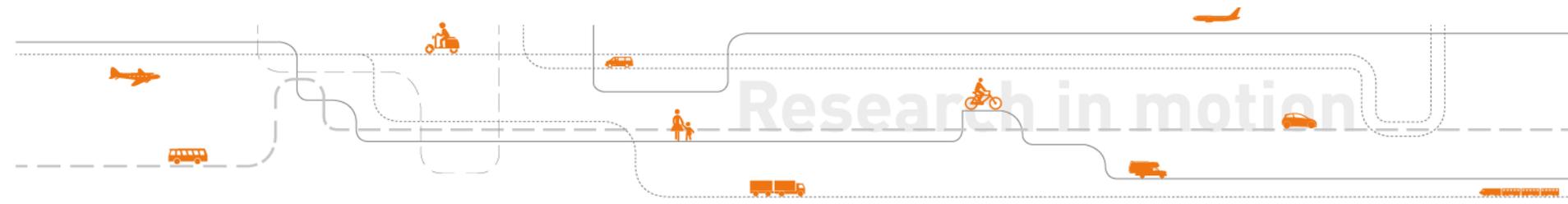


# Welcome to TØI

**SAFER study visit to TØI**  
**Wednesday, January 16th, 2019**



# Program – before lunch

- 11.15-11.25: Coffee, snacks and presentation by everybody
- 11.25-11.40: Welcome by Managing Director Gunnar Lindberg
- 11.40-12.00: Brief presentation of four research groups:
  - *Road Safety by ~~Chief Research Officer Alena Høye~~ Michael Sørensen*
  - *Transport and Behaviour by Chief Research Officer Torkel Bjørnskau*
  - *Systems and Culture by ~~Chief Research Officer Ross Phillips~~ Michael Sørensen*
  - *Intelligent Transport Systems by Chief Research Officer Alexander Eriksson*
- 12.00-12.30: Brief presentation of the work at SAFER
  - *Magnus Granström, Director*
  - *Tania Dukic Willstrand, Research area director for Road user behavior*
  - *Torbjörn Andersson, Research area director for Safety performance evaluation*
  - *John-Fredrik Grönvall, Infrastructure leader for Naturalistic driving data*
- 12.30-13.15: lunch and showing our institute

# Program – after lunch

- Some selected research presentations
- 13.15-13.40: New Thoughts on Road Safety Work by Research Engineer Per Andreas Langeland
- 13.40-14.05: Driver Behaviour Models and Autonomous Vehicles by Senior Research Psychologist Truls Vaa
- 14.05-14.30: Safety for Autonomous Vehicles in different stages by Chief Research Officer Alexander Eriksson
- 14.30-14.50: Coffee and cake
- 14.50-15.15: Improving safety in transport companies - A new approach by Senior Research Sociologist Tor Olav Nævestad
- 15.15-15.40: Video analysis and conflict studies - examples from Norway by Chief Research Officer Torkel Bjørnskau
- ~~Safety for new cars - Norwegian and foreign studies by Chief Research Officer Alena Høye~~
- 15.40-15.50: Some final words

# Safer people on study tour to TØI

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4	András	Bálint	Chalmers	andras.balint@chalmers.se
5	John-Fredrik	Grönvall	Safer	John-fredrik.fredrik@Chalmers.se
6	Abhishek	Purushothaman	Chalmers/SAFER	abhpur@student.chalmers.se
7	Adarsh	Manjunath	Chalmers	adarshm@student.chalmers.se
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	Choudhury			
10	Dipesh	Rohan	Chalmers	dipesh@student.chalmers.se
		Chakkamvilakam		
11	Krishnachandran	Prasannachandran Nair	Chalmers	nairk@student.chalmers.se
12	Fredrik	Sandblom	AB Volvo	fredrik.sandblom@volvo.com
13	Torbjörn	Andersson	Autoliv	torbjorn.andersson@autoliv.com
14	Ingrid	Skogsmo	Vti	Ingrid.skogsmo@vti.se
15	Tania	Willstrand	VTI	Tania.willstrand@vti.se

