Traffic management solutions and condition on non-signalled pedestrian crossings in Latvia

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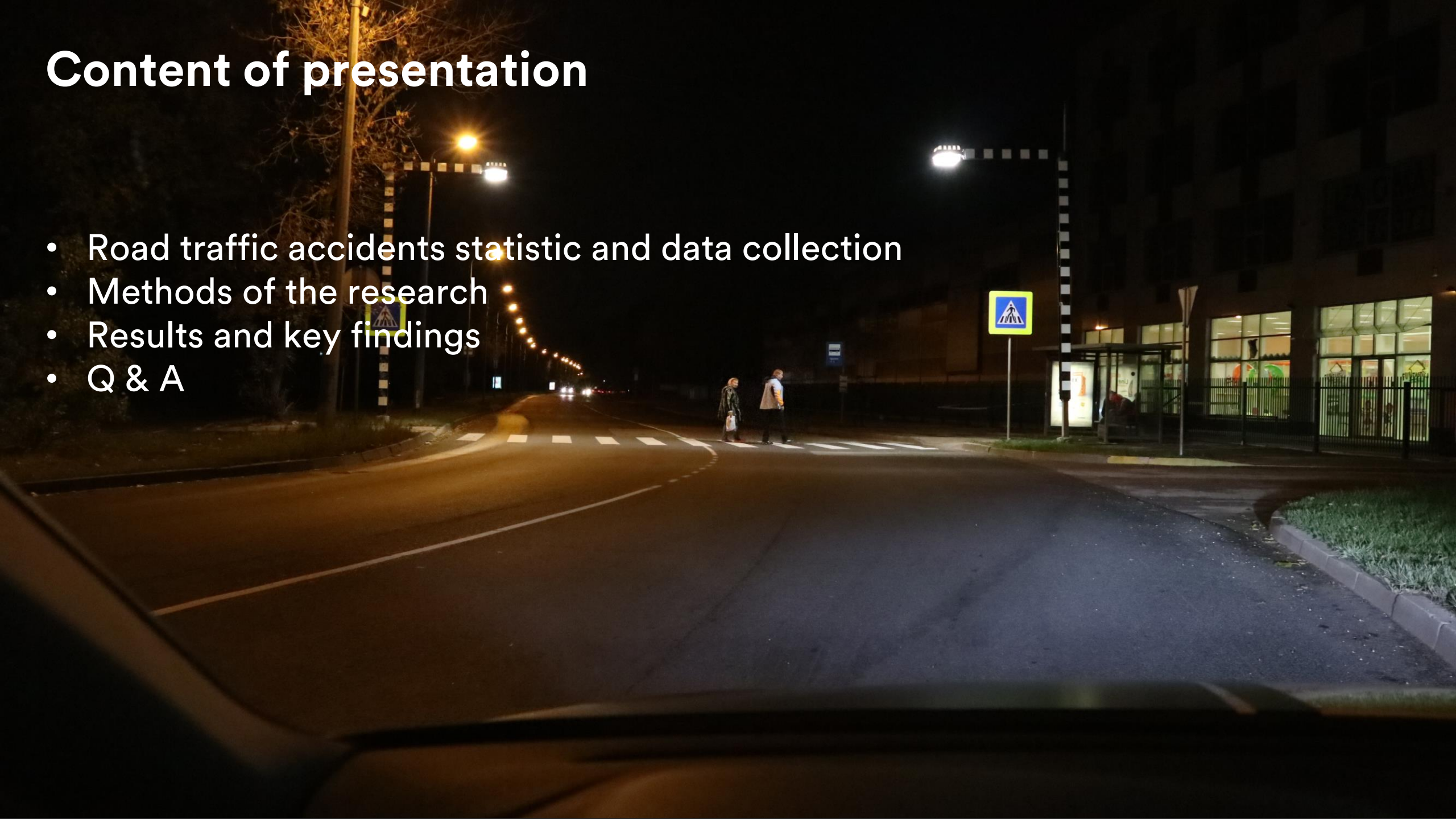
3M Transportation Safety Division Baltics

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Content of presentation

- Road traffic accidents statistic and data collection
- Methods of the research
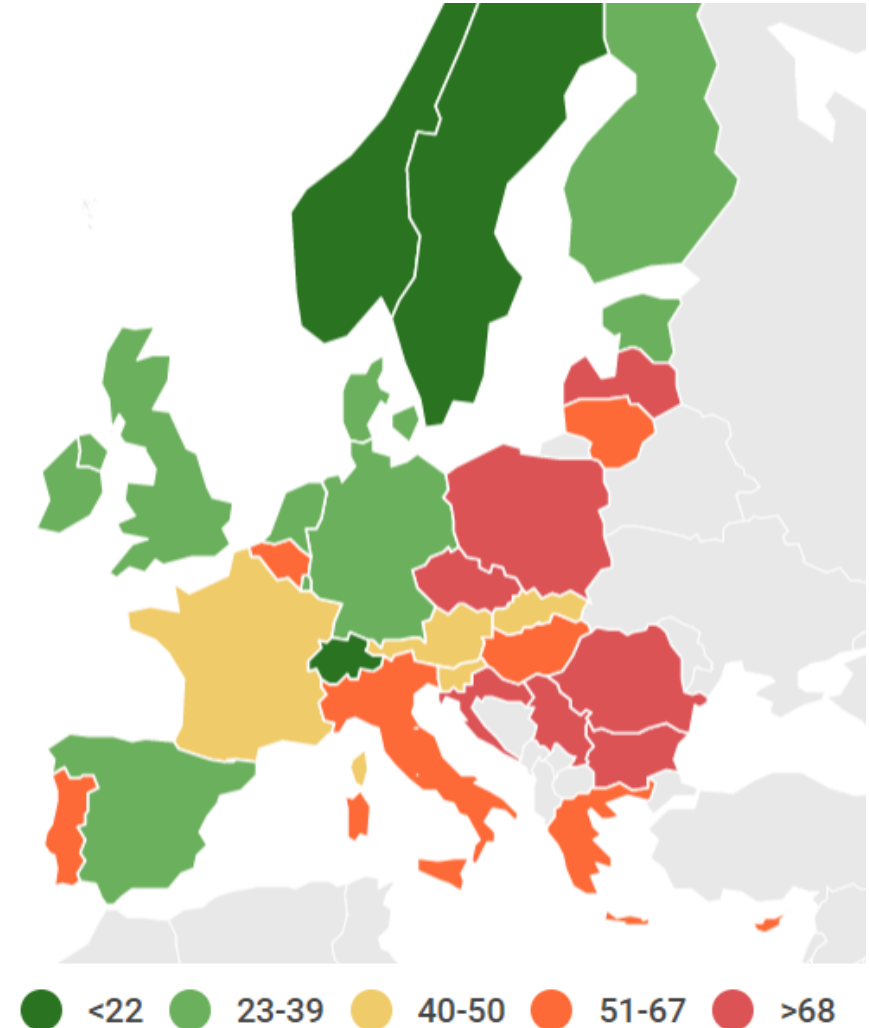- Results and key findings
- Q & A

