



VALERANN

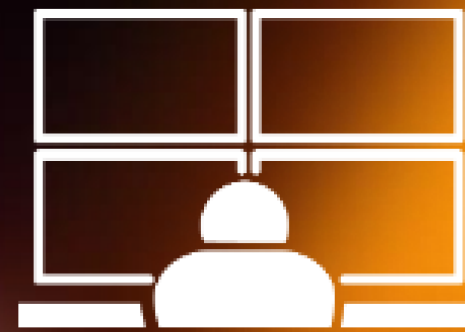
**THE ROLE OF TECHNOLOGY
IN THE DELIVERY OF SAFETY SYSTEM**

National Highways invests heavily in detection and response



30,000

edge devices



7

ROCs



±1,000

patrol staff

An AI data fusion platform (Lanternn by Valerann) that helps roadoperators better use their data to:



DETECT

more safety events

Increase actionable
detection by 50% in
NewYork

+



RESPOND

faster & more accurately

Decrease response time
by 25% in Spain

=



PREVENT

serious accidents

10-14% reduction in
serious accidents in
LATAM

Road operators have access to an overwhelming amount of data, that is often unutilised



1M

Vehicle Counts



50M

Objects Detected



10M

Vehicle Data Points



1K

Mentions



1K

Weather reports



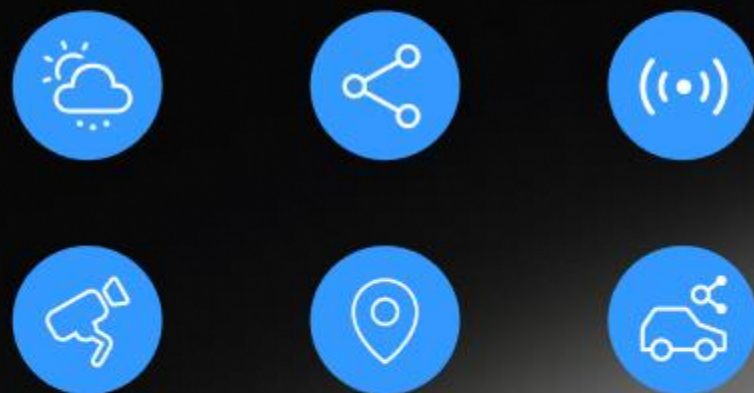
100 s

Phone Calls

Valerann client collects 60 million data points / day




The trust gap: Control centres can access rich data, but use manual processes

What Control Centers **have**:



**the
trust
gap**

What they **use**:









-  Phone Calls
-  Patrol Dispatch
-  Manual CCTV Validation

That's where AI comes in

Spoiler – technology delivers better results, faster, and with more resilience

MANY SEEMINGLY DISCONNECTED ALERTS

ARE DIGITAL FOOTPRINTS OF THE SAME ACCIDENT

	10:34	Stopped vehicle - machine
	10:35	Pedestrian on the road - machine
	10:38	Congestion -
	10:40	Severe congestion -
	10:45	Pedestrian on the road -
	10:50	Unexpected congestion -
	10:58	Stopped vehicle -
	11:08	Pedestrian on the road - Machine



WHY SIFTING THROUGH DATA MATTERS FOR DETECTION, A CLIENT EXAMPLE



Over 3 months with Valerann digested almost 1M alerts



854,000

alerts



±11,500

alerts / day



0,3%

accuracy

Our question: Can AI based data fusion improve NH's detection efforts using existing data sources

▼ Reduce Noise?

Can we harness the vast data at NH's disposal and make it impactful?

▼ Detect More?

Can we use this data to detect events NH did not know about?

▼ Alert

Can we use this data to detect events sooner so NH can react faster?

