



REPUBLIC OF ESTONIA  
ROAD ADMINISTRATION



*A hundred years of the  
Republic of Estonia*

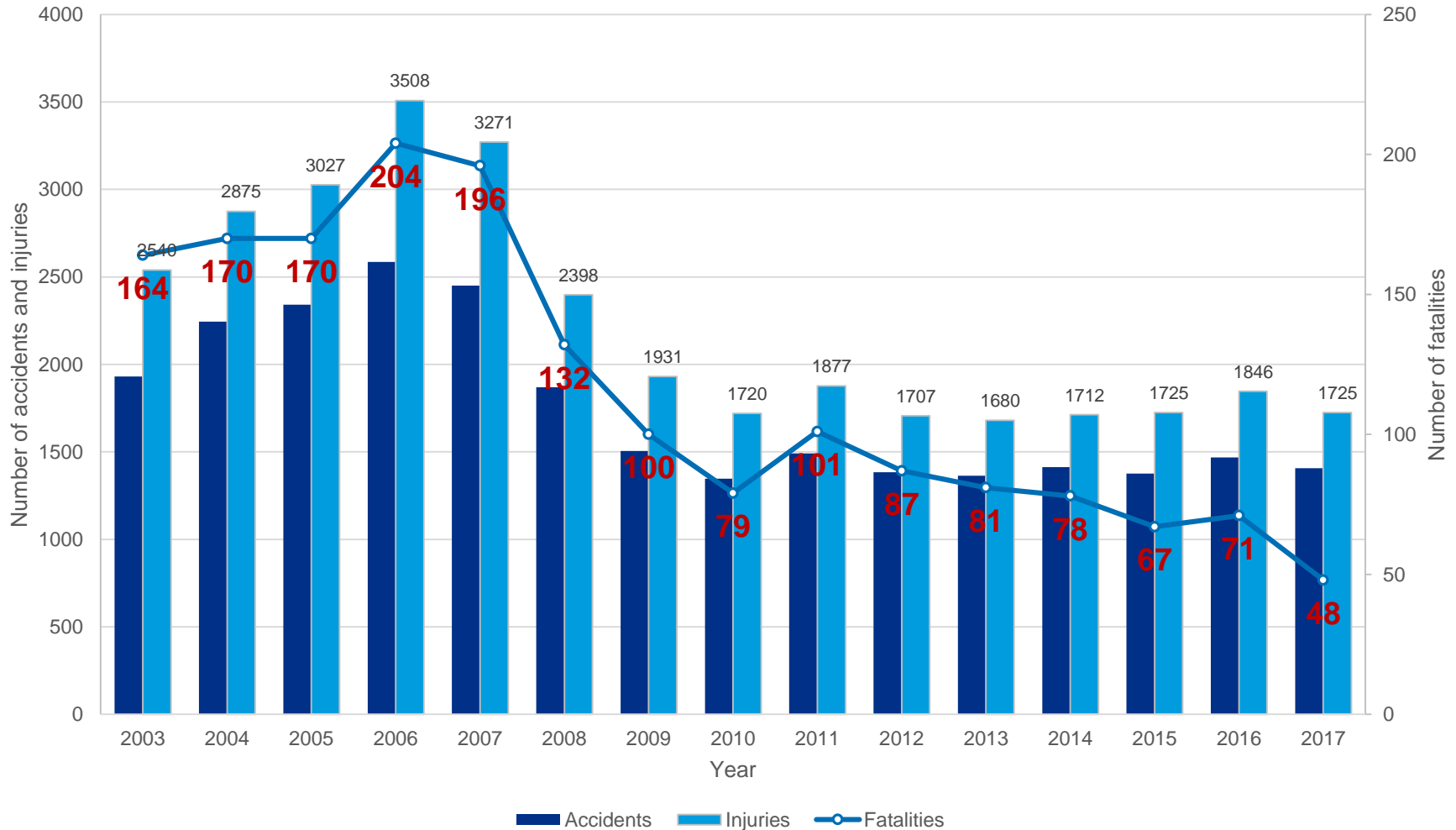
# Estonian way to safer roads: what is behind the numbers?