Road traffic accidents (RTA's) with fatalities
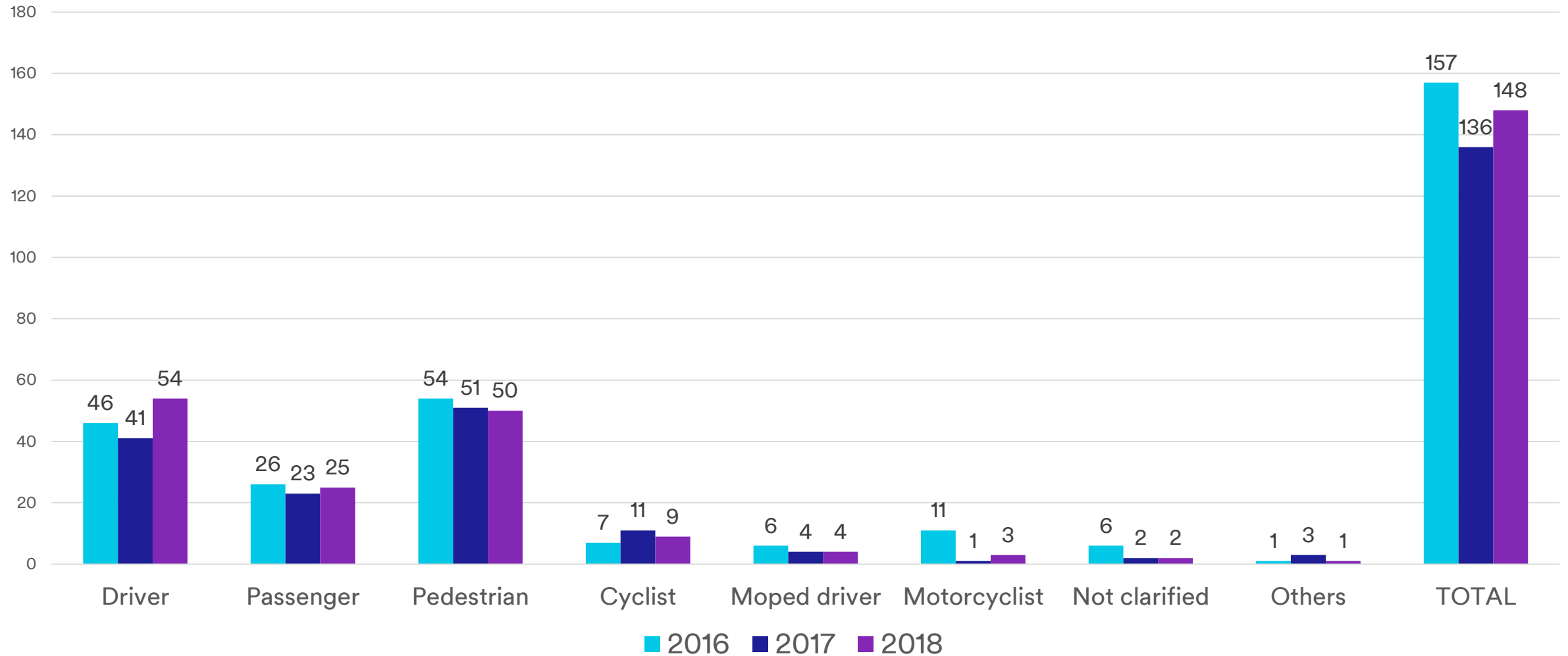
Statistics

Road death in Latvia per 1M inhabitants:

- 2016 – 80
- 2017 – 70
- 2018 – 77
- 2019 – 69

Average in EU ~50

Legend:
- <22
- 23-39
- 40-50
- 51-67
- >68

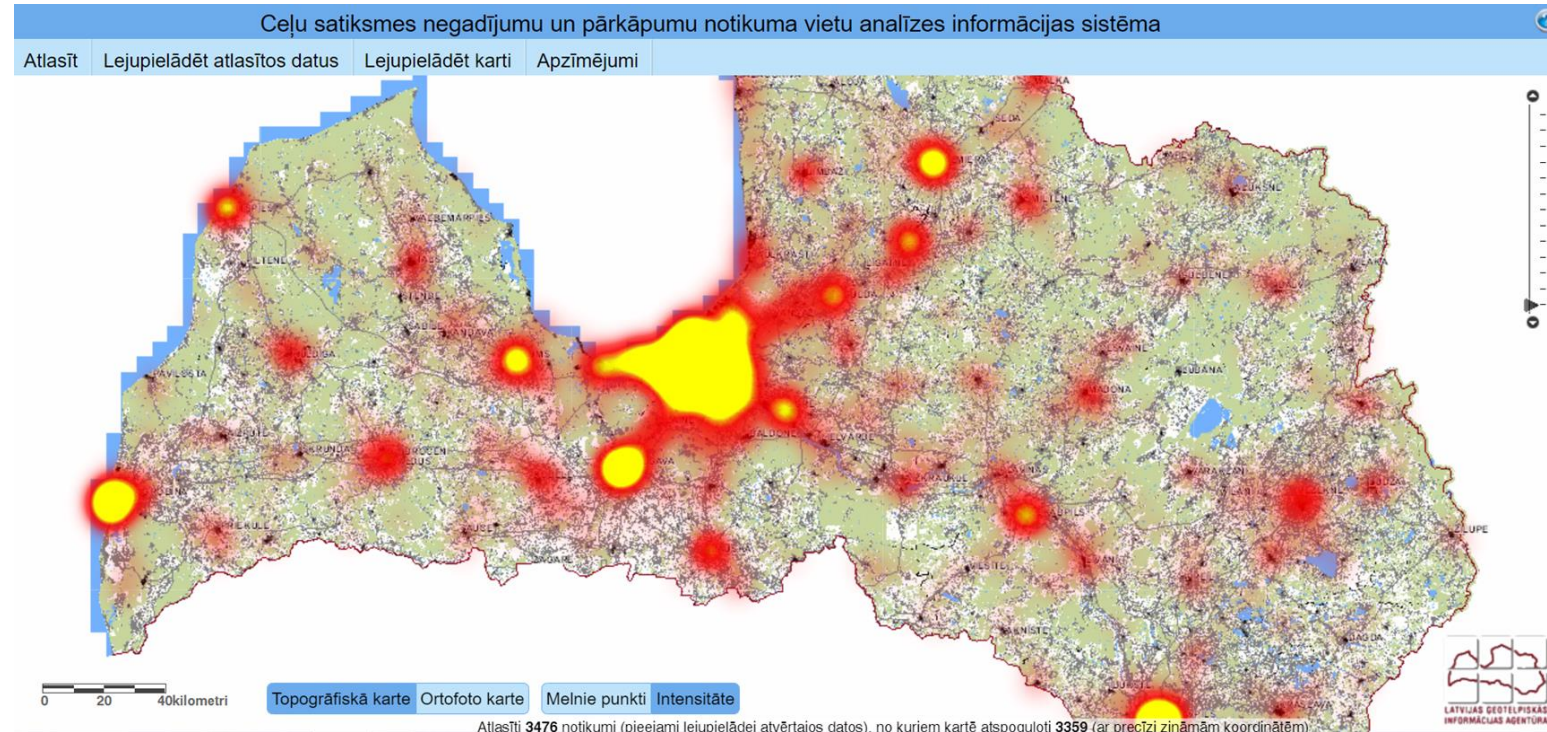# Road deaths in Latvia by mode of transport
2016 - 2018

