

Transport Infrastructure Ireland (TII)

Country - Ireland

Classification - State Agency



CHALLENGE:



**Improving
Road Safety**



**Minimizing
Congestion**



**Optimizing Roadway
Efficiency**

Ireland's national road network is the backbone of the country's economy, mobility, and overall quality of life. As traffic volumes continue to rise, Transport Infrastructure Ireland (TII) faces increasing pressure to optimize roadway efficiency, enhance safety, and minimize congestion — all while addressing environmental concerns. Traditional traffic management solutions, reliant on fixed infrastructure such as cameras and sensors, often struggle to provide comprehensive, real-time insights, particularly in areas with limited existing infrastructure.

To tackle these challenges, TII, in collaboration with Valerann and engineering consultant Roughan & O'Donovan, sought to implement cutting-edge Intelligent Transportation Systems (ITS). The initiative targeted two key corridors: the M1, which intersects with the heavily trafficked M50 Dublin Ring Road and already had existing traffic monitoring infrastructure, and the M6, a critical route further west with lower levels of existing infrastructure for traffic tracking. The project aimed to explore **how AI-powered data fusion could bridge these gaps, improving situational awareness, incident detection, and overall traffic flow management.**

SOLUTION:



TII partnered with Valerann and engineering consultant Roughan & O'Donovan to deploy Lanternn by Valerann™ (LbV), an AI-powered data fusion platform. Unlike traditional ITS methods relying solely on fixed infrastructure (e.g., cameras, sensors), **LbV integrates multiple data sources, including connected vehicle data, navigation apps, and third-party inputs, to enhance traffic management in real time.**

KEY OBJECTIVES:



Reduce Detection Time:
Enable faster incident identification for quicker validation and response.



Improve Detection Rates:
Increase incident identification while reducing false positives.



Inform ITS Planning:
Provide data-driven insights for future infrastructure investments.

RESULTS:



134 alerts
into one event

Faster Incident Detection: A multi-vehicle collision on the M1 Southbound was detected within one minute, condensing 134 alerts into one event, significantly faster than traditional control room methods.



35 min
incident reduction

Faster resolution of events and issues: With AI-fusion, LbV reduced incident detection times by 25 minutes in 47% of cases on the M1 and by 35 minutes in 65% of cases on the M6.



1 additional
event per day

Increased Detection of Actionable Events: One additional actionable event per day was identified. If scaled nationwide, this could translate to 20 additional daily events.



Enhanced Trust
in the data

Enhanced Data Trust & Decision-Making: AI fusion minimized data noise, creating a single source of truth for traffic operators. Integrating Waze and CCTV data improved network coverage and response accuracy.

IMPACT & FUTURE OUTLOOK:

TII's collaboration with Valerann demonstrates how AI-powered data fusion can transform road network management. By enhancing real-time operations, reducing congestion, and improving safety, the project sets a benchmark for future ITS deployments across Ireland. As TII continues to invest in ITS and real-time data analytics, the vision of a safer, smarter, and more sustainable road network is becoming a reality.