



Automatic Speed Enforcement in the Nordic Countries - Now and in the Future

NVF Road Traffic Safety Working Group online seminar, 16-17 September 2026

Jaakko Klang, Economic Development Center of Southwest Finland

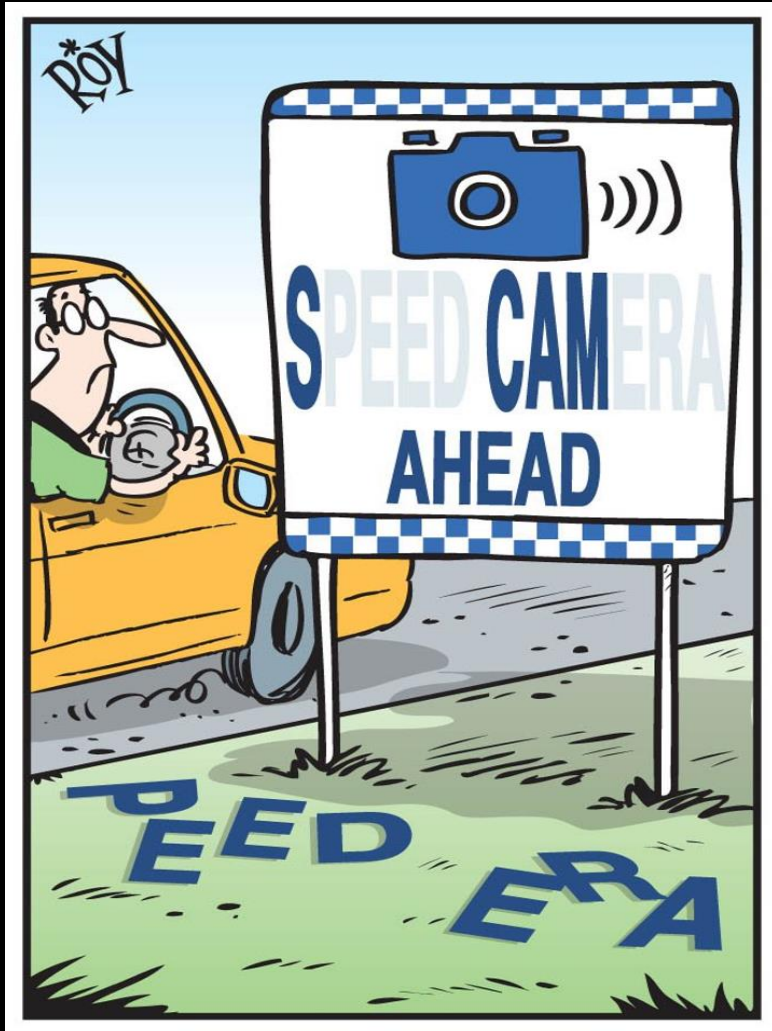
1. Today's Focus



No one should be killed or seriously injured in road traffic.

How can we achieve that goal in a world where mobility is changing faster than ever?

2. NVF Workshop on Automatic Speed Enforcement, 2019



2019 NVF workshop Helsinki Finland: cameras, practices and legislation: <https://nvfnorden.org/wp-content/uploads/2022/09/11-Automatic-speed-enforcement-in-Nordic-countries-today-and-future-FINAL-1.pdf>

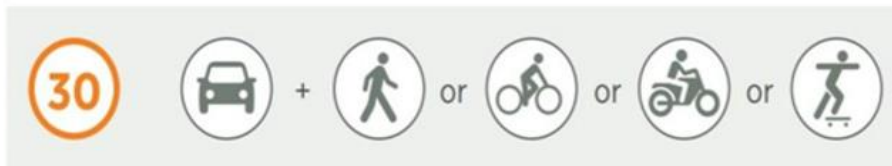
2026: vehicles, data, AI and connected mobility

Speed management is a shared responsibility across the transport system.