# TØI people in the Safer meeting

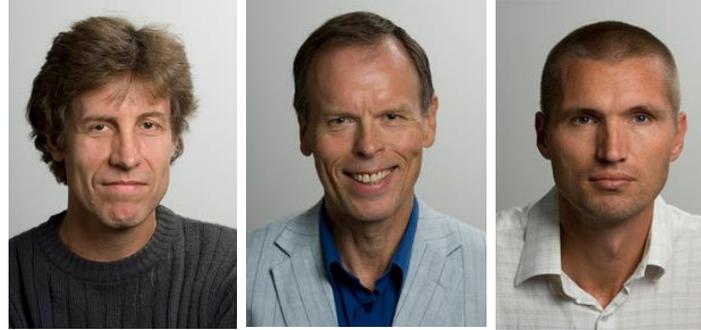
Michael	Sørensen
Gunnar	Lindberg
Torkel	Bjørnskau
Alena	Høye
Ross	Phillips
Alexander	Eriksson
Truls	Vaa
Per Andreas	Langeland
Tor Olav	Nævestad
Vibeke	Milch
Siri	Berge
Alice	Ciccone

# Department of Safety and Security

## Road Safety



## Transport and Behaviour



## Systems and Culture



# Department of Technology (working with safety)

## Intelligent transport systems



# Road Safety



Chief Research Officer,  
Dr.Rer.Soc Alene Høye



Senior Research Officer  
4 \* dr. Rune Elvik



Senior Research  
Psychologist  
Truls Vaa



Research Psychologist  
PhD-student  
Ingeborg S. Hesjevoll



Senior Research Statistician  
PhD Rikke Ingebrigtsen



Research director  
Engineer, PhD  
Michael W. J. Sørensen



Research Engineer  
Per Andreas Langeland

# Road Safety

Research in this field covers mainly the following topics:

- Road safety evaluations,
  - meta-analysis,
  - crash prediction models
  - driver behavior models
  - evaluations of road safety policy
  - cost-benefit analysis of road safety measures
- 
- An important activity is the continuous updating of the Handbook of Road Safety Measures

# Newest reports

## TØI-Reports

Report.no	Title	Authors	Language	Download
1645/2018	The potential for reducing the number of killed or seriously injured road users in Norway in the period 2018-2030	Rune Elvik, Alena Høye	Norsk bokmål	Summary Full report - in Norwegian only Sammendrag
1643/2018	Accidents on the way to school	Alena Høye	Norwegian	Hele rapporten Sammendrag
1618/2018	Children and youth in traffic. Accidents, traffic education, and active mobility	Astrid Helene Amundsen	Norwegian	Summary - in Norwegian only Full report - in Norwegian only
1607/2017	Vehicle age and carsh risk	Alena Høye	Norwegian	Summary Hele rapporten Sammendrag
1606/2017	Traffic accidents on Norwegian road bridges 2010-2016	Fridulv Sagberg, Per Andreas Langeland	norsk	Summary Hele rapporten Sammendrag
1605/2017	Which factors promote or inhibit the use of effective road safety measures?	Rune Elvik, Terje Assum, Silvia Johanne Olsen	Norwegian	Summary Hele rapporten Sammendrag
1597/2017	Road safety for cyclists	Alena Høye	Norwegian	Summary Full report - in Norwegian only Sammendrag
1591/2017	Moped crashes in Norway 2007-2016	Alena Høye	Norwegian	Summary Full report - in Norwegian only Sammendrag
1589/2017	Speed limit policy - effects on road safety of different speed limits	Rune Elvik	Norwegian	Summary Hele rapporten Sammendrag
1580/2017	Road safety effects of vehicles crashworthiness, weight, and compatibility	Alena Høye	Norwegian	Summary Hele rapporten Sammendrag
1579/2017	Mini scenario: Mandatory restrictive in-vehicle safety measures – effects on number of road fatalities and severe injuries	Fridulv Sagberg	Norwegian	Summary Hele rapporten Sammendrag
1569/2017	In-depth analysis of speed-related road crashes	Alena Høye	Norwegian	Summary Hele rapporten Sammendrag
1556/2017	Compendium of road safety measures	Alena Høye	Norwegian	Summary Hele rapporten Sammendrag

