

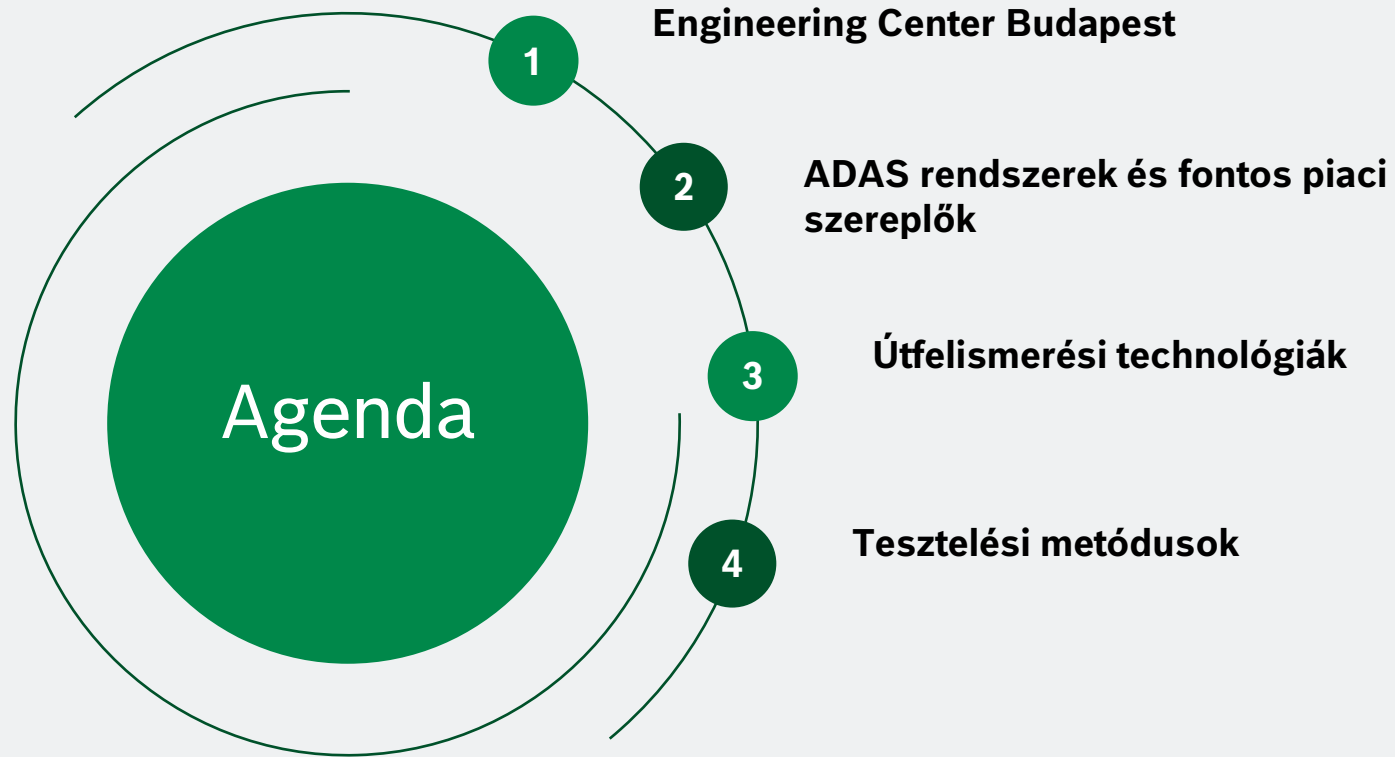


# **Önvezető rendszerek és útfelismerési technológiák fejlesztése személygépjárművekre VII. Magyar Közlekedési Konferencia**