The biggest change is not in technology but in our thinking: speed enforcement has become part of the integrated safety management of the transport system.

3. Speed Remains a Key Risk Factor

People are not designed to withstand high impact speeds



Source: AT 2019

The human body's tolerance to crash forces sets the limits for safe speed.

- Speed affects both crash risk and crash severity
- Safe System: people make mistakes
- The system must be forgiving

Technology may change, but the basic principle does not: the limits of safe speed are set by the human body's tolerance to crash forces, not by technology or infrastructure.

Sources: 1, 2, 3, 4

4. Do Speed Cameras Work?



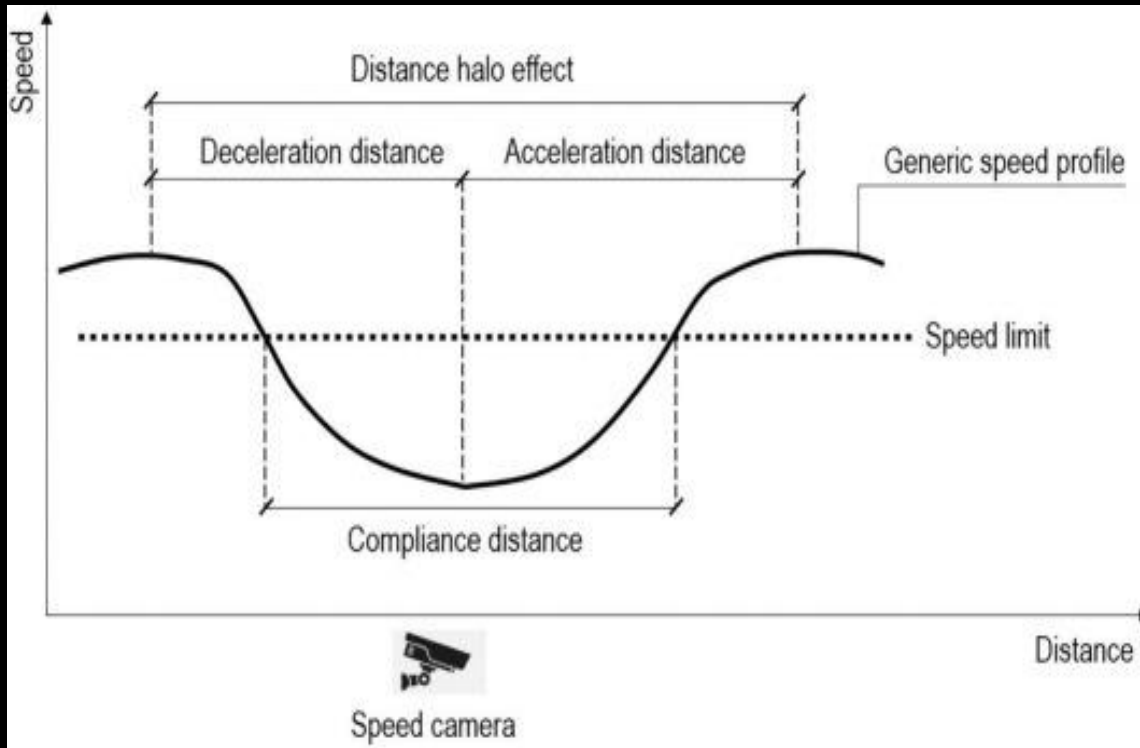
Speed cameras reduce speeds and improve road safety.

The best results are achieved when enforcement is targeted on the basis of risk.

The most effective enforcement is not necessarily where offences are most frequent, but where serious crashes can still be prevented.

