Vehicle-to-everything (V2X) communication over LTE

More than 1.3 million people die on the roads each year, with 90 percent of cases being caused by human error. Automated driving supported by vehicle-to-everything communications, or V2X, has the potential to save lives by preventing millions of traffic accidents. The technology could also help to improve passenger comfort and make road travel more fuel-efficient.

V2X paves the way for connected cars and fully automated driving. Connectivity with other vehicles and pedestrians, centralized cloud-based back-office systems and roadside infrastructure will enable applications such as hazard warnings, cooperative adaptive cruise control, platooning and more. Real-time communication helps vehicles deal with situations that neither the driver nor the vehicle’s built-in sensors can identify, enabling safer and more predictive driving.

Benefits for many stakeholders

- **Road authorities**: lower costs through the use of existing LTE networks
- **Automotive industry**: cost saving with existing LTE instead of integrating new radio technology
- **Operators**: new revenue by hosting roadside unit functions, and providing higher value to the automotive industry and its customers
- **Drivers**: safer and more efficient driving
- **Public**: safer roads, lower CO2 emissions
LTE is the basis for V2X communications

LTE is a globally deployed technology. When augmented with Multi-access Edge Computing (MEC), LTE advanced, NB IoT and LTE vehicle-to-everything (V2X), it provides a viable and cost-effective solution that can accelerate the adoption of V2X communications by transport authorities and the automotive industry.

The hybrid use of the LTE portfolio will meet automotive industry needs on their way to 5G. It supports automated driving, increases comfort and improves the infotainment experience. It also increases road safety and traffic efficiency while optimizing infrastructure investments. The Nokia MEC platform rapidly processes content at the very edge of the mobile network cloud. It can support several use cases with low latency and distributed functionalities, such as distributed analytics, predictive algorithms and distributed self-learning with an inherent and consistent high level of security.

Making innovative automotive services a reality

Nokia leads the industry in enhancing mobile network capacity to take connected cars from concept to reality. As early as November 2015, Nokia and its partners ran a world-first demonstration of how a live LTE network with MEC can be used for vehicle-to-vehicle, vehicle-to-infrastructure and vehicle-to-person communications.

We believe that connected cars and automated driving will be a key component of a connected society. We run various trials across the globe with our partner ecosystem to make this a reality, using solutions from our own portfolio to help improve road safety.

Connected vehicles (V2X) improve road safety

90% of fatal car accidents are caused by human error. Connected cars and automated driving can increase driving comfort and reduce accidents significantly.

Reliable and secure vehicle-to-everything (V2X) communication over the network enables vehicles to interact with other vehicles, infrastructure, pedestrians and the network with low investments.

Find out more, visit networks.nokia.com/vehicle-to-everything