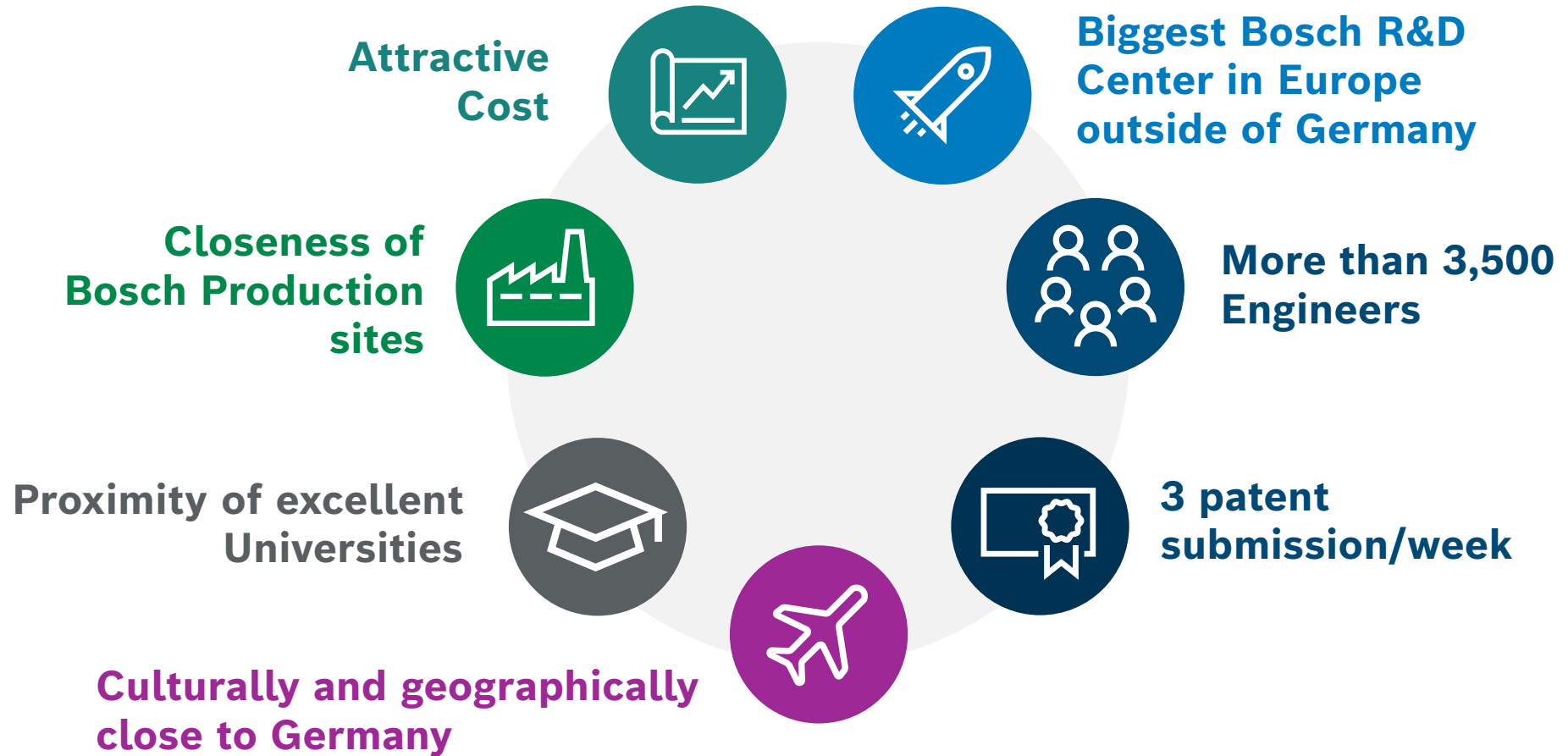
Fülöp Levente

[Levente.fulop@hu.bosch.com](mailto:Levente.fulop@hu.bosch.com)

# Tartalom



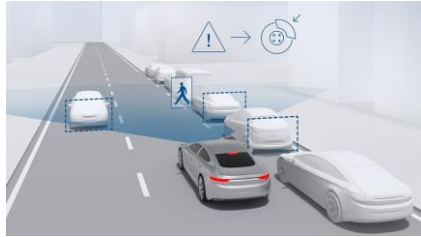
# Engineering Center Budapest



# ADAS rendszerek

## Safety

xNCAP: AEB, AES,  
ELK...



## L2

Hands Free, Hands-on  
Driving

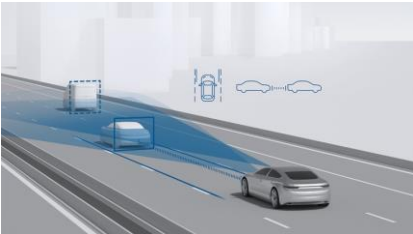


## China OEMs

BYD, Xiaomi SU7...

## Comfort

ACC, LSS, TSR...



## Tesla

Autopilot, Full Self Drive

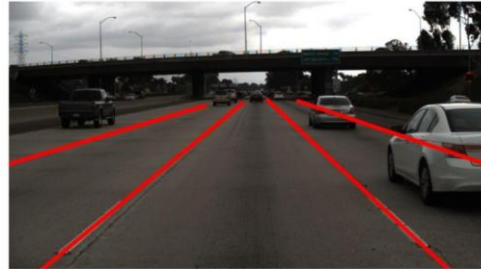


# Útfelismerési technológiák

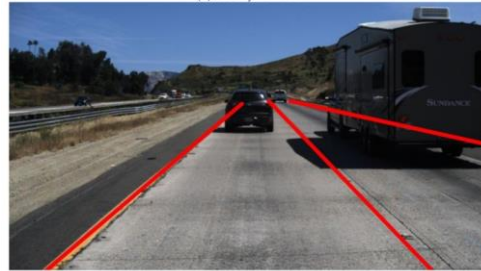
## Kamera alapú útfelismerés



<https://www.bosch-mobility.com/en/solutions/automated-driving/video-perception-modules/>