Sources: 5, 6

5. Halo effects – updated interpretation

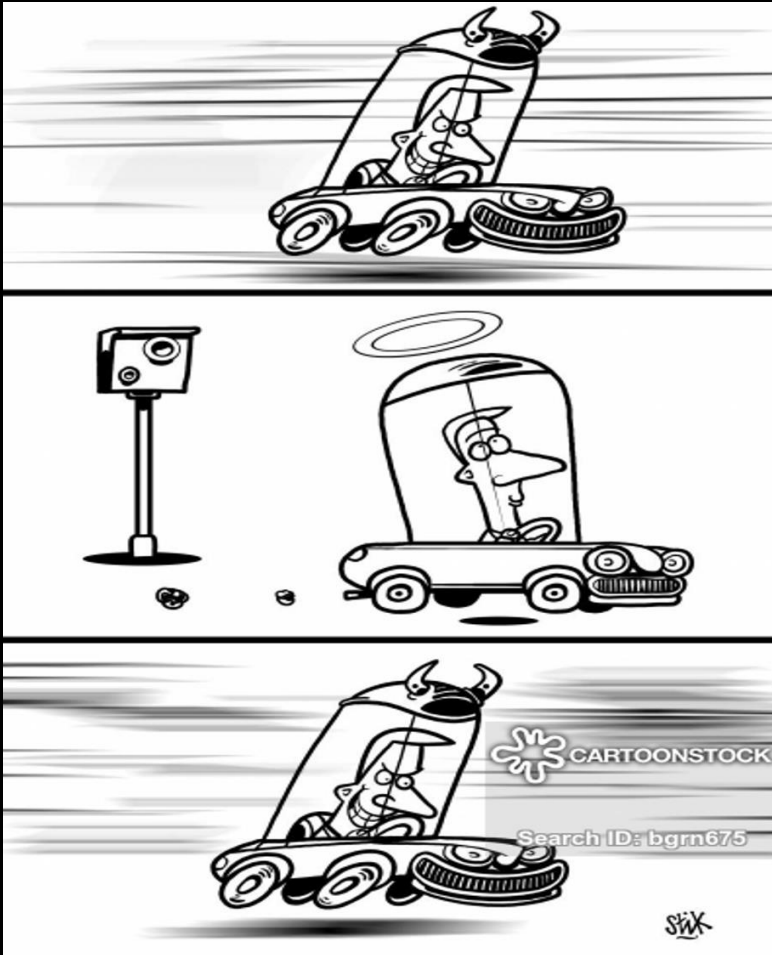


Point-based speed cameras may have limited spatial effects. This supports the use of:

- corridor-based enforcement
- rotating mobile enforcement
- average speed control
- clear communication
- credible and consistent speed limits

The aim is to extend safe speed behaviour beyond a single camera point.