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RTA's data collection

- Period of 3 years (2016 – 2018)

- Accident type – collision with pedestrian

- Downloaded RTA's data sorted by address (location) and kept the addresses with repeated accidents
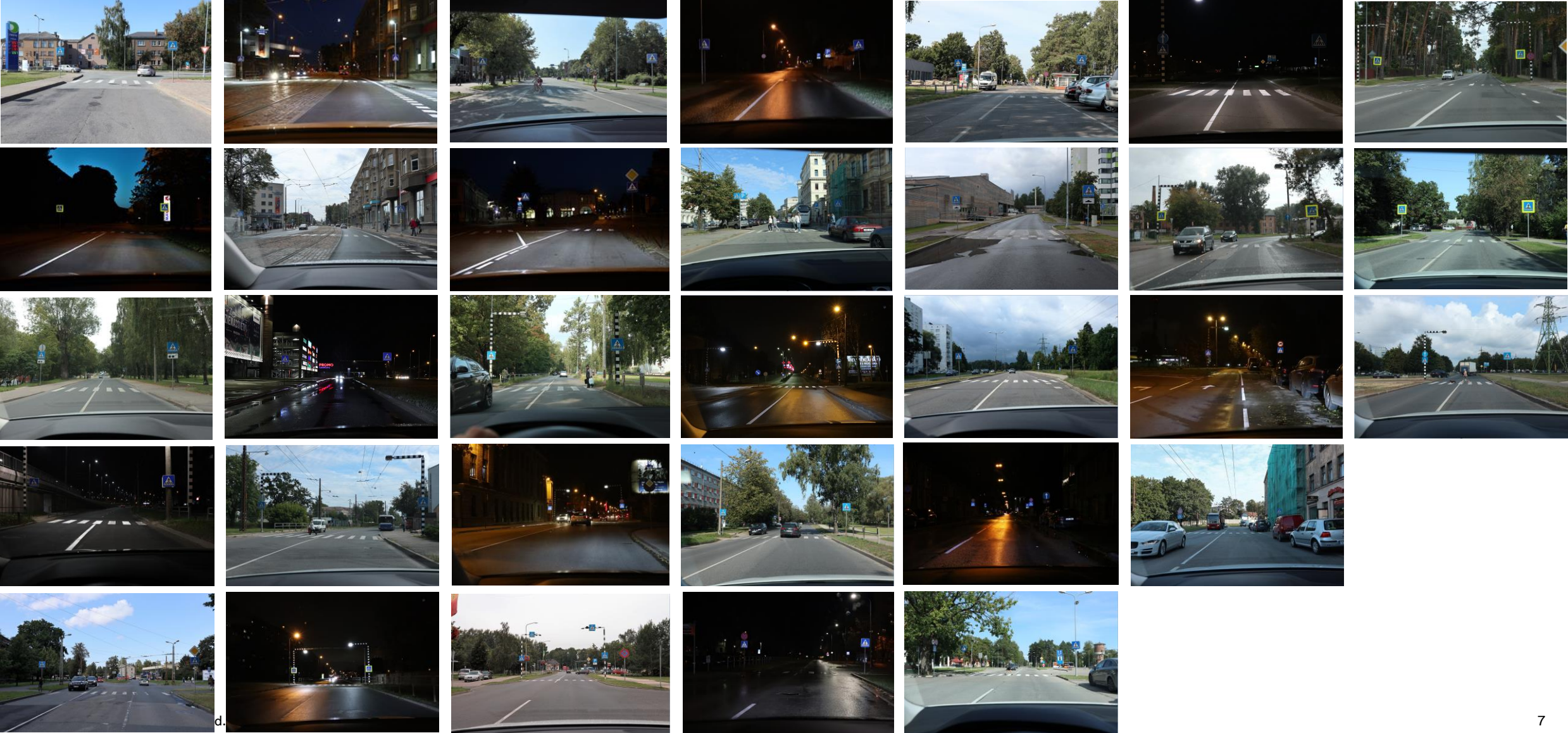
# Online investigation via Google Streetview

On-Site Inspection
32 Pedestrian crossings observed during daytime
## 27 Pedestrian crossings observed in nighttime

Observation methods

- View from the car driver perspective

- Photoshoots from the driver view

- Visual inspection of road signs and roadmarking (zebra)

- Recorded all traffic management solutions used on these pedestrian crossings

- Visual evaluation of factors that potentially influence pedestrian visibility and safety