(a) Cloudy weather

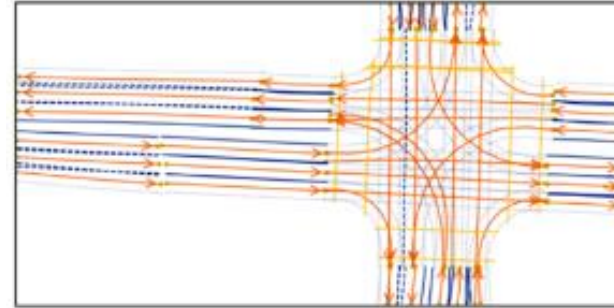


(b) Noon time

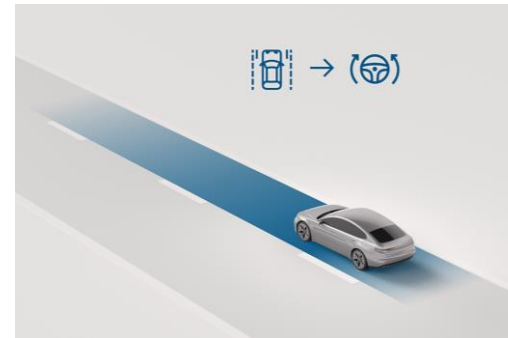


(c) Four lanes

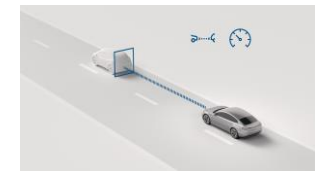
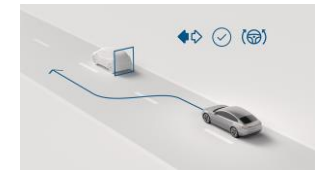
Cao J, Song C, Song S, Xiao F, Peng S. Lane Detection Algorithm for Intelligent Vehicles in Complex Road Conditions and Dynamic Environments. Sensors (Basel). 2019 Jul 18;19(14):3166. doi: 10.3390/s19143166. PMID: 31323875; PMCID: PMC6679325.



Reproducibility Study Of LaneSegNet: Map Learning with Lane Segment Perception for Autonomous Driving Bart de Zwart Erik Meijer Lucas Ponticelli Luuk Versteeg Taiki Papandreou-Lazos Tobie Werner