6. Kangaroo effect – updated perspective

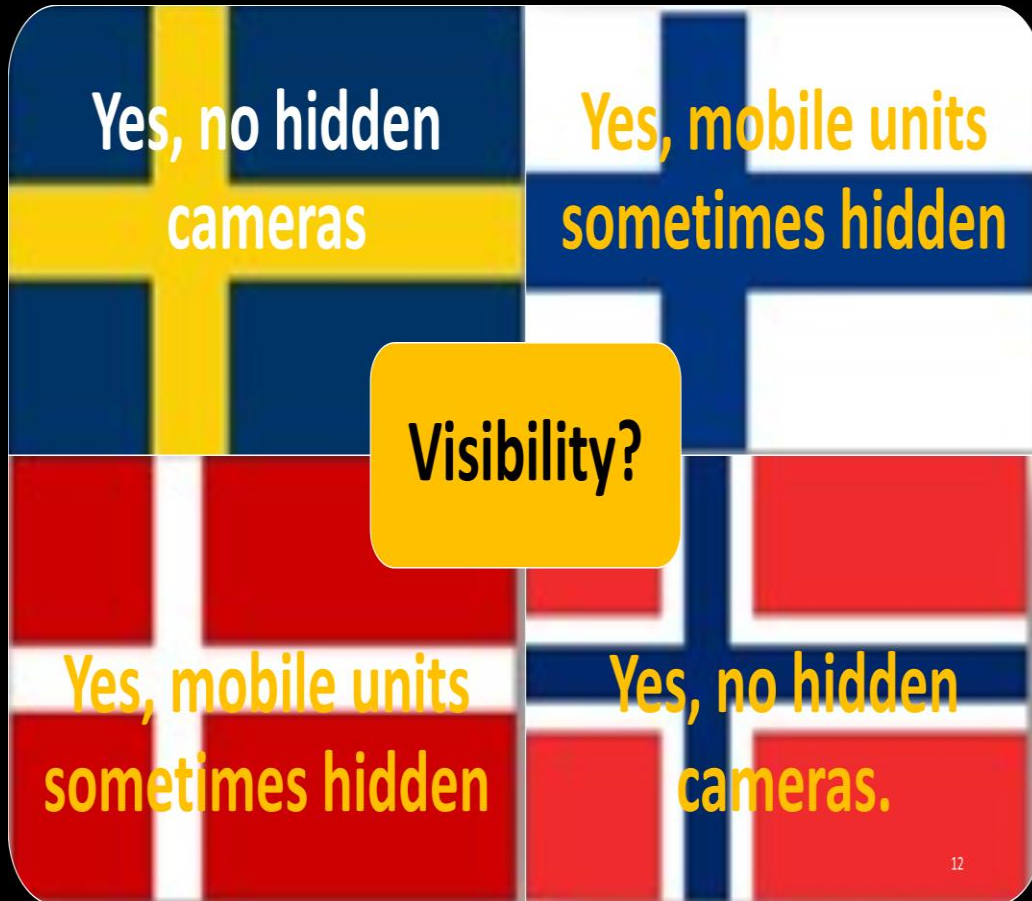


The evidence on crash impacts of abrupt braking and re-acceleration near cameras remains mixed.

However, from a system design perspective, the risk supports:

- clear and credible speed limits
- visible and understandable enforcement
- corridor-based camera strategies
- average speed control where appropriate
- communication that emphasises safety rather than punishment

7. Lessons from the Nordic Countries



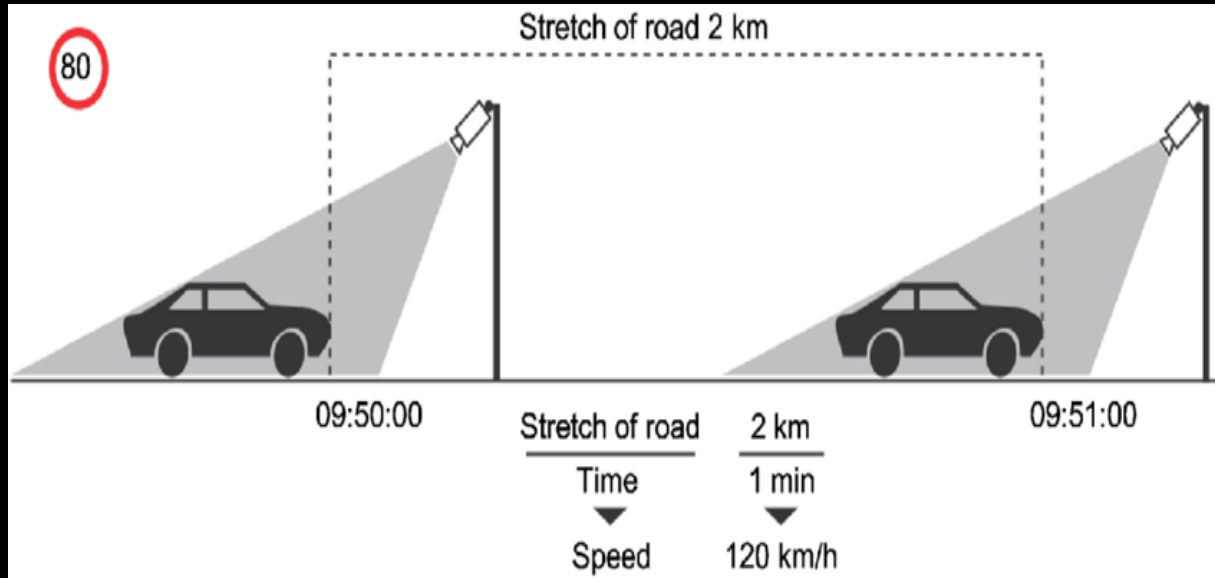
Trust is the foundation of effective enforcement.