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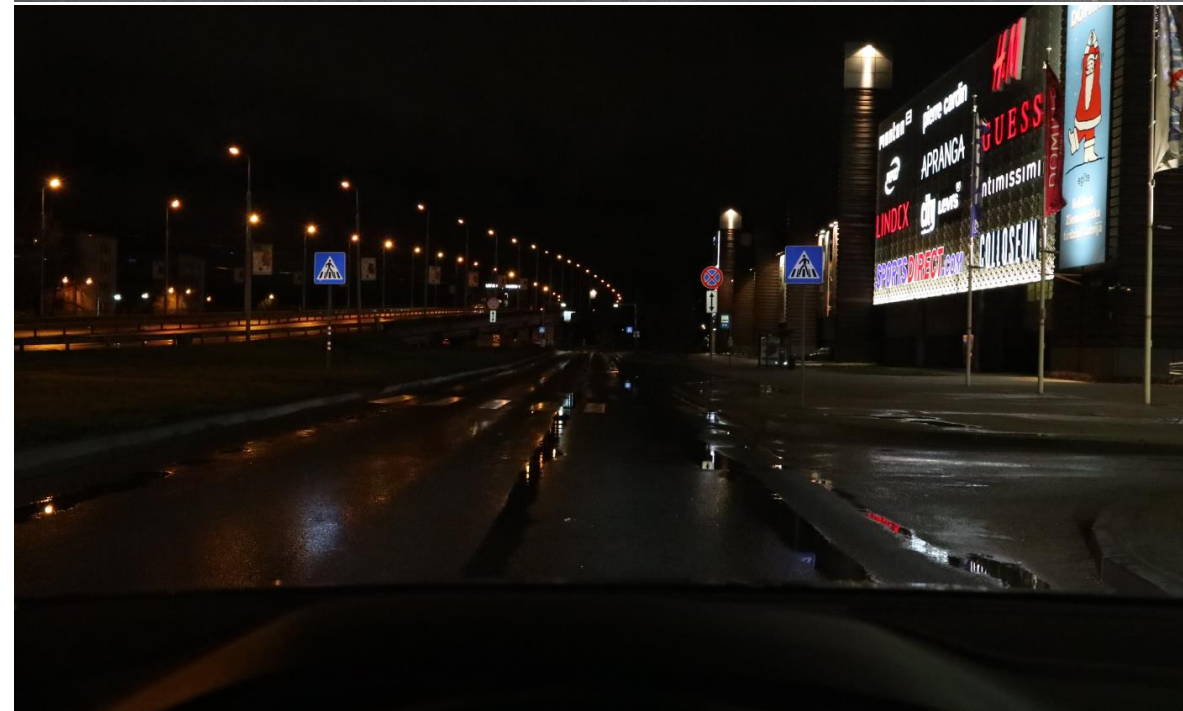
3M Visual Attention Software analysis
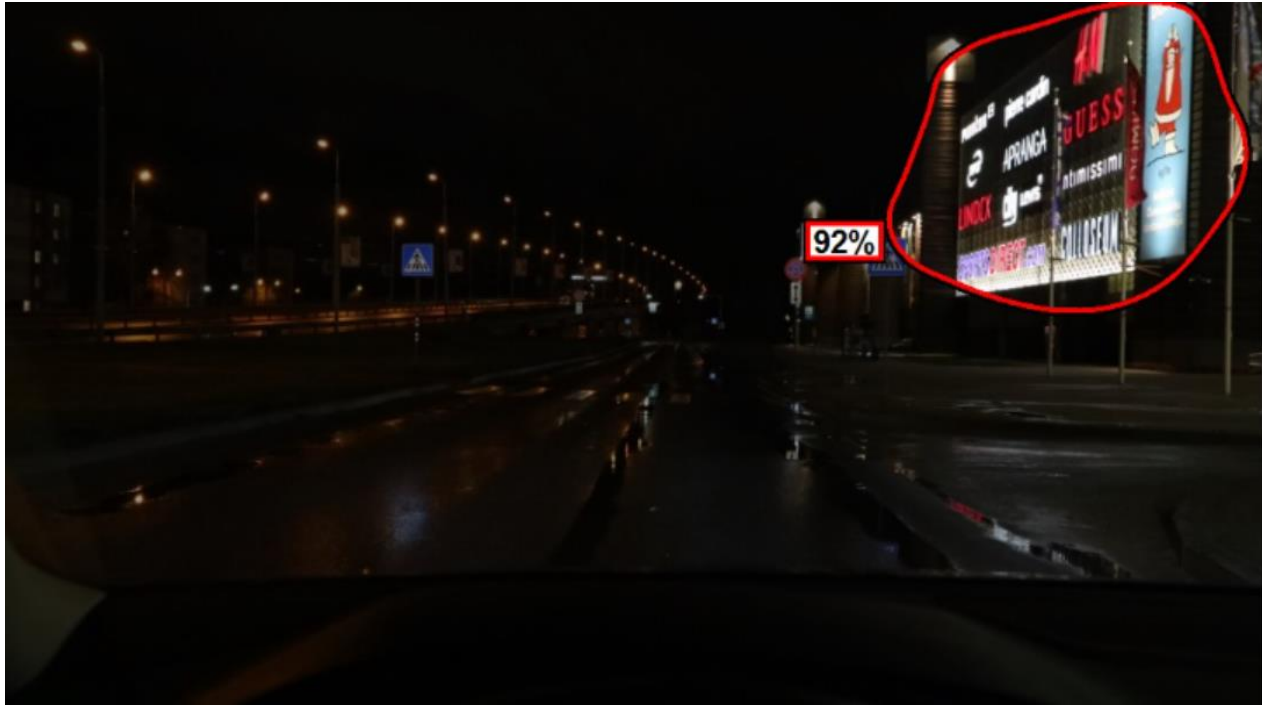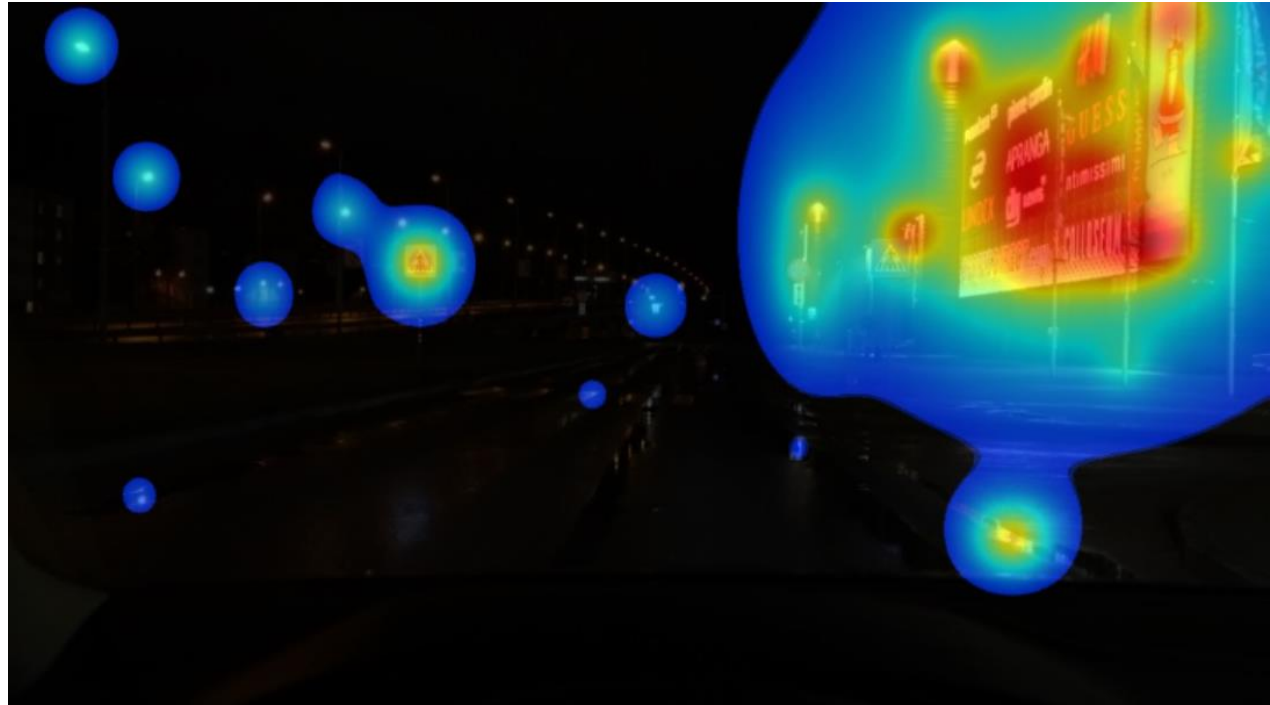
ⓘ **Heatmaps**

This shows the probability that each part of your image is seen within the initial 3-5 second first glance time period that is critical to bringing attention to your content. Content that has a higher probability of being seen during that period tends to also have a higher probability of grabbing your audience's attention and then taking action!

Pro Tips: The hotter the color, the higher the probability the content will be seen during the first glance time period.

Make sure the hottest colors in the heatmap are areas you want to be seen during the first glance time period. Hot colors in areas you do not want seen can distract from content you want seen.

ⓘ **Hotspots**

This is a simplified version of the Heatmap results. Here, you can see just the content that is most likely to be seen within the 3-5 second first glance time period that is critical to bringing attention to your content. Each region shown has a numeric score which predicts the probability that a person will look somewhere in that region within the first glance time period. Content that has a higher probability of being seen during that period tends to also have a higher probability of grabbing your audience's attention and then taking action on it!