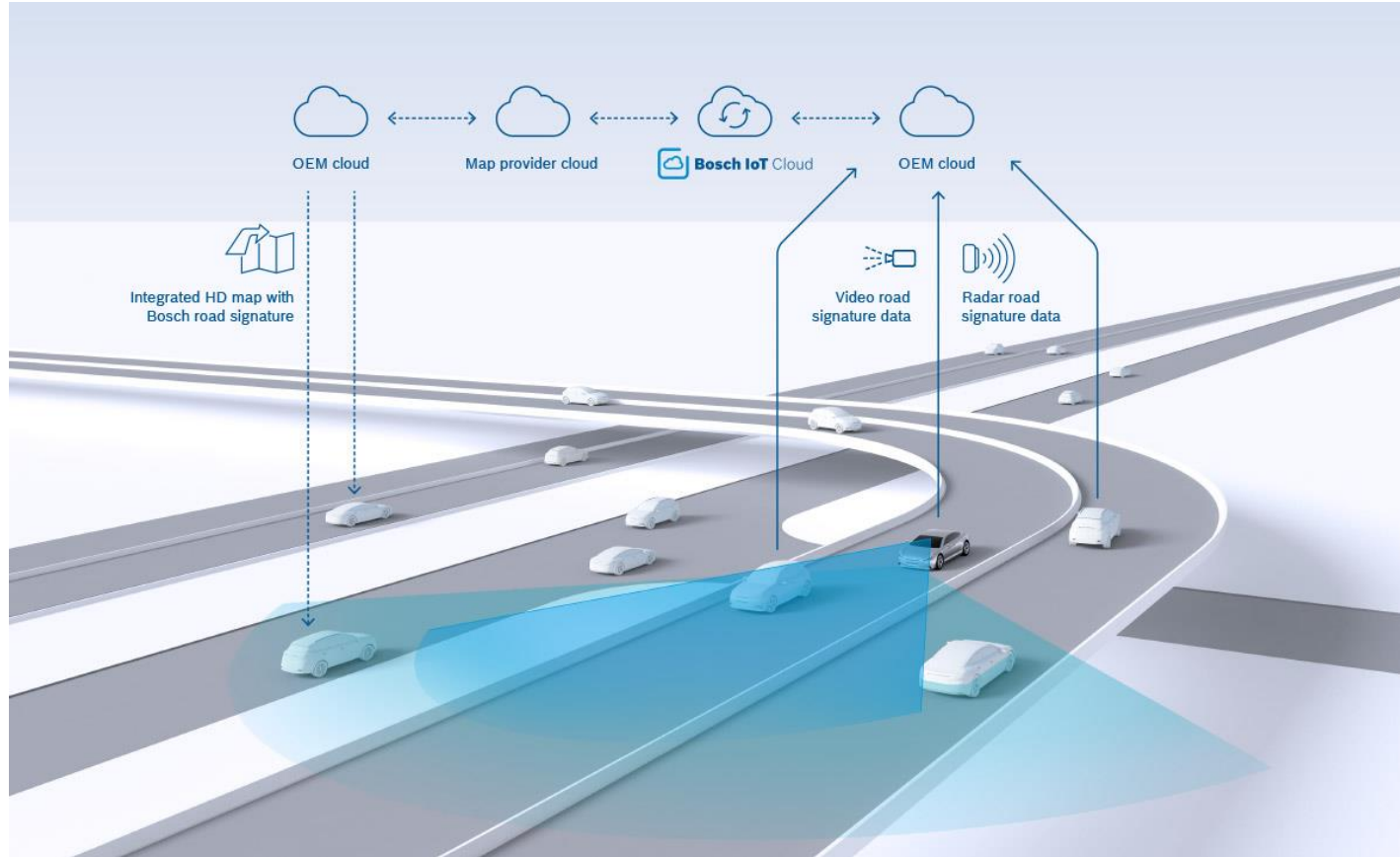


<https://www.bosch-mobility.com/en/solutions/automated-driving/bosch-driving-assist/>



# Útfelismerési technológiák

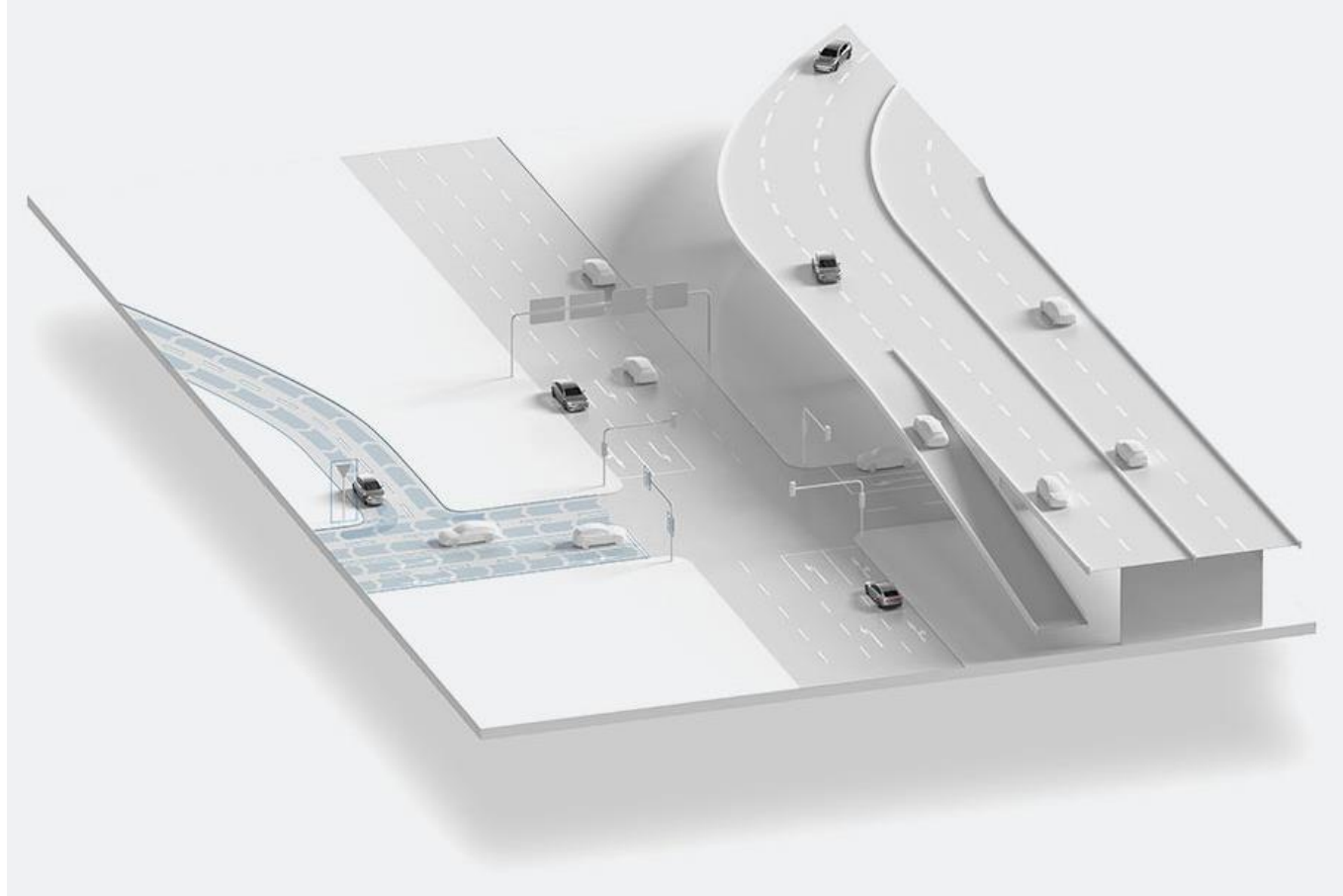
## Térkép alapú útfelismerés - Connected Map Services



<https://www.bosch-mobility.com/en/solutions/software-and-services/connected-map-services/>