- Finland: fewer high-level speeding offences
- Sweden: visibility and public acceptance
- Norway: average speed enforcement effectively reduces speeding
- The Nordic foundation: trust, transparency and a shared safety goal

Vision Zero is not a technical target. It is a societal decision that no death on the road is acceptable.

Sources: 6, 7, 8

8. Average Speed Enforcement - The Next Step?



- Spot speed enforcement influences one location
- Average speed enforcement influences the entire road section
- Norwegian experience supports a section-wide effect

Safe speed is not a single point on the road network. It must be maintained throughout the journey.

Sources: 5, 8

9. Finland's Speeding Challenge



Speeding is still far too common.

- Nearly one driver in two exceeds the speed limit on Finland's main roads
- Speed management remains a key road safety challenge in Finland
- We need a system that supports safe choices

When speeding becomes routine, the system must support safe choices more strongly than ever.

Source: 6

10. From Enforcement to a Safety Ecosystem



We can look at it from three perspectives:

1. The road environment tells us where the risk is.
2. The vehicle tells us what is happening.
3. Data analytics tells us where action will have the greatest impact.

Together, they create a new capability to manage risk proactively.

In the future, safety will depend less on any single technology and more on the system's ability to learn from its own failures.

Sources: 4, 9, 10

11. ISA - The Vehicle Becomes Part of Speed Management



Intelligent Speed Assistance (ISA):

- 2019: a technology of the future
- Today: standard equipment in new vehicles in Europe
- The vehicle supports the driver before speeding occurs

The safest speeding offence is the one that never happens.

Sources: 9, 10

12. Smart Cameras

Mobile vs. Fixed vs. Average Speed Cameras Which Best Suits Traffic Enforcement?



Modern systems can detect far more than speeding:

- Speeding, red-light running and seat-belt use
- Mobile phone use and unsafe following distances
- Data protection, public acceptance and trust

The more technology can see, the more important it is to use that capability fairly and responsibly.