# Newest Articles

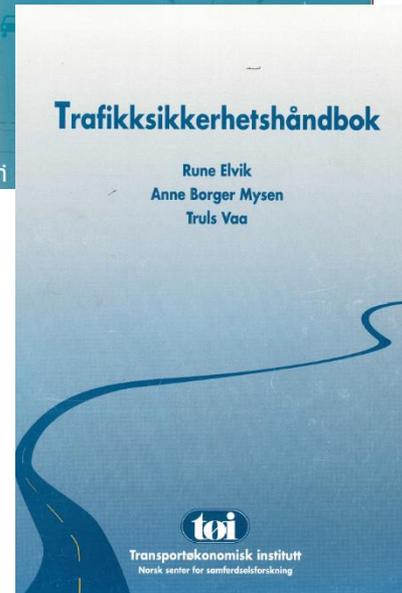
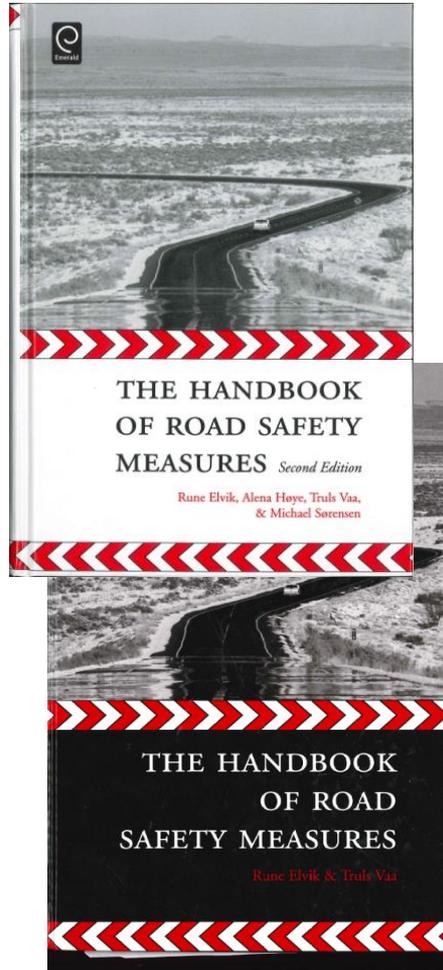
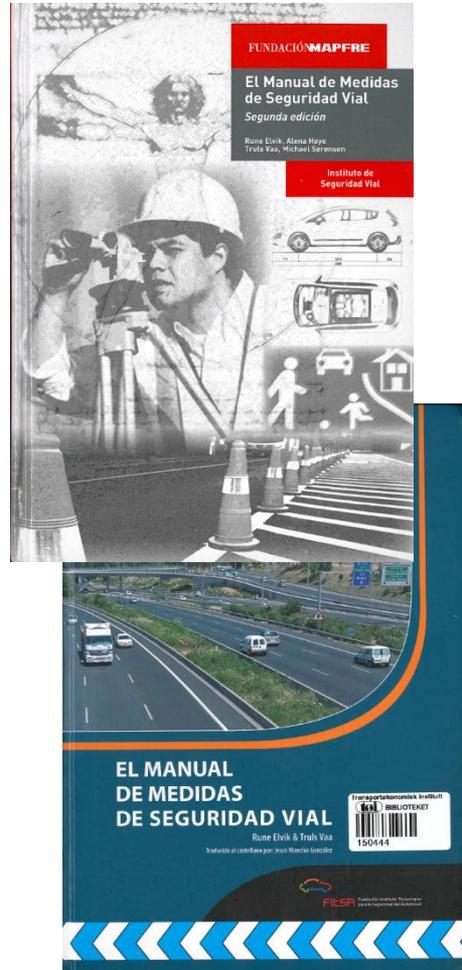
## Academic articles

