

Road Safety: “Predictive models 3x more efficient vs. analysis of the past?”

Summary:

Data can accelerate a different future for #roadsafety. Vehicle data are collected 24/7 across the world. These trillions of datapoints, once translated into Mobility and Safety Insights, can help highways managers to implement predictive road management. This extensive UK study shows an efficiency improvement with a factor of 3.23 versus traditional retroactive analysis of the past via historical collision tracking.

In this second decade of action towards #VisionZero, data are readily available for road operators and municipalities to implement more prioritised and context-specific infrastructure work, thus avoiding allocating public resources blindly.

How can data be placed at the service of road management?

Since 2018, sensors are mandatory in new passenger vehicles. **A modern car can contain up to 400 sensors.** Vehicles have become a ubiquitous fleet of mobile trackers closely monitoring the road environment. A sea of inspectors, hundreds of thousands of road radars are checking all road sections in your area 24/7, whatever the weather, whether it is daytime, weekend or the middle of August.

These vehicle data represent an untapped data mine for road engineers who oversee road quality and safety. To validate the efficiency of these data insights, a large study was conducted in South-East England.

Facts in short:

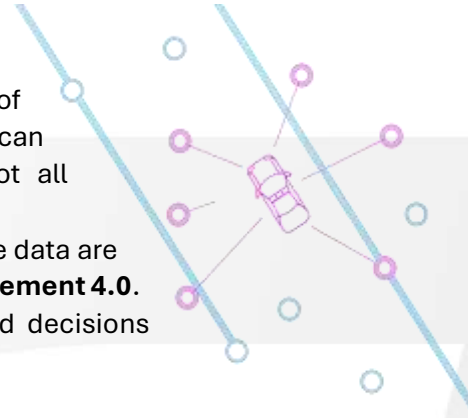
- **Goal:** compare the **predictive efficiency** of 2 types of datasets: Can future crashes be predicted more accurately using connected vehicle data or looking at past collisions?
- **Methodology:**
 - 3 months of vehicle data: 15 303 harsh braking clusters (first quarter of 2022)
 - 100,000 km of road sections in South-East England, area of more than 60 counties
 - 2 million harsh braking events
 - 6.2 million vehicle traces
 - total represents 134 million hours of driving
 - Historical dataset: 263 455 events with Killed or Seriously Injured (KSI) over 5 years (2017 - 2021)
- **Key Results:**
 - A **prioritised map of hotspots** where collective abnormal driving behaviour (harsh braking events) have been observed. These events are a lead indicator of dangerous locations, according to the scientific literature. The RoadTrace™ algorithm uses these predictors to anticipate future collision locations, considering a severity factor for each harsh braking event (depends on frequency, acceleration and speed).

- Behavioural data **improve collision prediction efficiency with a factor of 3,23** (vs. historical analysis of 5 years crashes). Not taking into account these available data now leads to extra budget spent.

Implications for decisionmakers?

Vehicle data could form an efficient basis to:

- **Understand** context and actual road behaviour in a variety of conditions.
- **Rank risks** → identifying highly specific contexts enables prioritisation of infrastructure work. Hotspots that represent the biggest road safety risk can be tackled first. A key advantage when budgets are short and not all maintenance work can be implemented at once.
- Switch road management decisions from **reactive to proactive**: vehicle data are the key ingredient that allows councils and cities to shift to **Road Management 4.0**. Leveraging technology is enabling decision-makers to make informed decisions about their network, anticipating future collisions.



A key step for road safety decision makers to unlock a step change towards **#VisionZero**.

Missed ITS World in Dubai this week? Join our webinar on Oct 10th: the authors will present the paper and highways experts will discuss the implications for the industry.

→ **Tue Oct 10 – 12.00 UK time – click [here](#) to subscribe.**

Testimonials

*“**Transport Scotland** is exploring how Connected Vehicle data sources, such as RoadTrace™, can contribute to making our roads safer.*

We are using RoadTrace™ to gain a greater understanding of driver behaviour on our network by harnessing the availability of connected vehicle data to identify locations of risk to road users and to monitor the effectiveness of schemes, thereby driving continuous improvement in road safety.”

Stephen Craig

ITS and CAV Strategy Manager, Transport Scotland

“RoadTrace™ brings a fundamental change to Local Highways Road Safety.

*Enabling a proactive approach to reducing road casualties: Using vehicle data enables Road Safety Teams to investigate potential collision sites with the confidence that they are focusing on the right ones at the right time, enabling action **before** someone gets hurt.*

RoadTrace™ is going to make our roads safer for all, quicker. It is, in my mind, our new best tool in the box for achieving Vision Zero on our roads”.

Jon Munslow

Local Government Technical Advisors Group, UK - Past President



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AISIN Mobility is part of the global [AISIN CORPORATION](#), ranked consistently as a Top 10 global Tier One automotive supplier with approximately 120,000 employees in 20 countries. Combining their automotive and geolocation heritage with pioneering AI techniques, AISIN is building the safe, connected mobility ecosystems of the future.

Adding to recent developments in driver assistance and in-vehicle safety systems, like Electronic Stability Control, Navigation systems, Driver Monitoring and Intelligent Speed Assist, AISIN's RoadTrace™ technology bridges the gap between the Automotive and Highways industries.

By leveraging connected vehicle data to provide insights on collective driver behaviour to Road Operators, we empower them to make our roads safer.

More information:

www.roadtrace.eu

Follow us on LinkedIn to remain updated on the use of data in Road Management: [Aisin Mobility](#)