13. Artificial Intelligence in Road Safety



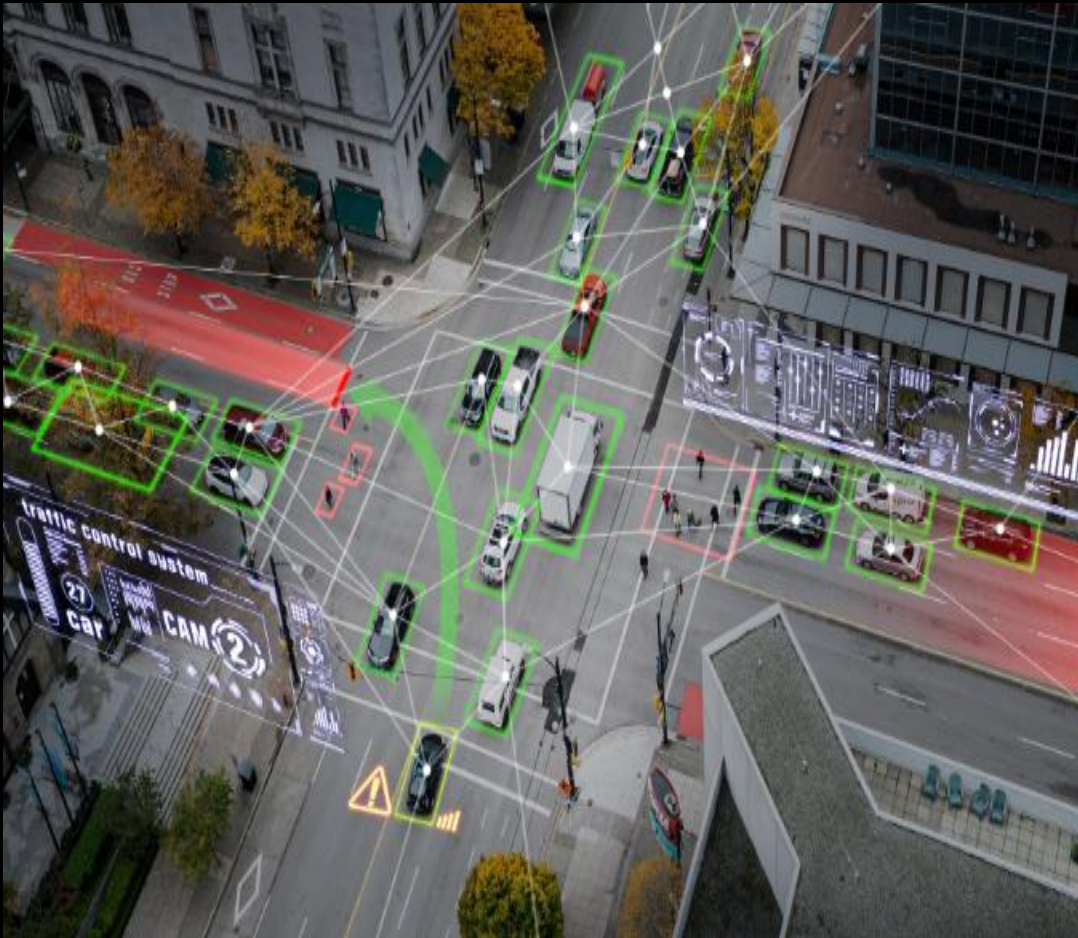
AI can shift the focus towards prevention:

- Real-time analysis of traffic data
- Identifying high-risk locations
- Targeting enforcement where it delivers the greatest safety benefit

At its best, AI will not help us investigate the next crash. It will help us prevent it.

Sources: 4, 10

14. Vehicle Data and Connected Mobility



The vehicle becomes a source of road safety data:

- Speed, location and road and weather conditions
- The operation of vehicle safety systems
- Proactive risk identification

For the first time, the transport system can view risk simultaneously from the perspectives of the road environment, the vehicle and the driver.