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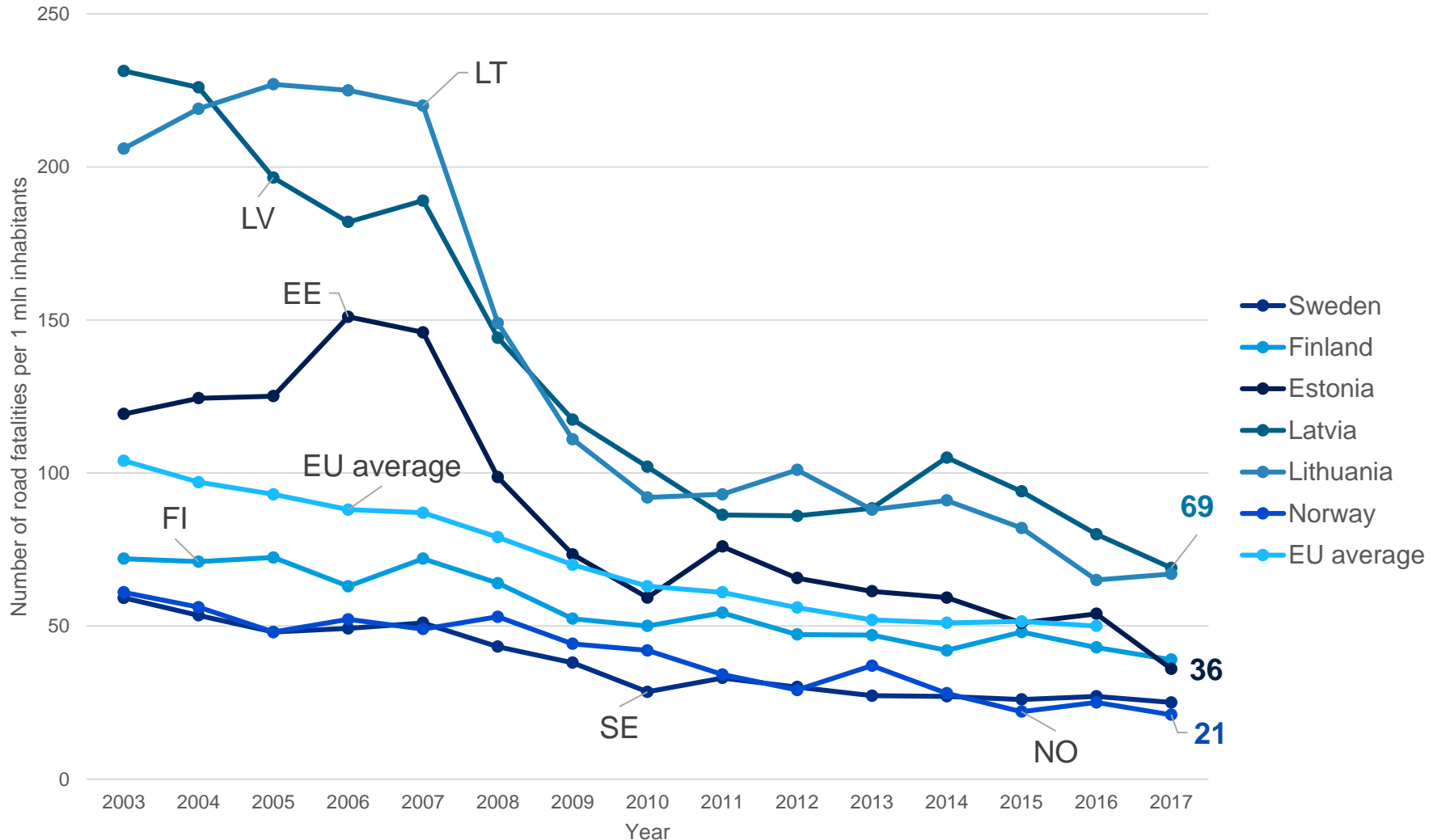
# Number of road accidents, fatalities and injuries, 2003 – 2017



No changes in the number of serious accidents since 2012.