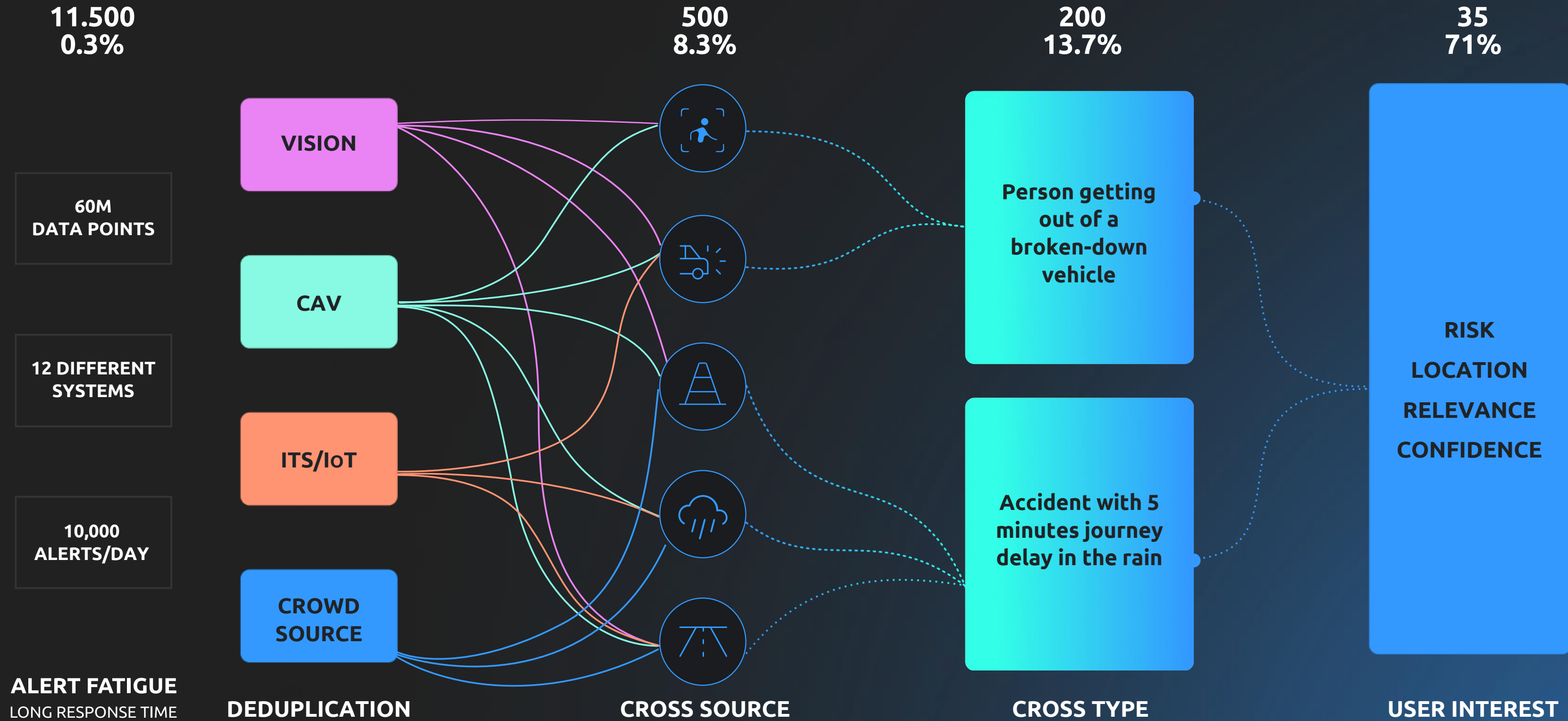
▼ Faster?
▼ Work with less ITS?

Can we do this effectively on roads with limited ITS?