Road marking retro-reflection coefficient (R_L and Q_d) measurements in Liepāja municipality

Roadmarking retro-reflection performance in Liepāja
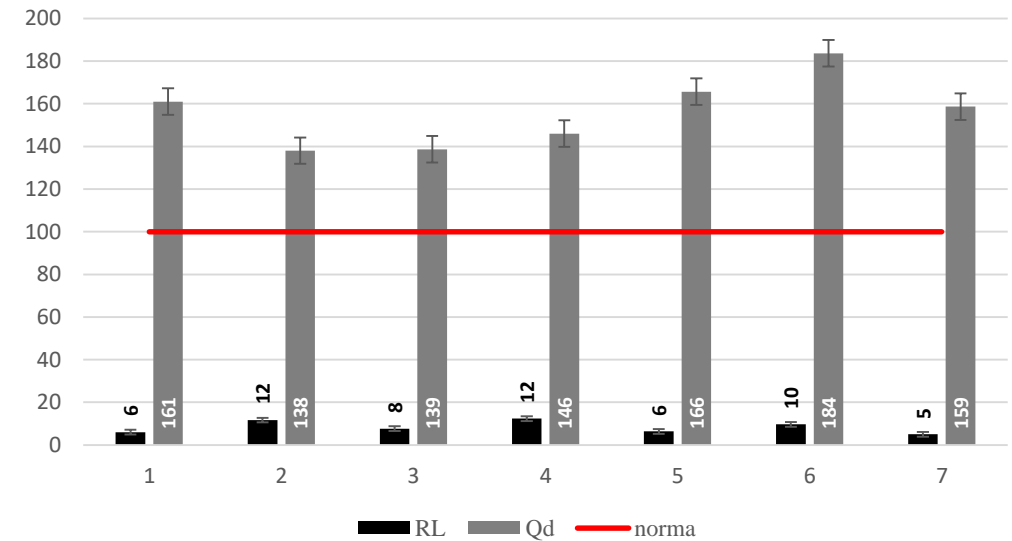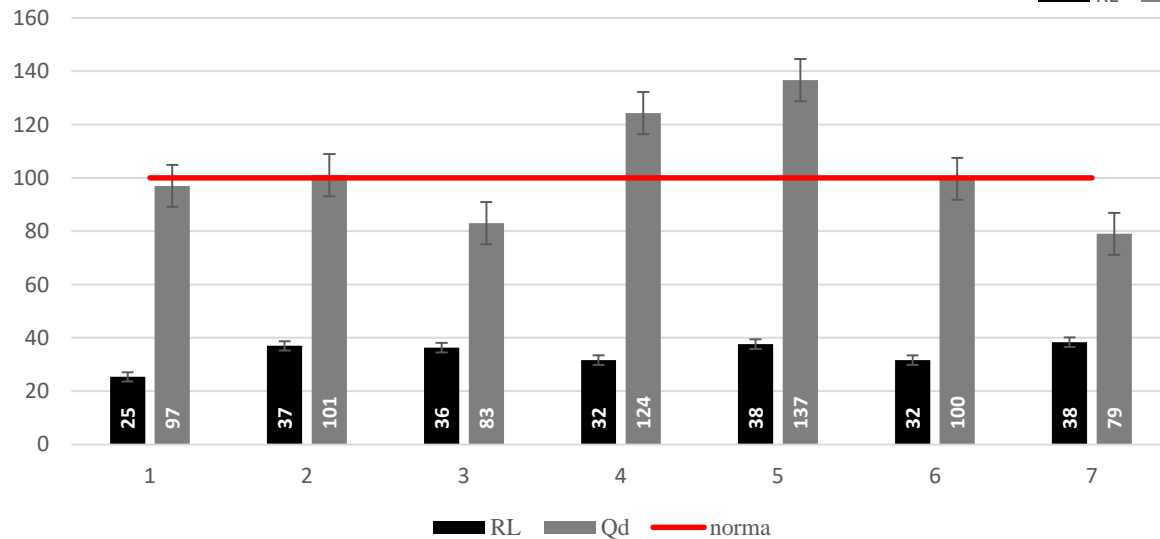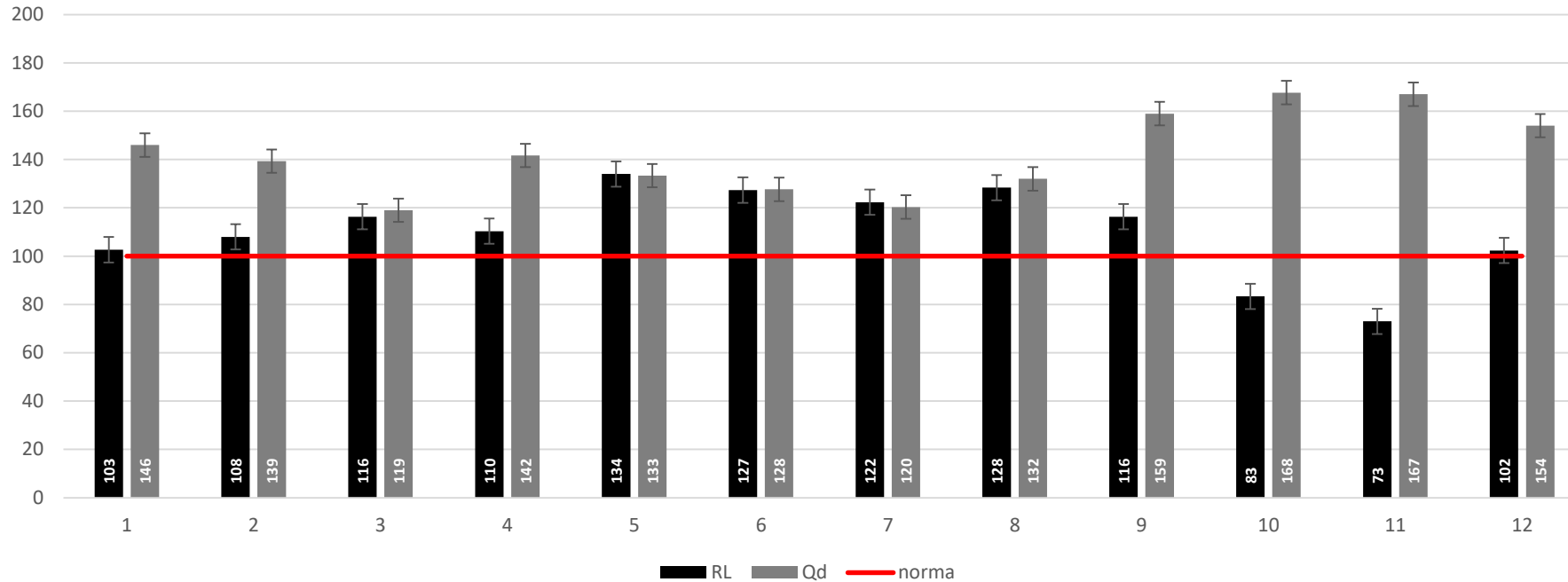
Pedestrian crossing road signs evaluation

- 129 road signs observed

- Age of the sign

- Retroreflection class

- Reflective sheeting type (glass beads or micro-prismatic)

