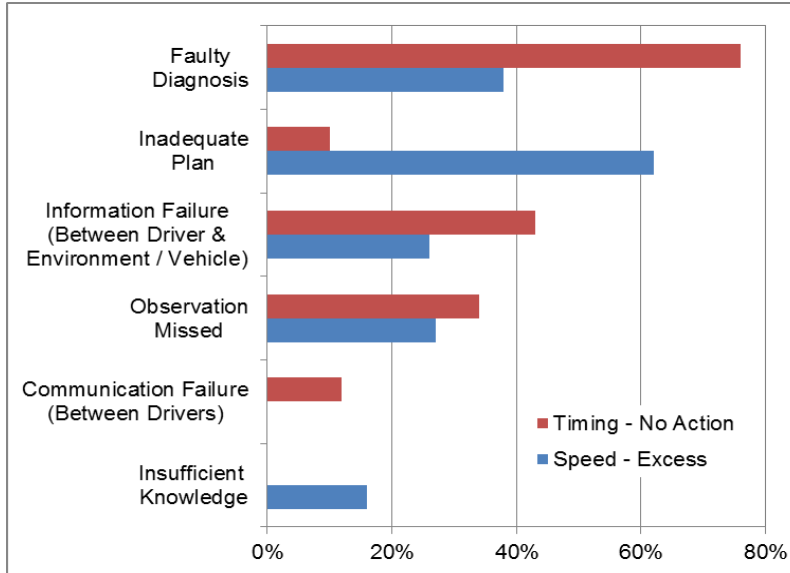


# Critical Events



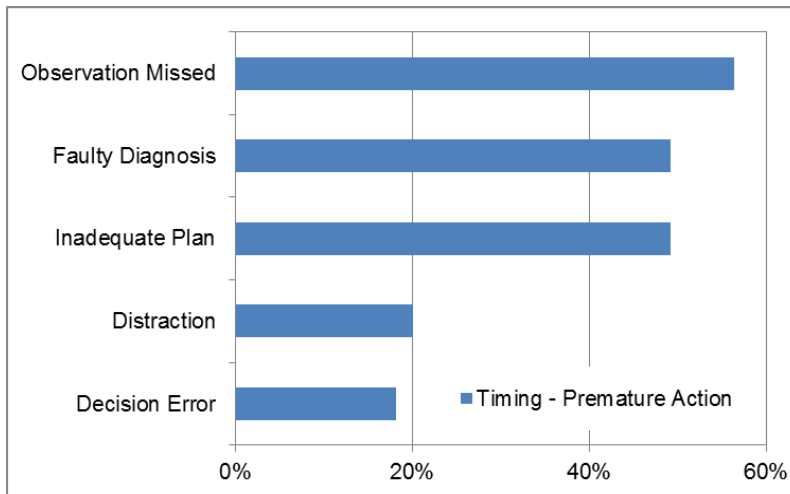
- ‘Timing’ was the most frequent critical event for all road users.
- Motorcycles had a high proportion of ‘Speed’ accidents.
- Bicycles had a high proportion of ‘Direction accidents.

# Most Frequently Linked Causes



## Motorised Vehicles

- ‘No Action’ was most often a result of ‘Faulty Diagnosis’.
- ‘Excess Speed’ was most often a result of ‘Inadequate Plan’.



## Vulnerable Road Users

- ‘Premature Action’ was most often a result of ‘Observation Missed’.