Slight increase in the number of road injuries and remarkable decrease of fatalities

# Number of road fatalities per population 2003 – 2017



Fatalities fell to more than half their level 15 years ago, but is there any reason to be satisfied?

<https://www.youtube.com/watch?v=UKk5euBaL0A>

# What is behind the numbers?

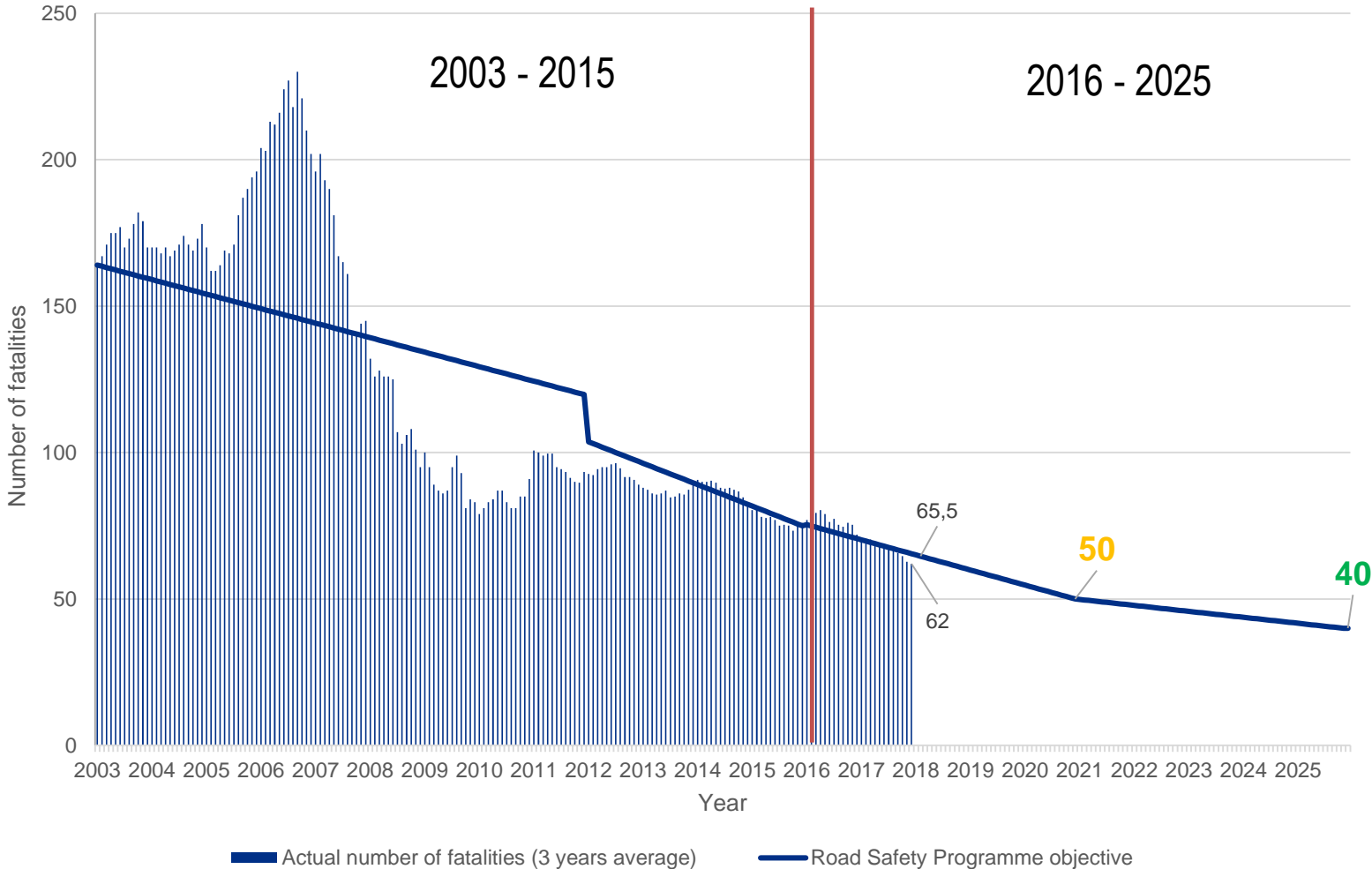
## 1. Systematic approach

A statewide-coordinated safety plan that provides a comprehensive framework for reducing fatalities and serious injuries on all public roads.



