Improving safety in transport companies - A new approach

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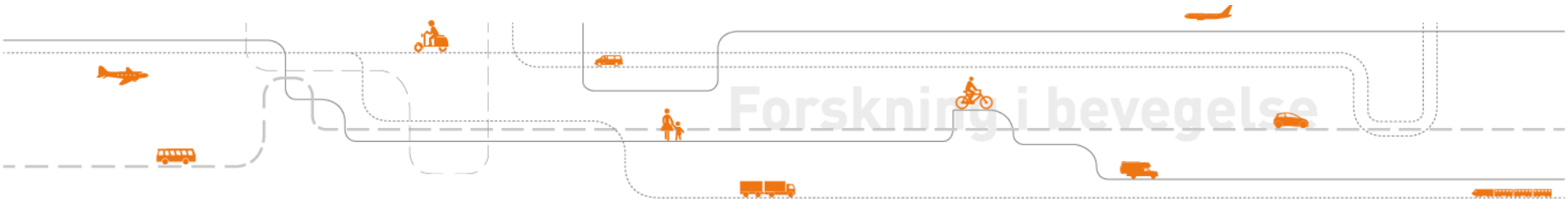

Outline:

- Three projects/reports: All financed by the Norwegian Public Roads Administration

1) The Safety ladder for goods transport (Nævestad et al 2017). Based on an NPRA seminar about ISO:39001. What can small enterprises learn?

2) «Miniscenario: Safety ladder» (Nævestad et al 2018): potential for avoiding fatalities and severe injuries «Societal level».

3) «Safety culture, safety management and risk in road goods transport companies" (Nævestad et al 2018). "Company level"

Background I:

- 2013-report: about 40 % of all fatal road accidents involve drivers at work

- 2015-report: 1490 people are injured in accidents involving drivers at work annually (81 % of these are «other road users»).

- 2015-report: HGVs comprise about 40 % of the vehicles that are driven by drivers at work and involved in accidents.

Background II:

- Considerable opportunities for introducing preventive measures, as the employer has a managerial prerogative.
- The employment relationship may legitimize more restrictive measures for drivers at work than for private drivers (e.g. alco lock, speed limiter)
- Previous research indicate that goods transport companies have relatively few measures focusing on organisational safety management.
- In spite of few robust studies, existing studies indicate a considerable effect of such measures (20-60 % risk reduction).