A single incident can have over 100 digital footprints



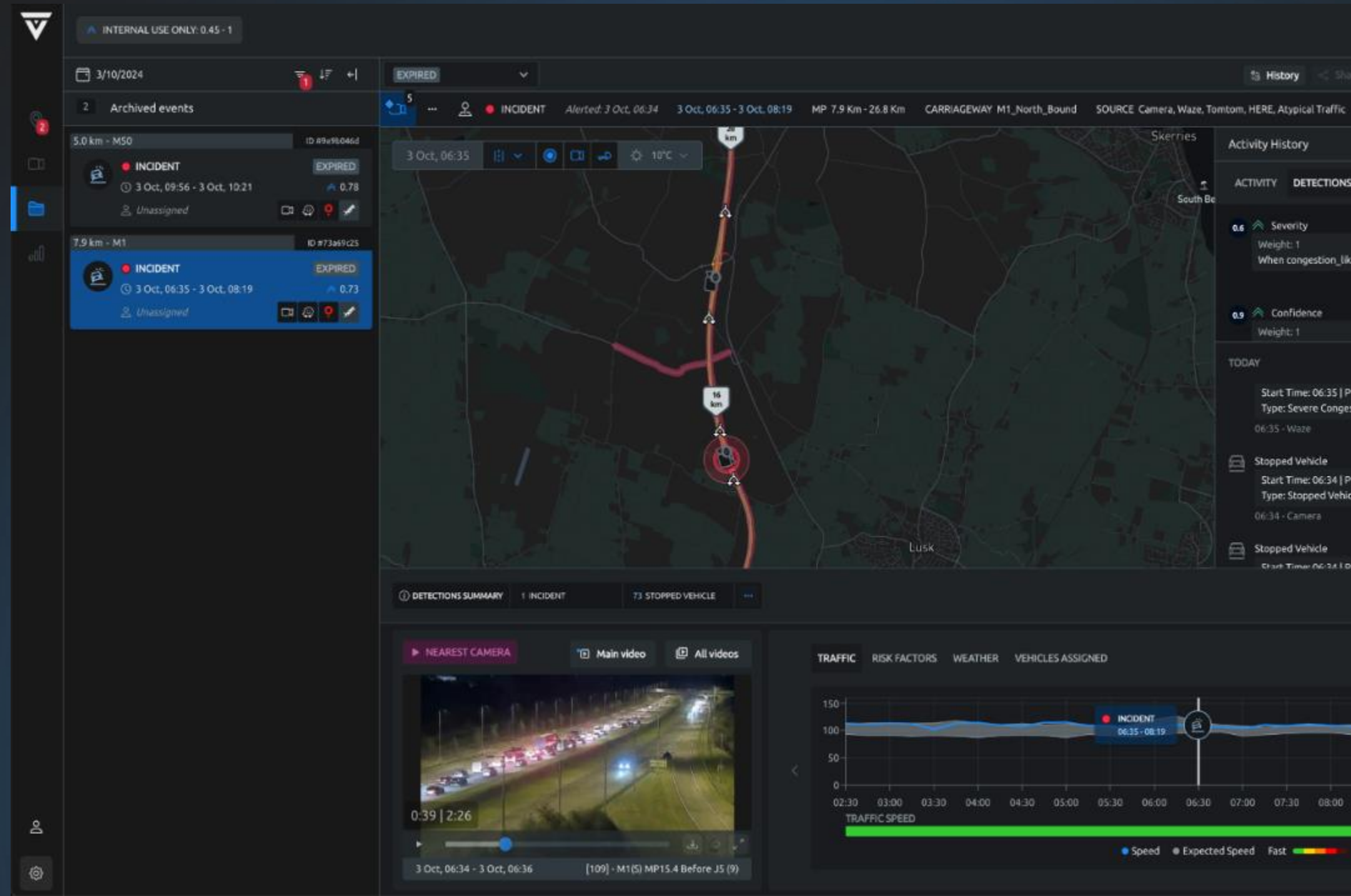
AI can help us detect incidents sooner



AI can help us detect incidents sooner

Multiple vehicle collision

- **134 individual** detection alerts from **5 different sources**
- LbV analyzed and fused them into 1 event
- Alerted user within **1 minute** of collision occurrence
- Control centre alerted **17 minutes** later