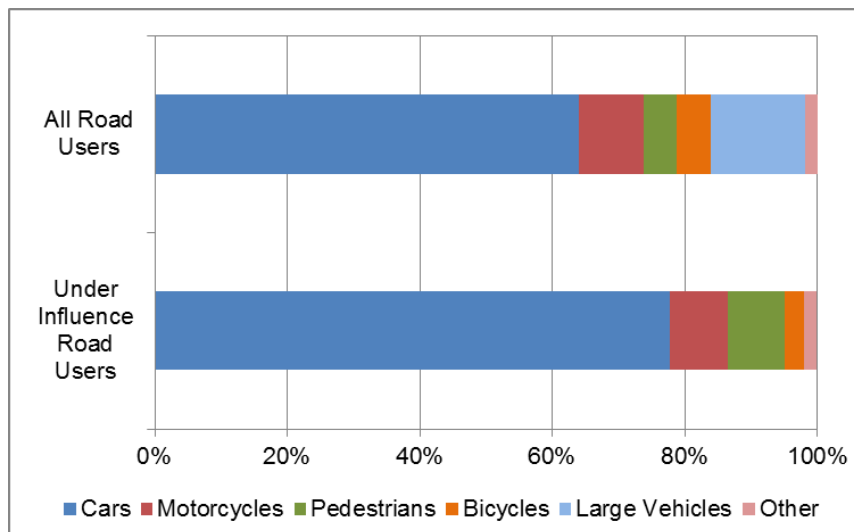


# Influence of Substances

- 10% of accidents included influence of substances
- 44% of ‘under influence’ accidents were fatal.

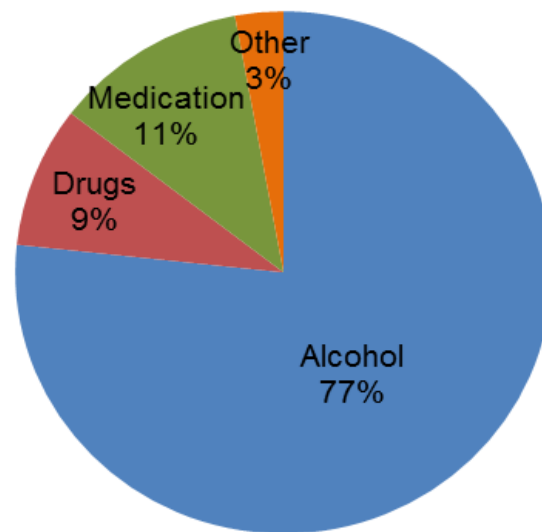
## Distribution of Vehicle Types

- Cars and pedestrians represented a higher proportion of ‘under influence’ road users compared with all road users.



## Distribution of Causes

- Alcohol accounted for three quarters of ‘under influence’ accidents

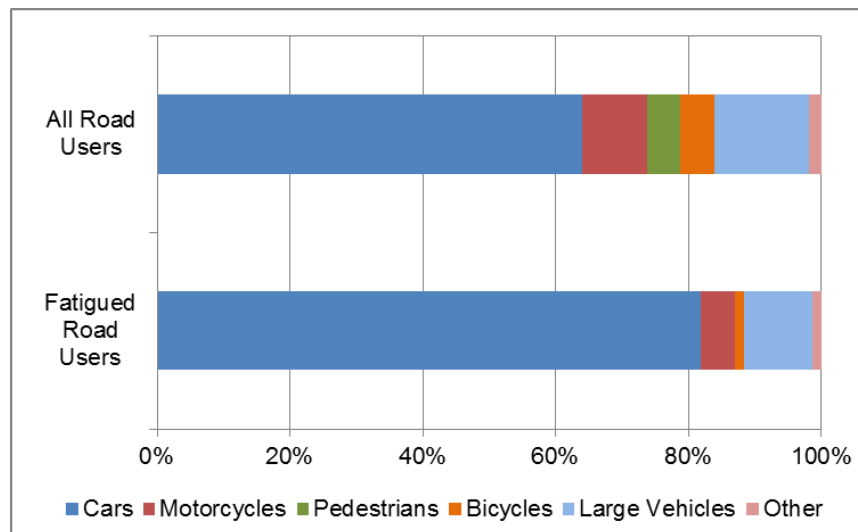


# Fatigue

- 8% of accidents included fatigue.
- 25% of fatigue accidents were fatal.

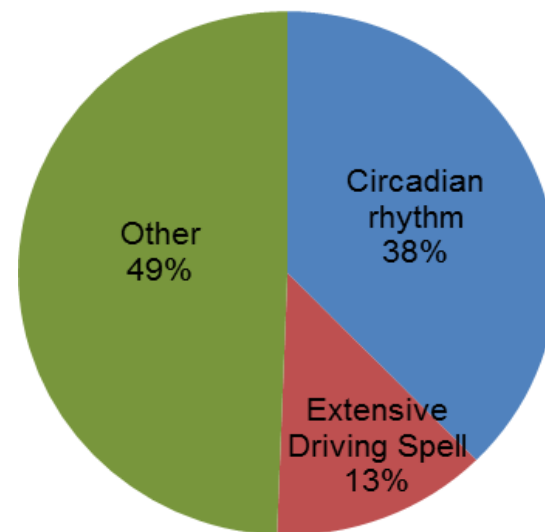
## Distribution of Vehicle Types

- Drivers of cars represented a higher proportion of fatigued road users when compared with all road users.



