Early Detection of Dangerous Areas in road traffic using smart data (EDDA+) and its implications for predictive policing

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Prevention of road traffic crashes through visualisation of early indicators
Approach of EDDA+

Collision data

Kinematic data

Road user reports

Danger levels

2/5

Context data
Goal
Data basis for proactive road safety approaches
Netwide hazard map as basic feature

- Further development and **expansion of data sources**
- Aggregated, **dynamic hazard assessment** (based on scientifically validated methods)
- Coverage of the **entire German road network** in urban and extra-urban areas
- Multitude of **filters/analysis options** (e.g. fading in/out of danger types, type of road users, urban or highway roads)
Validation of the individual data sources and the hazard score

• **Focus group discussions** have taken place with over 200 police officers
  - Brainstormed about dangerous situations for bicyclists, pedestrians, or motorists
  - Perceived dangerousness was rated on a five point scale (1 = almost not dangerous to 5 = extremely dangerous)
  - Their dangerousness ratings were discussed situation by situation within focus groups
  - At the moment category catalogs of hazards are derived from the data for the three groups of road users
Validation of the individual data sources and the hazard score

Analysis of the data sources

Site visits in Dresden and Bremen. More are planned!
Validation of the individual data sources and the hazard score

Site visit in Bremen

- Assessment of 21 danger spots (distributed over the entire city area)
- Validation of the user reports on gefahrenstellen.de
- Standardised assessment sheet: "Inventory audit of urban roads deficit lists" (abridged version) by BAST
- Took place at the end of September 2021
- Of all the reports, only 5 contained a comment
Integration of further data sources and techniques for road traffic crash forecasts

Identification of
• ...particularly suitable data sources
• ...innovative data sources
• ...data sources with a high predictive power

Especially approaches on the part of the police

➢ Data-Driven Approaches to Crime and Traffic Safety (DDACTS)
Applicability of the concept in other European countries

Checklist for potential partner countries:

The country...

- ...has similar conditions (availability of data sources)
- ...has similar goals (early detection or forecast of danger spots)
- ...is interested in cooperation

A preselection of four countries was made.
Applicability of the concept in other European countries

The pre-selected countries would be strong models / partners, pursue the same objectives and...

➢...outstanding road traffic safety work (e.g., winner of a Pin Award)

➢...advanced road traffic technologies and data availability

➢...advanced methods and data-driven approaches in road traffic safety

➢...advanced strategies and measures in law enforcement and engineering

List of partners
- Estonia
- Sweden
- Switzerland
- The Netherlands
Any questions?
You know a dangerous spot in road traffic?

Report now on www.dangerspots.org

Interested in more information or to collaborate?

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List of sources/Credits

- Slide 3: photo on the left: Rico Löb/Pixabay; photo in the middle: algre - stock.adobe.com
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