# Útfelismerési technológiák

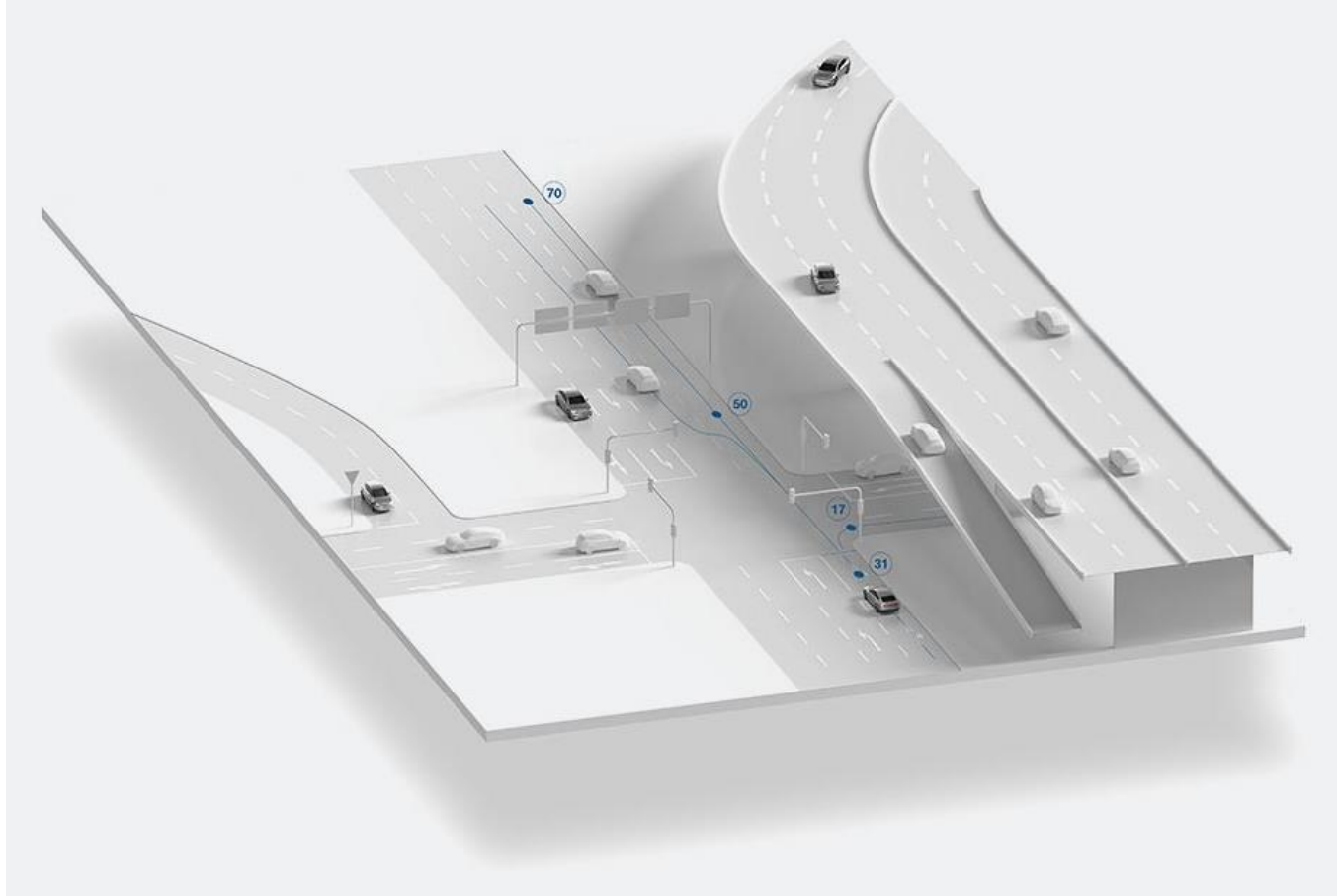
## Térkép alapú útfelismerés - Connected Map Services



<https://www.bosch-mobility.com/en/solutions/software-and-services/connected-map-services/>