# 1. Systematic approach

## Road Safety Programme: Goals on Road Fatalities



The general aim of the Road Safety Programme is less than 50 fatalities 3-year average in 2020 and less than 40 in 2025. Actual 2015 – 2017 average was **62**.

# Road Safety Programme 2016 - 2025

## Safe System Philosophy and Management System

- VISION Zero and shared responsibility
- Single measure based model doesn't work any more!
- Complex implementation of various measures
- Strong need for a cooperation of different actors and coordination of their actions



- 4-year rolling action plans
- Annual reporting and monitoring of actions' implementation and effects of treatments
- Action plan can be updated every year during the state budget planning process

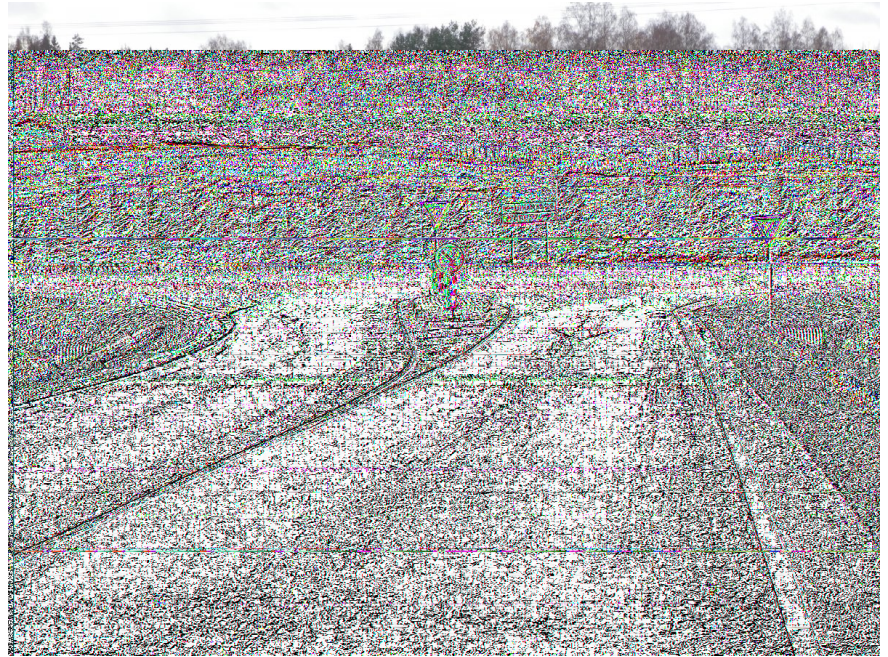
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<https://www.mnt.ee/et/liikleja/liiklusohutusprogramm-2016-2025>

# What is behind the numbers?

## 2. Pro-active not re-active

Relying alone on determining risks that led to a traffic accident is no longer enough!

Solve road safety problems when planning traffic system – it turns to be more cost-effective!