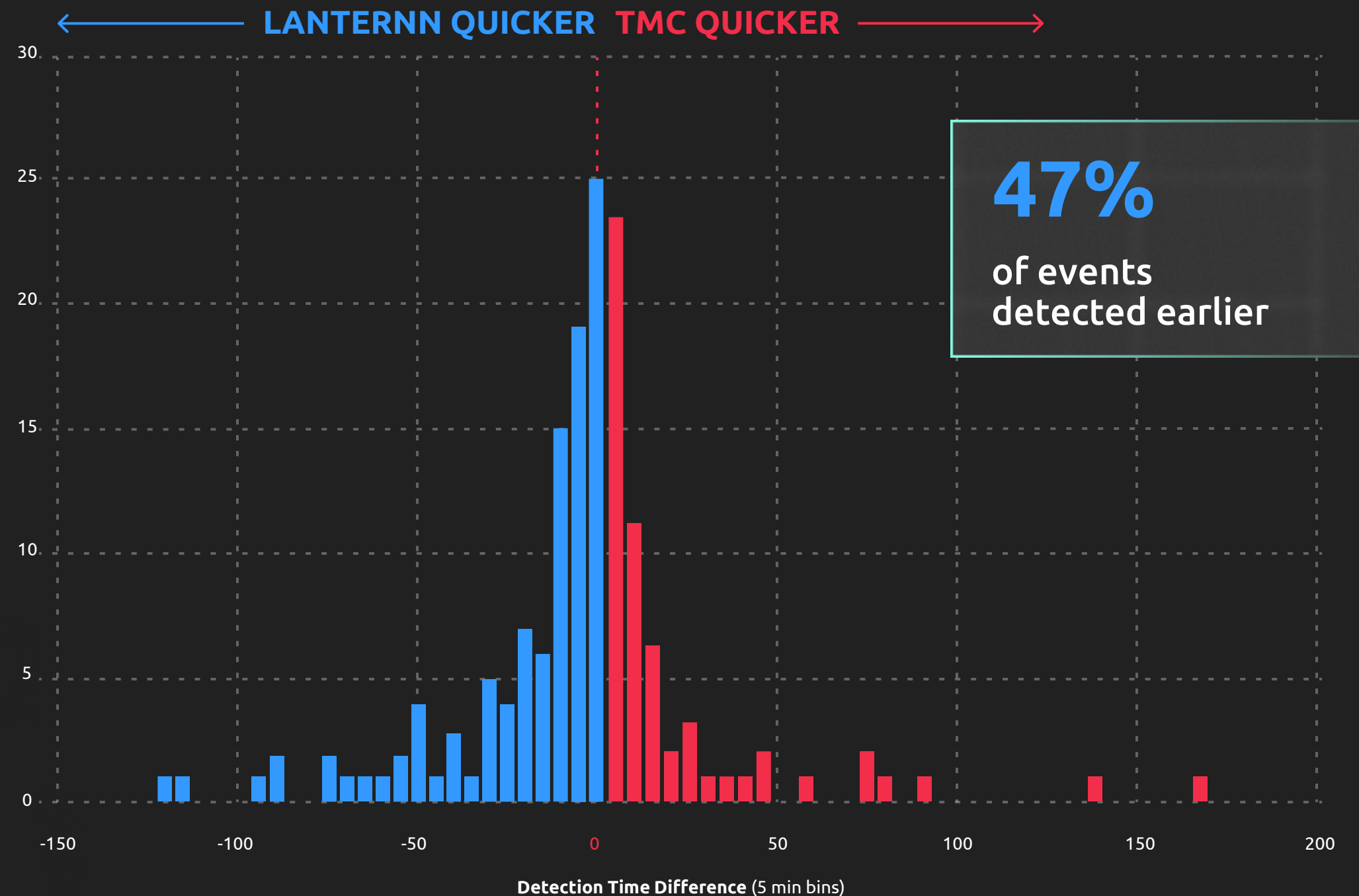


The screenshot displays the Valerann incident detection interface. At the top, it shows the date '3/10/2024' and a status 'EXPIRED'. Below this, a list of 'Archived events' is shown, including two incidents: one at '5.0 km - M50' (ID #94980464) and another at '7.9 km - M1' (ID #73869225). The M1 incident is highlighted in blue and shows a duration of '3 Oct, 06:35 - 3 Oct, 08:19' with a severity of 0.73. The central part of the dashboard features a map with a red line indicating the location of the incident on the M1 motorway. To the right, an 'Activity History' panel shows a 'Severe Congestion' event with a severity of 0.6 and a confidence of 0.9. Below the map, a 'DETECTIONS SUMMARY' shows '1 INCIDENT' and '73 STOPPED VEHICLE'. At the bottom, there is a 'NEAREST CAMERA' section with a video feed showing a traffic jam on the motorway, and a 'TRAFFIC' section with a speed graph showing a significant drop in speed during the incident period.

AI doesn't replace processes, but it helps us improve them significantly

- Half of events detected faster
- 47% in areas with dense ITS
- 65% in areas with no/low ITS

- When faster, a lot faster
- 25 minutes earlier with dense ITS
- 35 minutes earlier with no/low ITS



In summary, technology can help us detect faster so that we can respond earlier

1

LbV reduces daily digital alerts from
~11,500 to ~35

2

bV could help the TMC
**detect 50% of events
>25 minutes faster**

3

LbV could help operators respond to
40% additional risk events

4

LbV was very
effective across the network
(on ALR & non-ALR)

Why does this matter?

1

Focus our attention
on what matters

2

Earlier detection means
earlier response

3

Responding to risks to
prevent likelihood
of accidents

4

Reduce reliance on
expensive, single-point-
of-failure, roadside tech

Operational improvements drive real-world impact



10% - 15%

REDUCTION IN SERIOUS ACCIDENTS

1%-3%

REDUCTION IN JOURNEY TIMES & EMISSIONS

2x

SAVINGS AGAINST SYSTEM COSTS





VALERANN

THANK YOU!

POWERED BY DATA. DRIVEN BY INSIGHT.

Michael Vardi
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