# Útfelismerési technológiák

## Térkép alapú útfelismerés - Connected Map Services

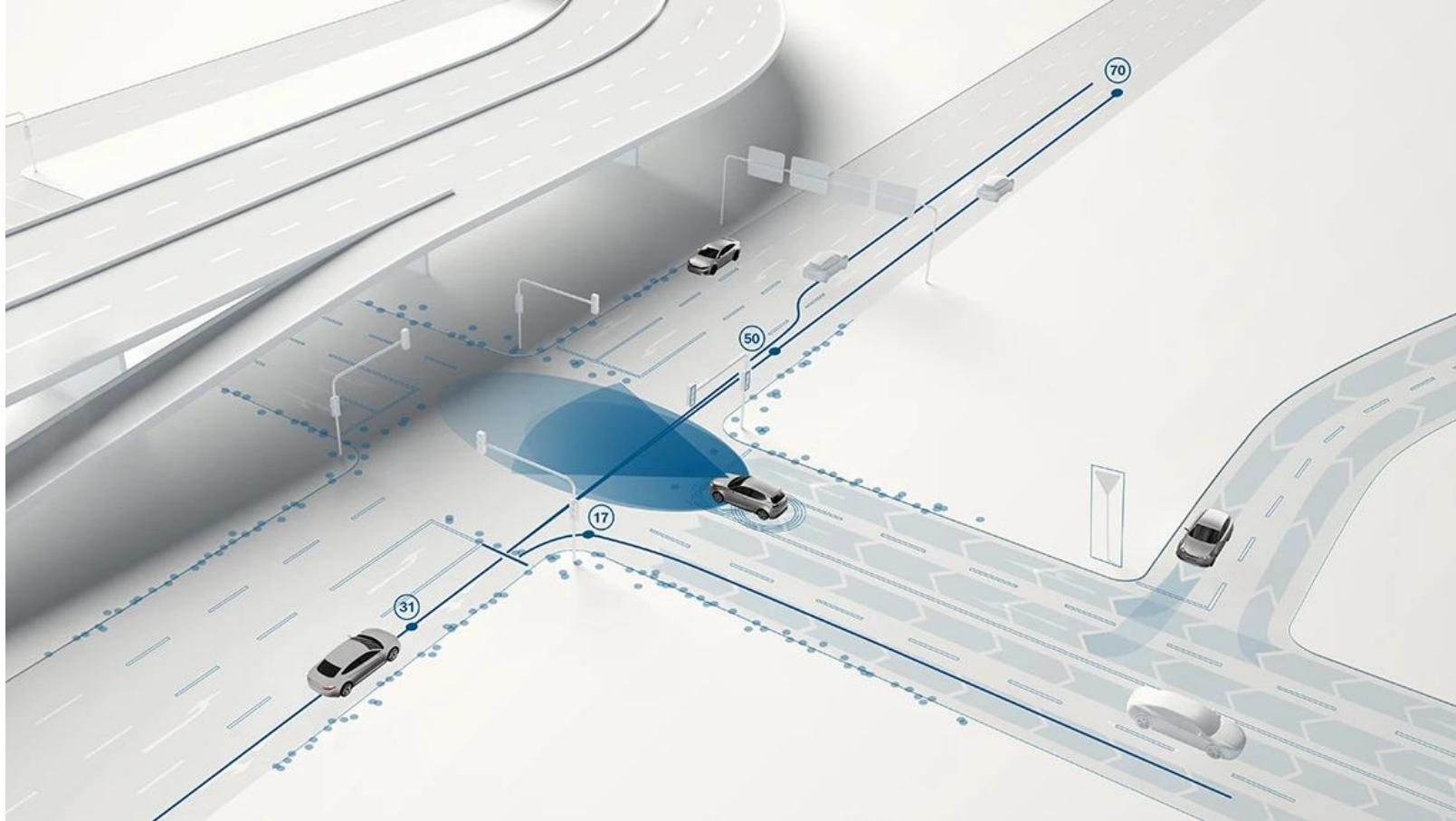


<https://www.bosch-mobility.com/en/solutions/software-and-services/connected-map-services/>



# Útfelismerési technológiák

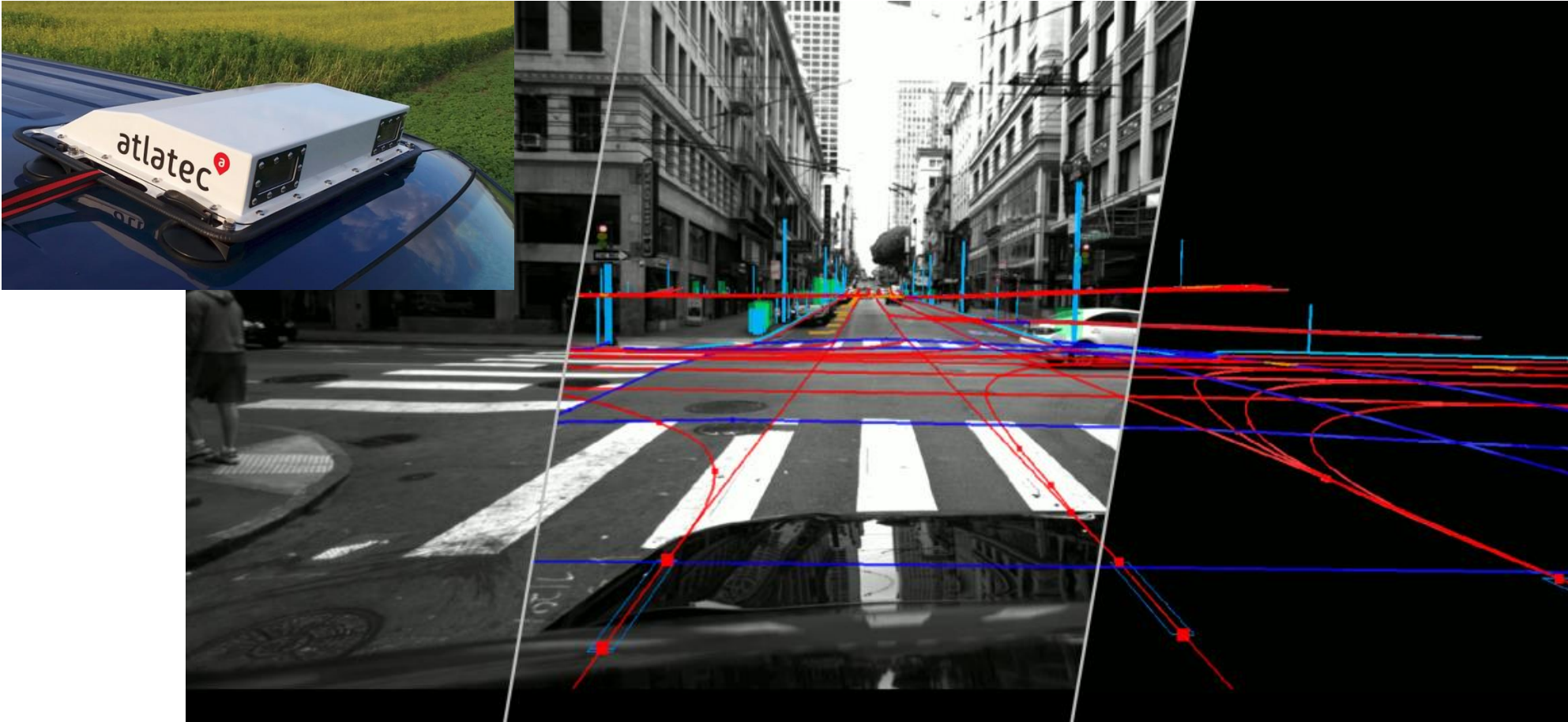
## Térkép alapú útfelismerés - Connected Map Services