„No traffic accidents!“  $\neq$  „No traffic risk!“

## 2. Pro-active not re-active State Road Network Safety Ranking

- Shifted from crash density/rate calculation to forecasting crash occurrence probability
- Divide road network into homogeneous sites
- Calculate level of safety using empirical Bayes approach
- Prioritize the sites basing on cost-benefit ratio



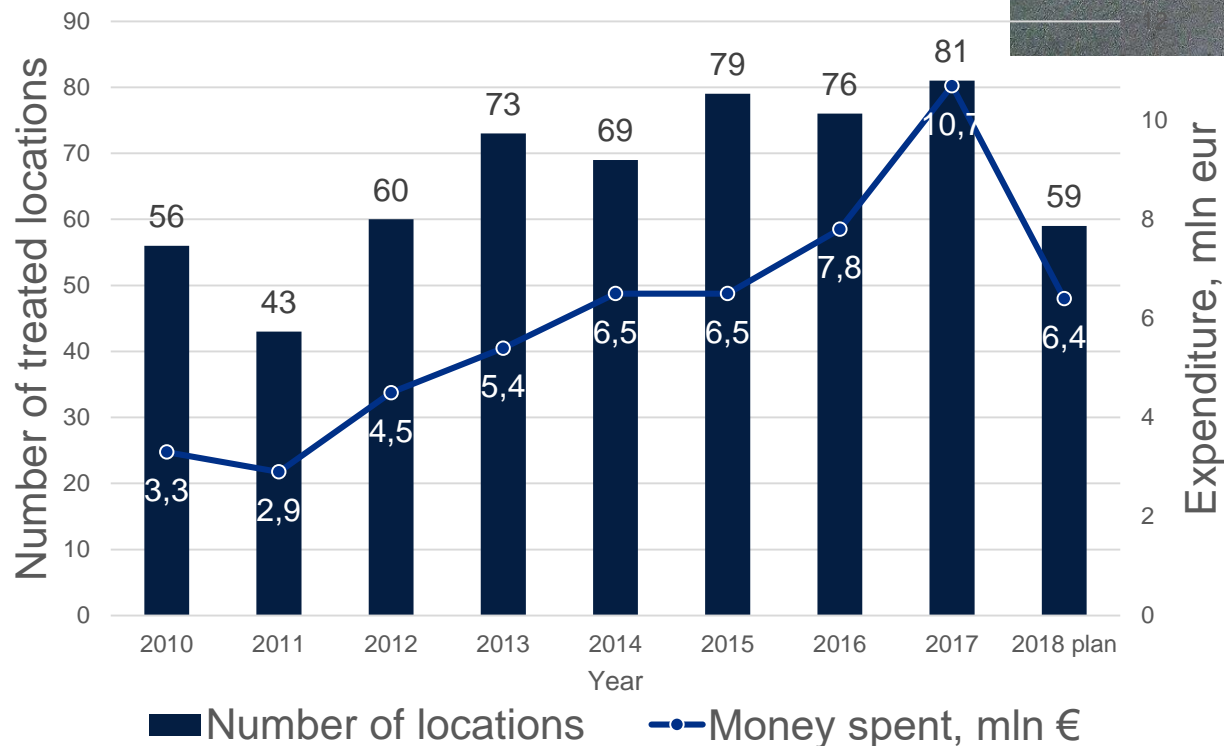
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# 2. Pro-active not re-active

## State Road Network Safety Ranking



Tallinn - Narva road (km 80,3-87,3) Aaspere-Haljala

# What is behind the numbers?

## 3. Evidence-based decision-making

- Before making a decision think (twice!) if it won't effect safety negatively
- Shift from relying on judgments to scientifically proved decisions



# 3. Evidence-based decision-making

## In-depth accidents investigation

- Helps us to understand, what were the circumstances of a collision, identify the confounding factors;
- In 2017 50 collisions (45 fatal) were investigated by a well-trained teams;
- Information collection rules are unified;
- We are using the data:
  - Ask road owner for interventions;
  - Use as a „real life“ case to arise a problem on a higher level;
  - For education and prevention.