## Distribution of Causes

- Circadian rhythm (unusual hours) or extensive driving spells was associated with half of fatigue accidents

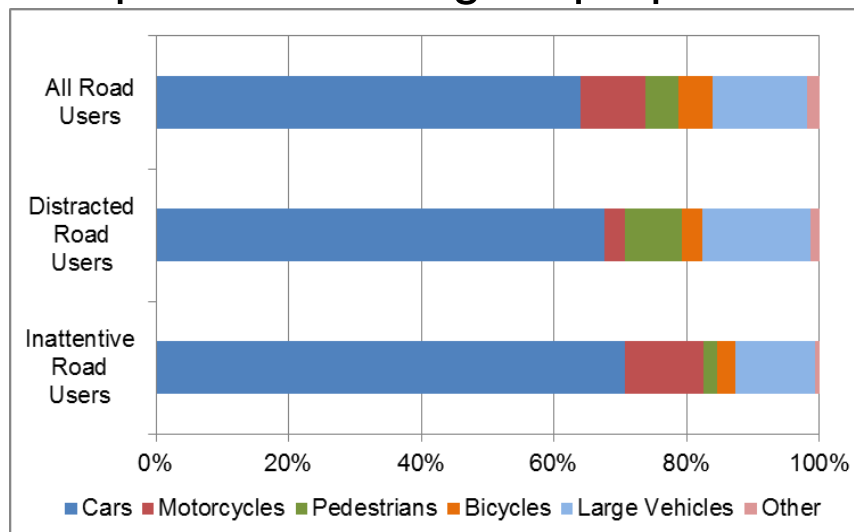


# Distraction / Inattention

- 32% of accidents included distraction or inattention
- 13% of distraction / inattention accidents were fatal

## Distribution of Vehicle Types

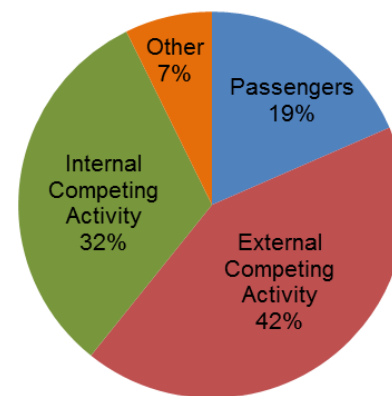
- Distraction: cars and pedestrians represented a higher proportion.
- Inattention: cars and motorcycles represented a higher proportion



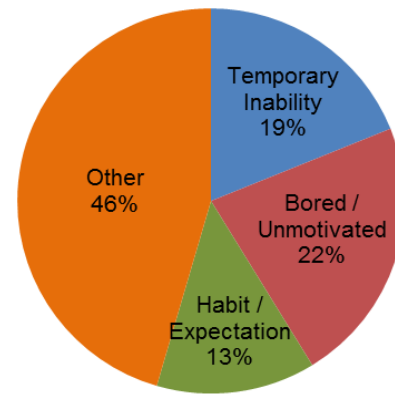
## Distribution of Causes

- 19% of distraction accidents were attributed to passengers

Distraction



Inattention



# Conclusions

- The SNACS method provides detailed information about the contributory factors in road traffic crashes
- Different contributory factors relate to different crash circumstances and lead to different outcomes – these differences can be examined to allow the creation of specifically targeted countermeasures
- Detailed causation data depends on in depth accident investigations

# Further Information

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- Traffic Safety Basic Fact Sheets:  
<http://safetyknowsys.swov.nl/>
- DaCoTA Project: <http://www.dacota-project.eu>
- European Road Safety Observatory [www.erso.org](http://www.erso.org)
- SNACS: Glossary & Analysis report. In-depth section of:  
<http://erso.swov.nl/safetynet/content/safetynet.htm>)