- Measurement of retro-reflection coefficient

  ✓ 2 times white and blue colors

  ✓ 2 times repeating measurements after cleaning of dust and dirt with micro-fiber cloth

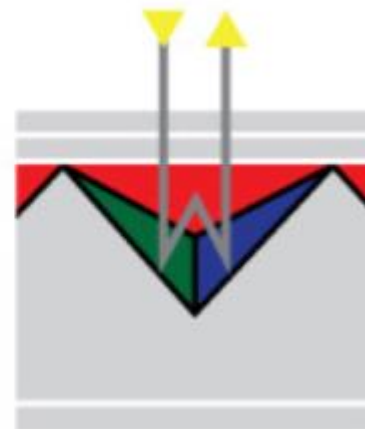# Road signs retroreflection classes and sheeting types

RA1 (10%)
Engineer Grade

RA2 (32%)
High Intensity

RA3 (60%)
Diamond Grade

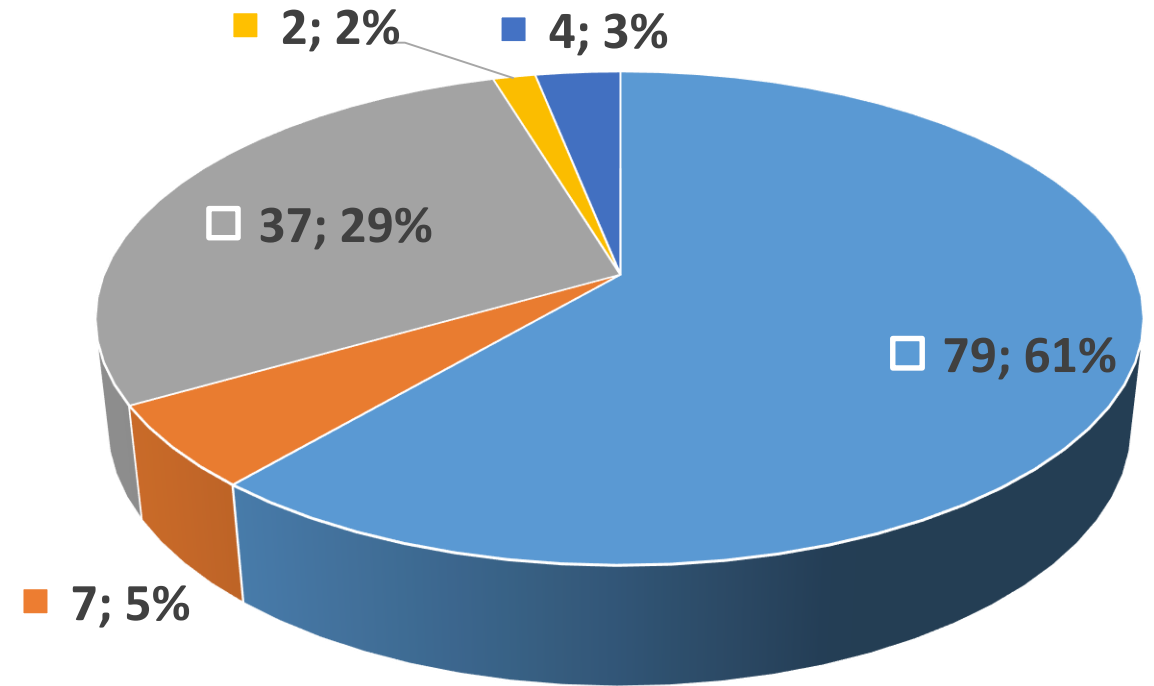**Traditional glass beads type sheeting (14%)**

High performing microprismatic sheeting (60%)

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Pedestrian crossing road signs performance

- RA1 Engineer grade type signs dominate (86 of 129)

- Only two pedestrian crossings with high performing RA2 (micro-prismatic) and RA3 type signs

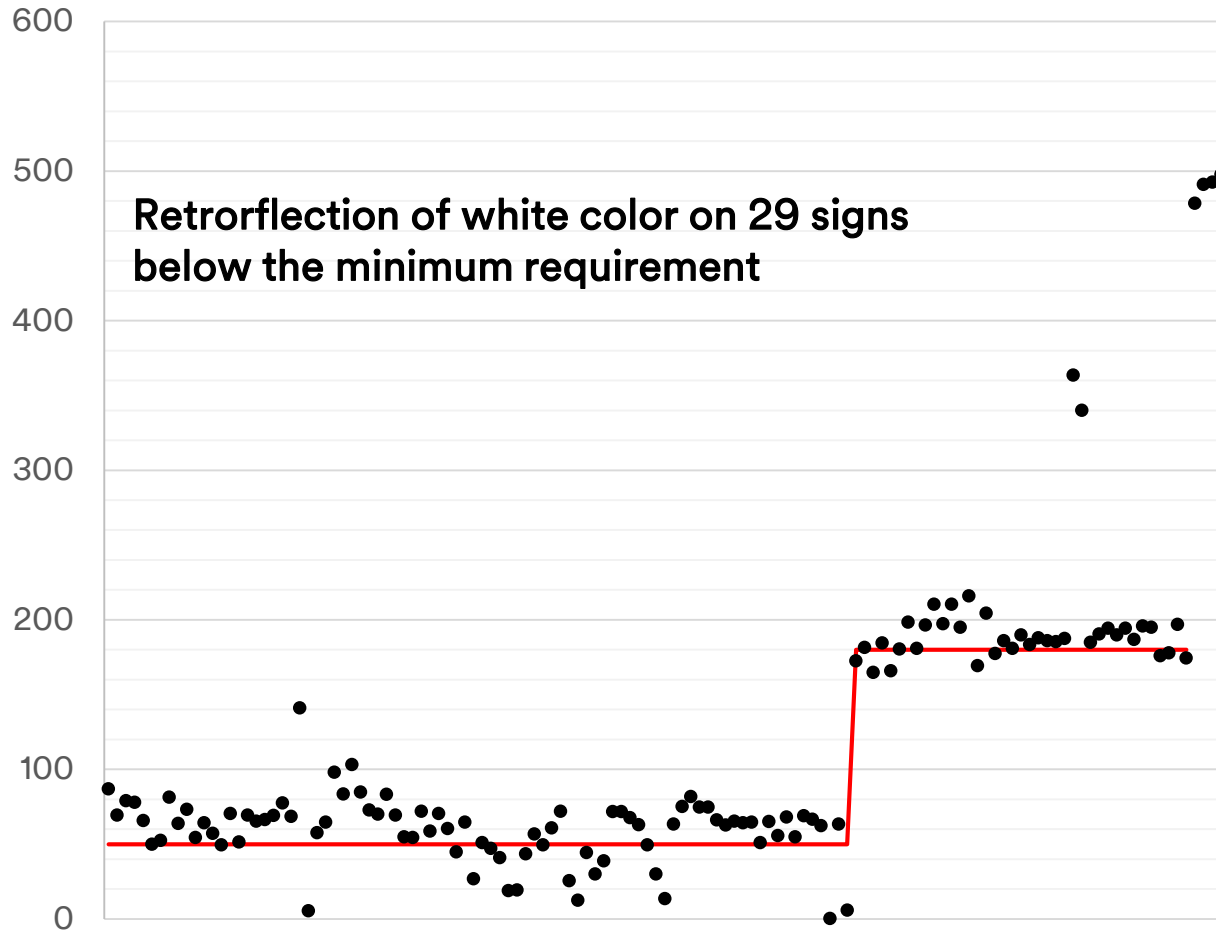- Average age on the moment of inspection was close to 15 years for Engineer grade signs