<https://www.bosch-mobility.com/en/solutions/software-and-services/connected-map-services/>

# Útfelismerési technológiák

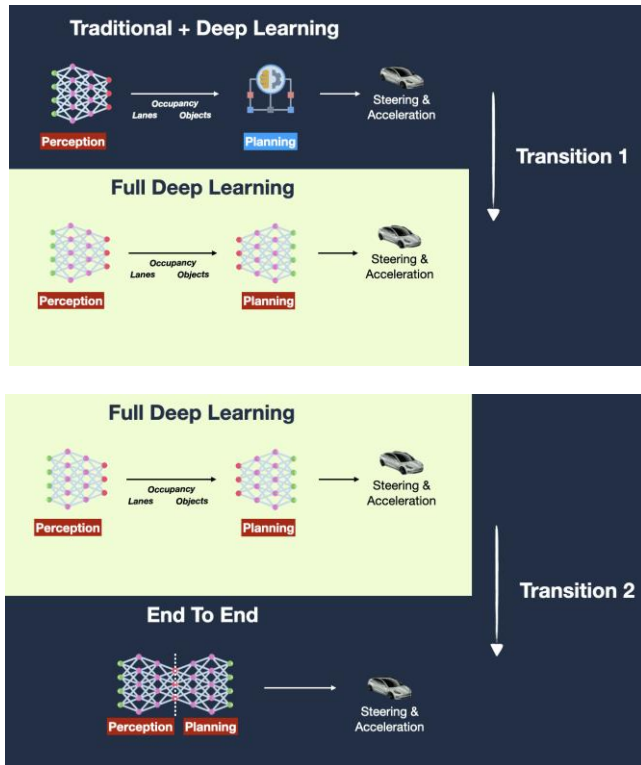
## HD Térkép alapú útfelismerés - Atlatec



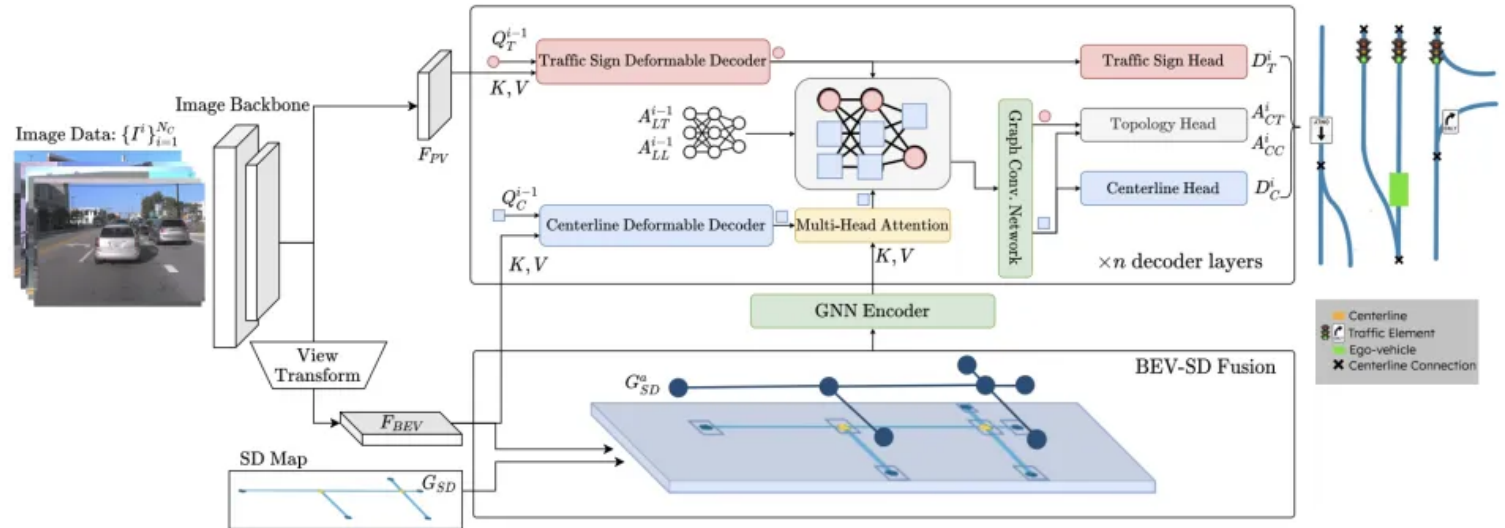
<https://www.bosch-mobility.com/en/company/current-news/acquisition-of-map-specialist-atlatec-planned/>