Project 1: Developing the safety ladder for goods transport

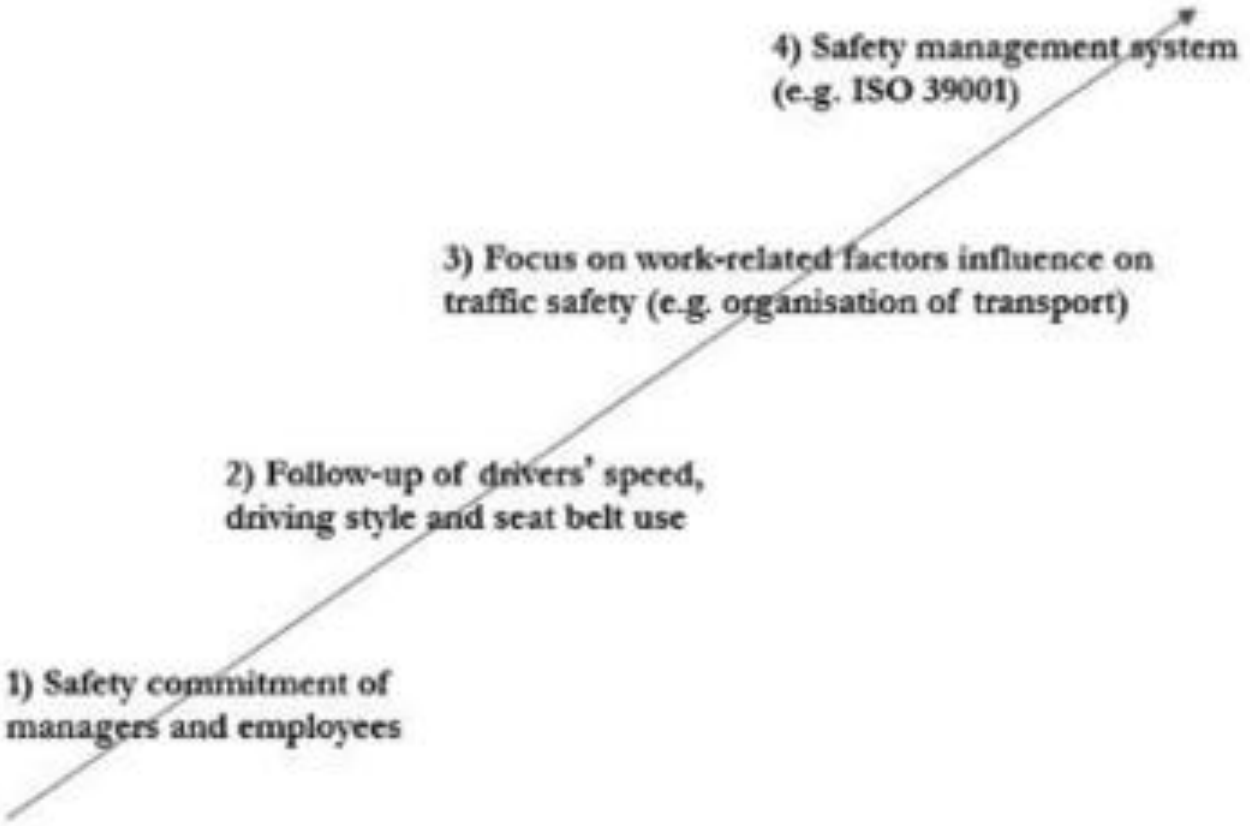

Figure S.1 Safety ladder for safety management in goods transport.

Project 2: Mini scenario Safety ladder

- Aim: Examine possible consequences for the number of killed and severely injured in traffic if road goods transport companies in Norway introduce the organizational safety management measures in the Safety ladder.

- Methods:
  1) *Data on kilometres driven in Norway for Norwegian registered HGVs*
  2) *Data on kilometres driven by employed drivers ("structure and storage")*
  3) *Data from the National Road Administration's Accident Analysis Groups*
  4) *Statistics Norway data on personal injury accidents involving HGVs*
  5) *Data the insurance companies' database of property damage accidents*
  6) *Additional information about 25 HGV crashes from AIBN reports*
  7) *Survey to estimate the occurrence of OSM measures*
  8) *Literature review, to estimate expected effects of OSM measures*

Results I:

- An average of 688 people are injured in accidents involving heavy goods vehicles (HGVs) each year (most of them are other road users).
- A total of 138 of these people are severely injured or killed.
- Drivers in 10 % of the accidents cannot be targeted by OSM, as they are self employed (90 % are employed).
- Retrospectively (2012-2016): 90 % of the accidents equals 92 people killed/severly injured annually.
- Prospectively (2020): 90 % equals 25 people killed/severly injured.

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Results II: Example calculations

- We must take into account that:
  - *Some companies already have measures (survey)*
  - *The measures do not have 100 % effect (literature study).*

- Retrospectively (2007-2016): potential to «avoid» between 7 and 56 killed/severly injured annually, depending on premises related to prevalence and effect.

- (The estimates are insufficient becuase of methodological weaknesses, and as we lack good data on prevalence and effect of measures. We may, however, expect a certain decrease.)

Project 3: Safety culture, safety management and risk in road goods transport companies

- Examines the relationship between safety culture, safety management and risk in four groups of road goods transport companies at different Safety ladder levels.

