The Use of In Vehicle Data Recorders (IVDR) to identify high risk road segments

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Objectives

Mapping dangerous (risky) road sections in the inter-city roads-system in Israel by using IVDR data,
and prioritizing road sections with the highest safety risks for treatment.
Methodology

- The study is based on detailed data from 2500 cars equipped with IVDR during an entire year.

- The data includes driving events such as: speeding, acceleration, braking, vertical and horizontal acceleration, event location, day of week, time of day, and type of vehicle.
Methodology

- Firstly, quantitative statistical methods are used.

- Secondly, qualitative analysis is used to identify the road infrastructure characteristics of road sections with the highest events frequency.

- Visiting road sections with the highest risk
Spatial analysis: by using a GIS
And ArcGIS10.0 software
Creating layers by event type
Adding new layers

- Road Number
- Road Function
- Road Hierarchy (Inter-city, Intra-city)
- Road speed limit
- Light speed event (20 km/hour more than the speed limit)
- Severe speed event (30 km/hour more than the speed limit)
- Week day
- Time type (day, night)
- Event time
Geographical location of road segments with various events
Database for qualitative analysis

• Traffic volumes in the road sections

• Speed Camera Location

• Geometric characteristics of road segments with severe speeding events and severe braking events.
Summary

• The study shows the effectiveness of IVDR in identifying road section with high frequency of driving.

• The study results show that there is a relationship between the frequency of risky driving events and road infrastructure characteristics.

• This is an ongoing study, future work will further analyze by hour and by volume, and will include in-depth site visits.