<https://arhiiv.err.ee/tapsem-otsing?searchphrase=Punane+sekund>

# 3. Evidence-based decision-making

## In-depth accidents investigation

„Classical“ risk factors in 2017:

- ✓ Safety equipment 14
- ✓ Alcohol 12
- ✓ Speed 10
- ✓ Road and weather conditions 8

And:

- ✓ Tires (age, condition) 8
- ✓ Infrastructure 6
- ✓ Road users' health condition 4
- ✓ Distraction and inattention 4
- ✓ Railway crossing 3
- ✓ Suicide 3



# What is behind the numbers?

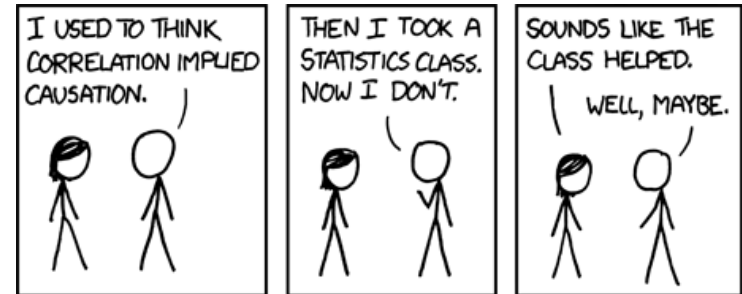
## 4. Multi-dimensional analysis

- Only crash data is not enough to make sustainable decisions;
- Need to use all possible sources of information and analyse them together:
  - a. Traffic counts (volume, speeds, headway);
  - b. Surveys (road users attitudes and behaviour);
  - c. Offence data (traffic rules violations);
  - d. Telecom operators' and navigation systems data (users' real-time behaviour)
  - e. Vehicle in-built equipment data
  - f. In-depth investigation;
  - g. Vehicle fleet and drivers' registry data;
  - h. Health registry data;etc



# What is behind the numbers?

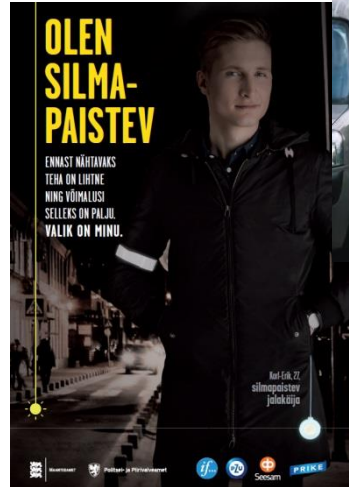
## 4. Multi-dimensional analysis



	HIGH QUALITY ANALYSIS	LOW QUALITY ANALYSIS
HIGH QUALITY DATA	<b>BEST CASE</b> The agency is likely to reach the best safety decisions. Analysts are aware of data capabilities and limitations. This is the most expensive to achieve, due to the need for good data and training on how to conduct analyses.	<b>MISSED OPPORTUNITY</b> The agency needs to invest in high quality analysis. Otherwise, the agency has wasted money in databases that are not being utilized to their potential. Good data with poor analysis will lead to poor decisions.
LOW QUALITY DATA	<b>PROMISING</b> A robust analysis that recognizes the limitations of the data can still produce useful results. The agency should focus on improving data quality.	<b>WORST CASE</b> Poor data and poor analysis will lead to bad decisions. The agency may be better off relying on judgment.