- <u>Methods/activities:</u>

1) Literature review
2) Survey data from 17 companies and a reference group
3) Interviews with managers & employee representatives
4) Calculate the risk of accidents
5) Develop a Safety ladder implementation indicator
6) Make a list with examples of good practices

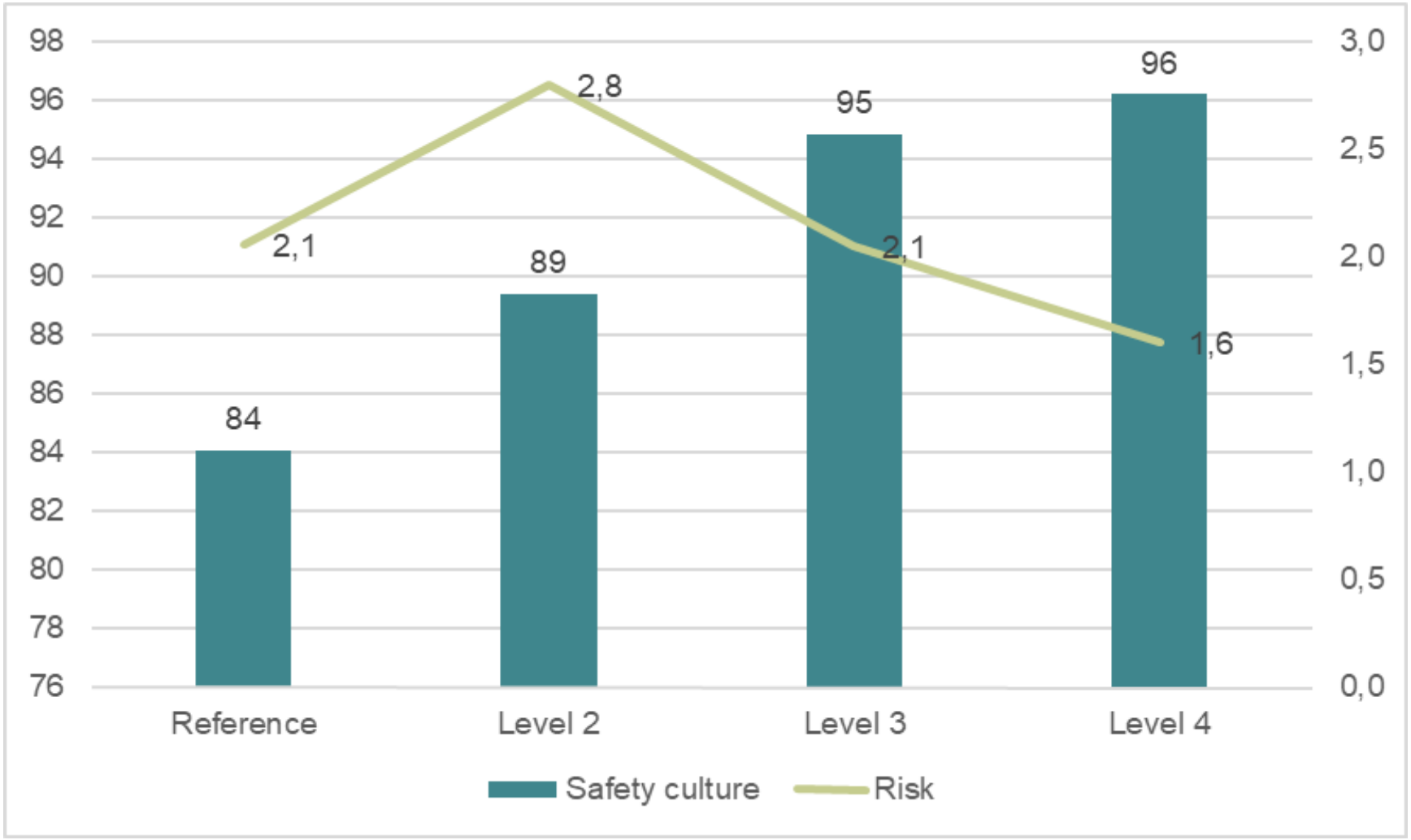
Hypotheses:

1) Companies' safety culture scores will increase in average at each Safety Ladder level.

2) The scores on relevant measures of safety management and work related factors with implications for transport safety will increase at each Safety Ladder level.

3) Companies' accident risk will decrease in average at each Safety Ladder level.

Organisational safety culture and accident risk



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Safety management and safety culture

The importance of framework conditions