Legend:
- RA1 glass beaded sheeting
- RA2 glass beaded sheeting
- RA3 microprismatic sheeting
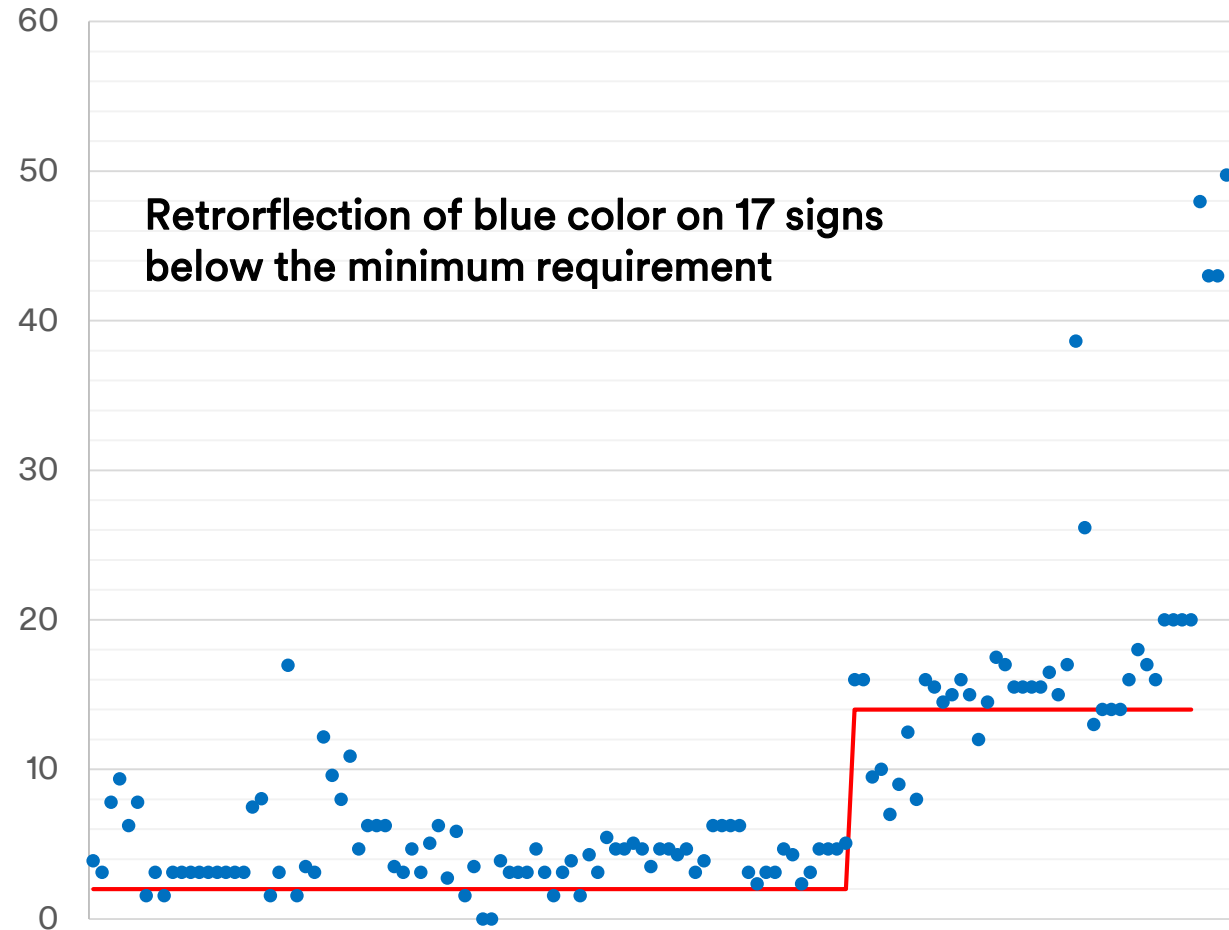- RA1 micro-prismatic sheeting
- RA2 micro-prismatic sheeting

Pedestrian crossing signs performance data

Average retro-reflection values per each sign and each color

White color

Blue color

Retrorflection of white color on 29 signs below the minimum requirement

Retrorflection of blue color on 17 signs below the minimum requirement

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Pedestrian crossing signs performance

Day

Night

Key findings

Additional illumination efficiency above pedestrian crossings

- 15 collisions with pedestrians on the non illuminated crossings in nighttime

- 13 collisions with pedestrians on the crossings without additional illumination in nighttime

- Lack of illumination on the areas where pedestrians approaching the crossing

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Key findings

Non-signalled pedestrian crossing type

1 driving lane each direction

2 driving lanes each direction

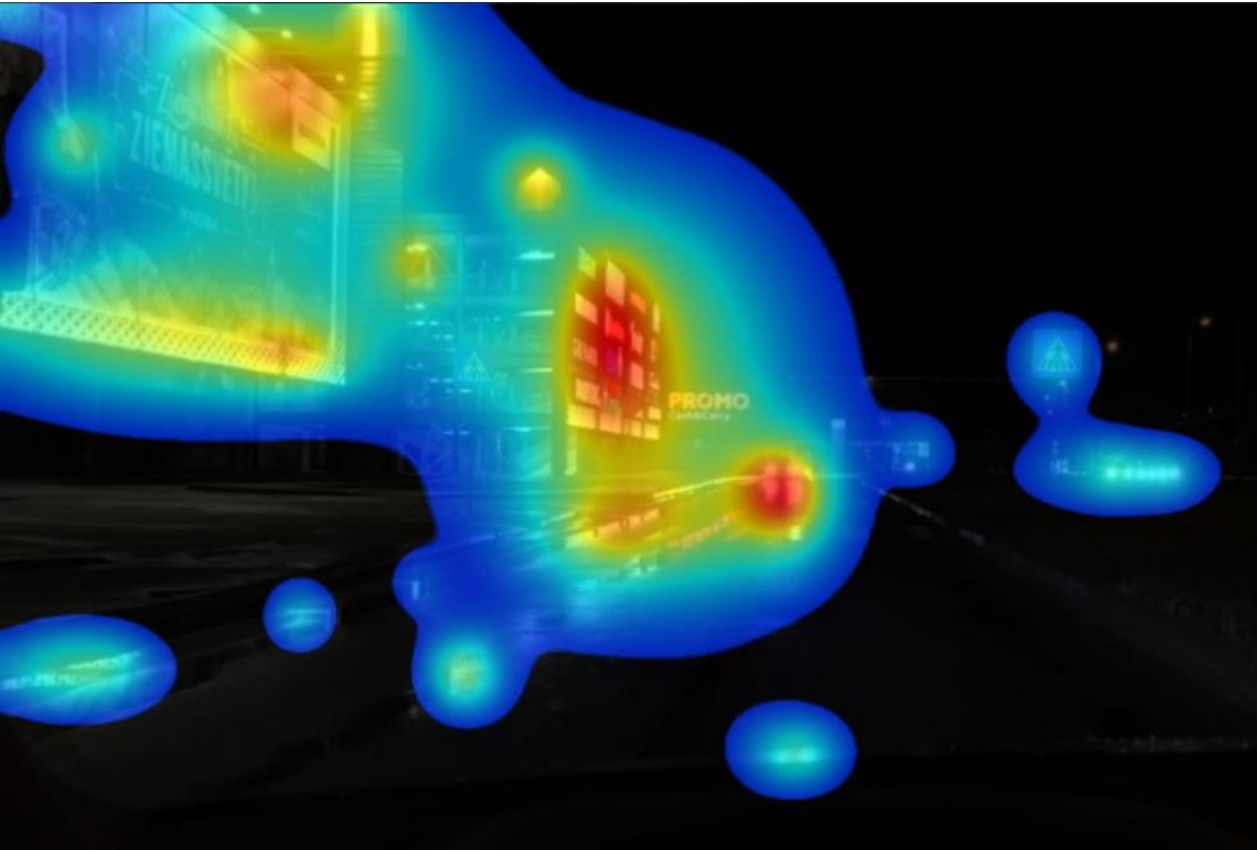- In average 1.1. collision with pedestrians happened more on crossings with 2 driving lanes in one direction