Title	Authors	Publication
An analysis of official road crash cost estimates in European countries	Robert Bauer, Laurent Carnis, <b>Rune Elvik</b> , Heike Martensen, Annelies Schoeters, Ward van den Berghe, Wendy Weijermars, Wim Wijnen	Safety Science, 2019, 113:318-327
Updated estimates of the relationship between speed and road safety at the aggregate and individual levels	<b>Rune Elvik</b> , Anna Vadeby, Tove Hels, Ingrid van Schagen	Accident Analysis and Prevention, 2019, 123 (February 2019):114-122
Recommend or mandate? A systematic review and meta-analysis of the effects of mandatory bicycle helmet legislation	<b>Alena Høye</b>	Accident Analysis and Prevention, 2018, 120 (November):239-249
How can the notion of optimal speed limits best be applied in urban areas?	<b>Rune Elvik</b>	Transport Policy, 2018, 68:170-177
Bicycle helmets - To wear or not to wear? A meta-analyses of the effects of bicycle helmets on injuries	<b>Alena Høye</b>	Accident Analysis and Prevention, 2018, 117 (August):85-97
Does a tow-bar increase the risk of neck injury in rear-end collisions	Anne Vingaard Olesen, <b>Rune Elvik</b> , Camilla Sloth Andersen, Harry Lahrmann	Journal of Safety Research, 2018, 65:59-65
Interpreting interaction effects in estimates of the risk of traffic injury associated with the use of illicit drugs	<b>Rune Elvik</b>	Accident Analysis and Prevention, 2018, 113:224-235
Why is it so difficult to explain the decline in traffic fatalities?	<b>Rune Elvik</b>	Udvalgte Artikler fra Trafikdage på Aalborg Universitet, 2018, ISSN 1903-1092:1-20
Does valuation research provide a credible basis for cost-benefit analysis of safety measures?	<b>Rune Elvik</b>	International Journal of Business Continuity and Risk Management, 2017, 7(3):192-203
Exploring the safety in numbers effect for vulnerable road users on a macroscopic scale	Ivana Tasic, <b>Rune Elvik</b> , Simon Brewer	Accident Analysis and Prevention, 2017, 109 (December 2017):36-46
How can cyclist injuries be included in health impact economic assessments?	<b>Rune Elvik</b> , Hanne Beate Sundfør	Journal of Transport & Health, 2017, 6:29-39
An Empirical Bayes before-after evaluation of road safety effects if a new motorway in Norway	<b>Rune Elvik</b> , Heidi Ulstein, Kristina Wifstad, Ragnhild Sjoner Syrstad, Aase Seeberg, Magnus U. Gulbrandsen, Morten Welde	Accident Analysis and Prevention, 2017, 108:285-296
A synthesis of studies of access point density as a risk factor for road accidents	<b>Rune Elvik</b>	Accident Analysis and Prevention, 2017, 107 (October):1-10
Can evolutionary theory explain the slow development of knowledge about the level of safety built into roads?	<b>Rune Elvik</b>	Accident Analysis and Prevention, 2017, 106:166-172
How did the economic recession (2008-2010) influence traffic fatalities in OECD-countries?	Fred Wegman, Richard Allsop, Constantinos Antoniou, Ruth Bergel-Hayat, <b>Rune Elvik</b> , Sylvain Lassarre, Daryl Lloyd, Wim Wiinen	Accident Analysis and Prevention, 2017, 102:51-59

# The Handbook of Road Safety Measures – a main product



# Six different language



# A brief history of the book

- A fully updated version is always online available free of charge in **Norwegian** at <http://tsh.toi.no/>
- Published in **Norwegian** in 1982, 1989, 1997, 2012
- In **Finnish** in 1993
- In **Russian** in 1996 and 2001
- In **English** in 2004 and 2009 (Elsevier, Emerald)
- In **Spanish** in 2007 and 2014 (Fundación Mapfre)
- In **Portuguese** in 2015 (Fundación Mapfre)
- Has expanded from 73 to more than **150 measures**
- Funded by the Norwegian Public Roads Administration and the Norwegian Ministry of Transport and Communications

# Main questions the book answers

- Which road safety measures **exist** and can be used?
- Which road **safety problems** do these measures help solve?
- **What are the effects of these measures on accidents or injuries?**
- What are the effects on **mobility and the environment?**
- What are the **costs** of these measures?
- Which measures give the greatest **benefits** for a given cost?

# Effects on accident

- This is the **key section** of each chapter
- In most cases the effect is stated as the **percentage change** in the number of accidents or injured road users
- **Uncertainty** is stated as a 95% confidence interval
- A distinction is made between **different versions of a measure and different levels of accident severity**
- Most summary estimates of effect are based on **meta-analysis**
- Emphasis has been put on the methodologically