Sources: 9, 10

15. Managing Safe Speeds in the Future

What AI Vision Brings

Traditional vs. Modern Traffic Enforcement



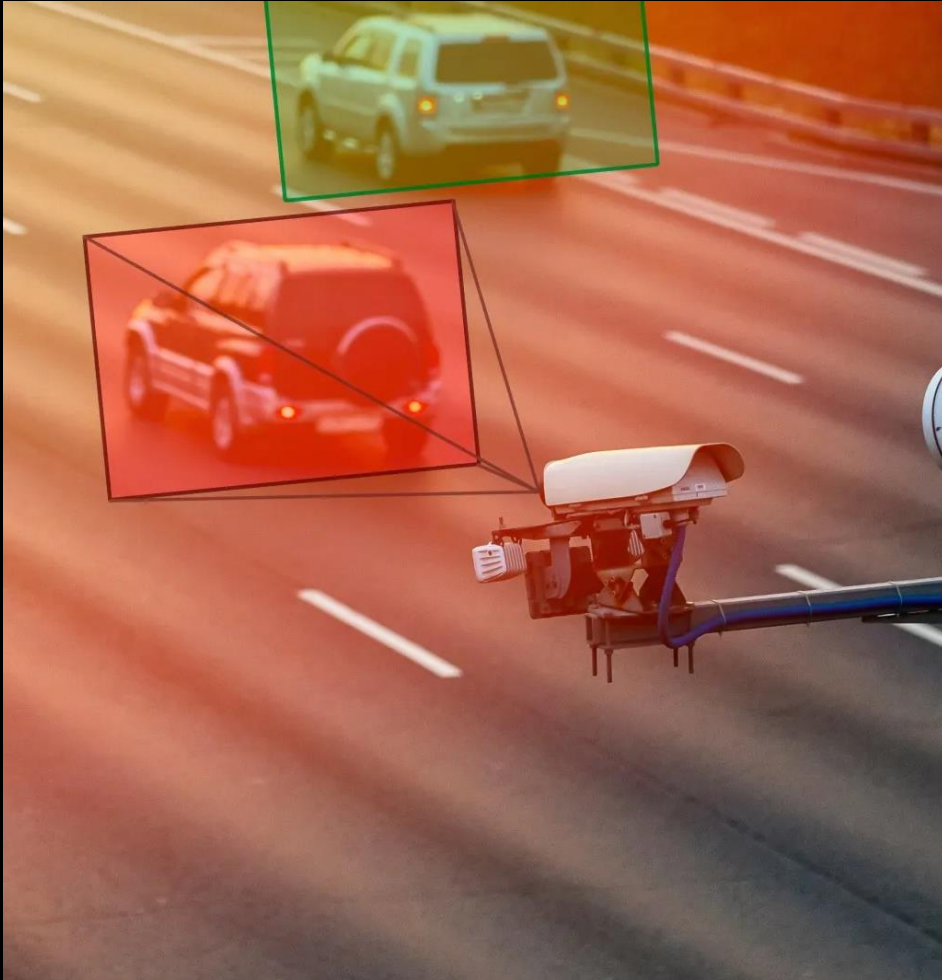
The future system will combine enforcement, ISA, data and AI:

- Automatic and average speed enforcement
- Vehicle data and continuous safety analysis
- The goal: fewer serious crashes

The competition of the future will not be between technologies, but between the performance of safety systems.

Sources: 4, 9, 10

16. Key Takeaways



1. Speed remains one of the most important risk factors in road safety.
2. Automatic speed enforcement works, but its greatest benefit is achieved as part of a wider safety system.
3. Future solutions will depend on data, AI, connected vehicles and smart infrastructure working together.

The best system is not the one that detects the most offences. It is the one that most effectively prevents deaths and serious injuries on the road.

17. Getting Everyone Home Safely

Ultimately, success is not measured by the number of cameras, the capabilities of AI or the volume of data. It is measured by whether our decisions reduce fatal and serious injuries.

Vision Zero is a principle that must guide every decision we make today.

Thank you for
your attention

References

1. World Health Organization (WHO). Global Status Report on Road Safety 2023. <https://www.who.int/teams/social-determinants-of-health/safety-and-mobility/road-safety>
2. International Transport Forum (ITF/OECD). Speed and Crash Risk. <https://www.itf-oecd.org>
3. European Commission. Road Safety Thematic Report – Speeding. https://transport.ec.europa.eu/transport-themes/road-safety_en
4. International Transport Forum (ITF/OECD). Safe System Approach. <https://www.itf-oecd.org>
5. Elvik, R., Høye, A., Vaa, T. & Sørensen, M. The Handbook of Road Safety Measures. Emerald Publishing, 2020.
6. European Road Safety Observatory (ERSO). https://road-safety.transport.ec.europa.eu/european-road-safety-observatory_en
7. Trafikverket. Automatic Traffic Safety Control (ATK). <https://www.trafikverket.se>
8. Statens vegvesen. Automatic Speed Enforcement and Section Control. <https://www.vegvesen.no>
9. European Commission. Intelligent Speed Assistance (ISA). <https://road-safety.transport.ec.europa.eu>
10. European Transport Safety Council (ETSC). Intelligent Speed Assistance and Future Road Safety Technologies. <https://etsc.eu>