# What is behind the numbers?

## 5. Continuity of undertaken activities

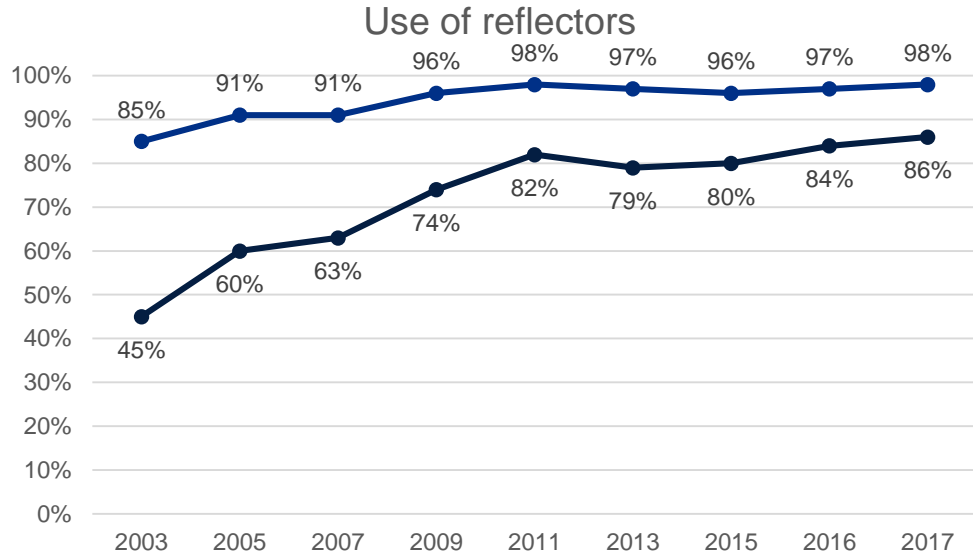


To see the real effect of some interventions you have to be patient and continue working!

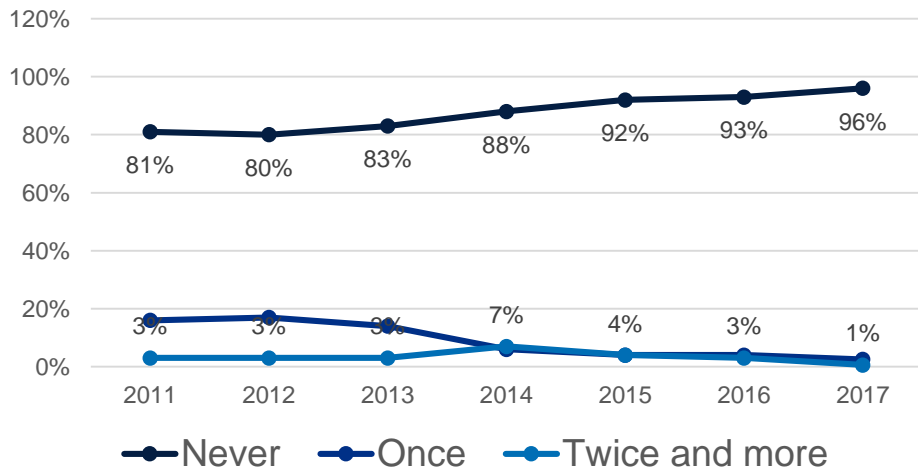


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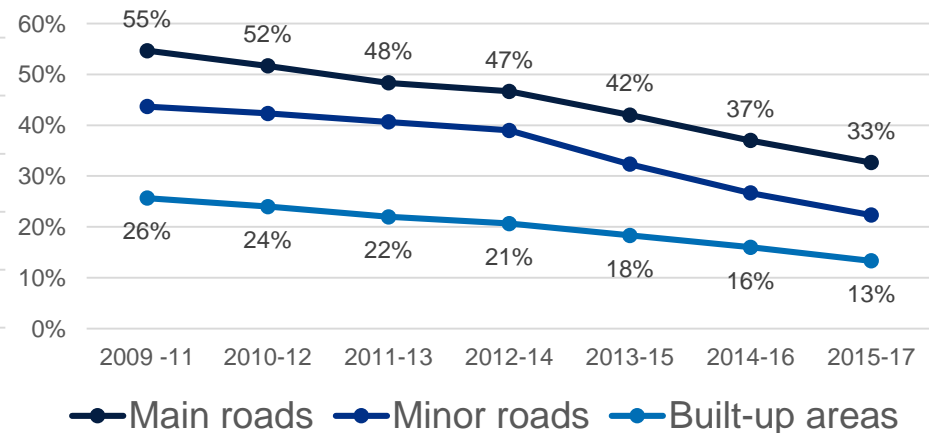
## 5. Continuity of undertaken activities



Share of drivers driving drunk within a year



Share of drivers exceeding the speed limit for more than 5 km/h





# What is behind the numbers?



**Real people with their real stories!**

**Every traffic death or serious injury  
CAN BE AVOIDED...**



**... it depends on each of us!**



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*A hundred years of the  
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# Thank you!

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