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Key findings
Road marking performance

- Unacceptable visibility of «zebra» marking from the driver view during wet road conditions
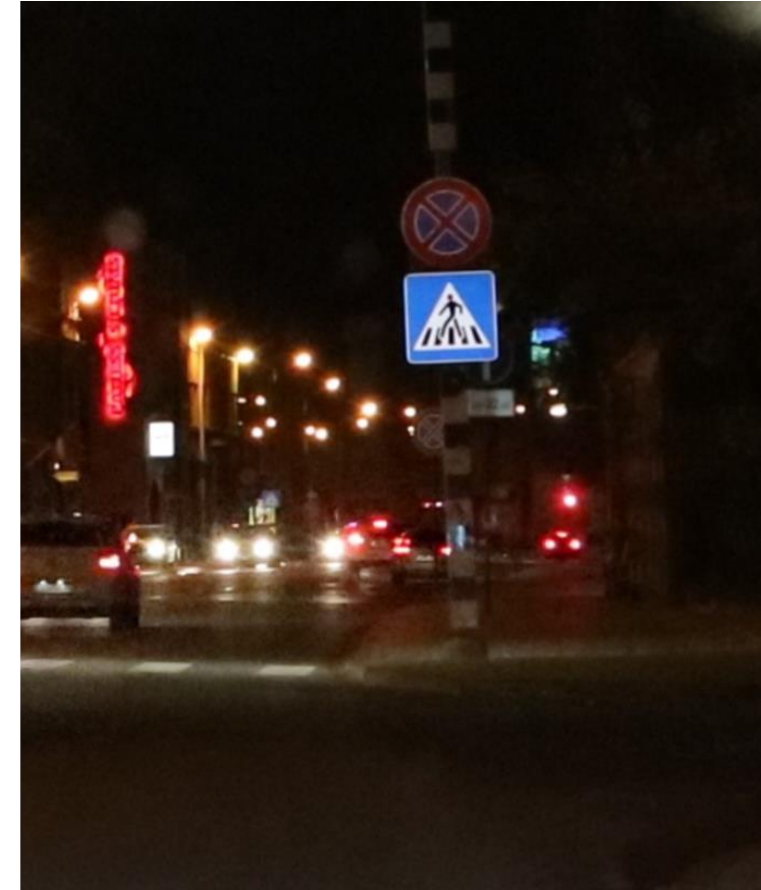
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Key findings
Driver view in nighttime 3M VAS analysis

- Visual Clutter through advertisement, oncoming traffic, seasonal decorations and street lighting reduce the visibility of the pedestrian crossing and could be the cause of conflict situations between drivers and pedestrians
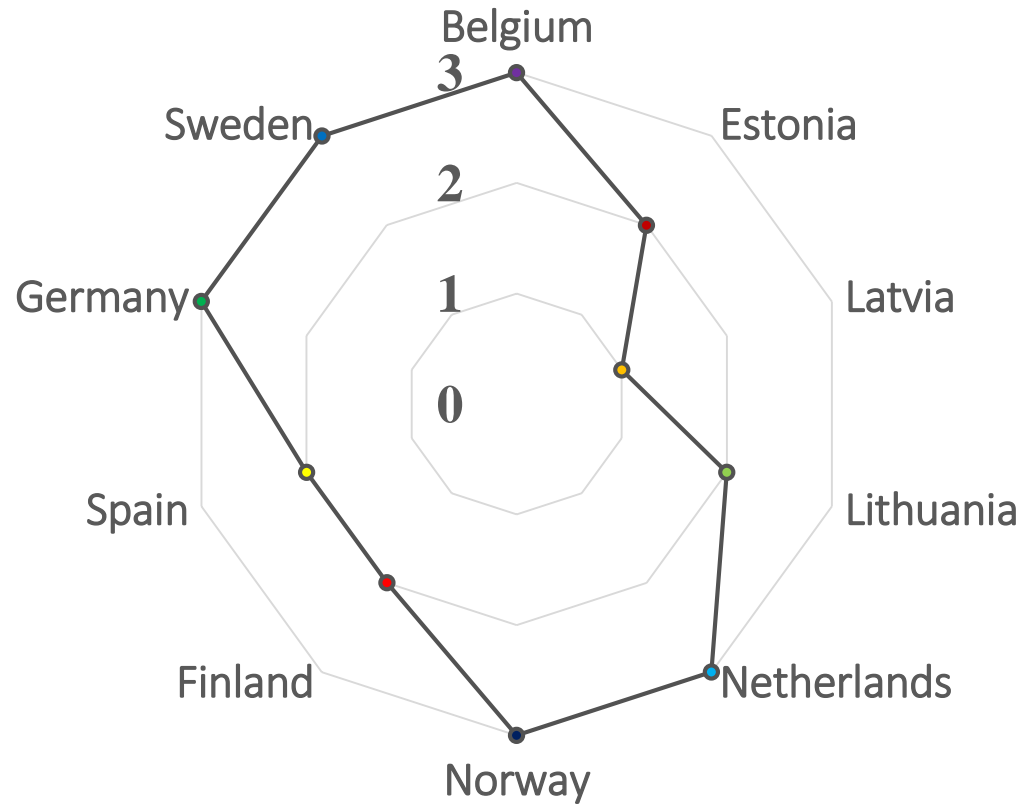
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Key findings

Traffic signs

- Class RA3 signs provide similar luminance to driver like illuminated advertisement

- No reported RTA's on the two crossings with high performing traffic signs (RA3 & RA2 micro-prismatic) during nighttime (7 RTA's in daytime)

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Traffic sign performance classes for pedestrian crossings

Other countries experience: common use of RA3 Signs

Thank You!