# Útfelismerési technológiák

## AI megoldások

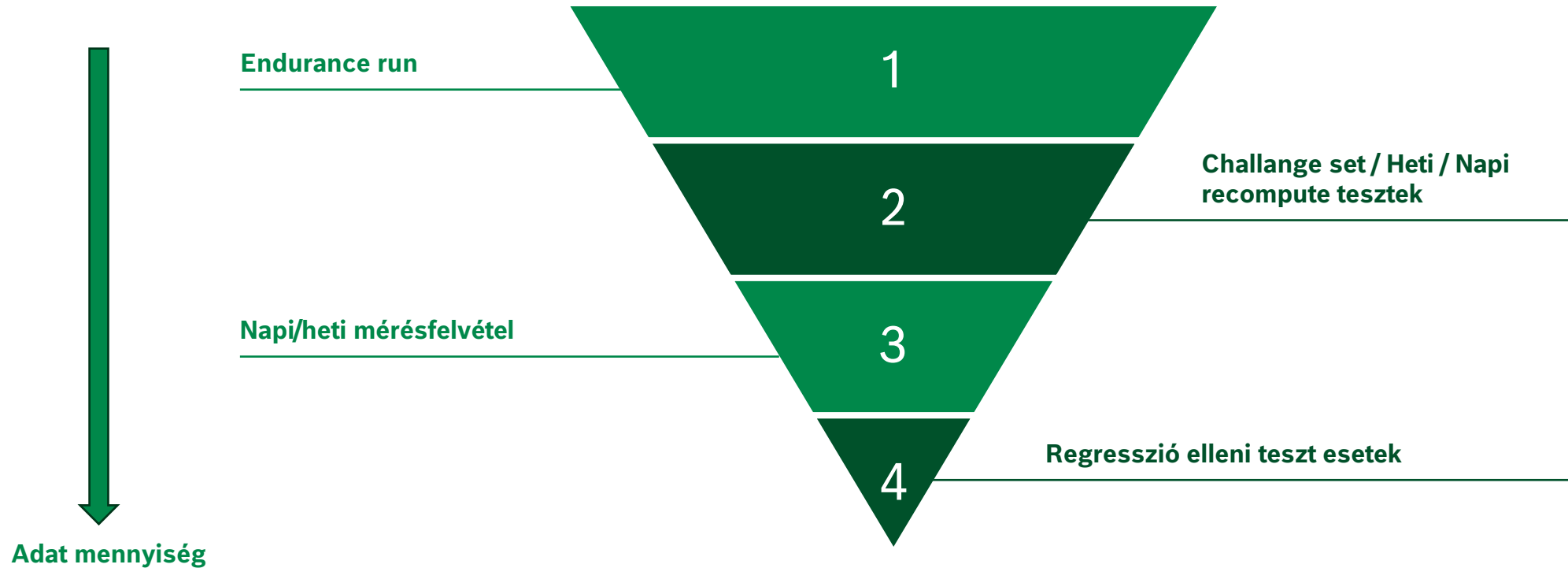


<https://www.thinkautonomous.ai/blog/tesla-end-to-end-deep-learning/>



Enhancing Online Road Network Perception and Reasoning with Standard Definition Maps: Hengyuan Zhang<sup>\*1</sup>, David Paz<sup>\*2</sup>, Yuliang Guo<sup>2</sup>, Arun Das<sup>2</sup>, Xinyu Huang<sup>2</sup>, Karsten Haug<sup>3</sup>, Henrik I. Christensen<sup>1</sup> and Liu Ren, arXiv:2408.01471v1 [cs.CV] 01 Aug 2024

# Tesztelési metódusok – Teljesítmény kiértékelés





# Tesztelési metódusok – Euro NCAP

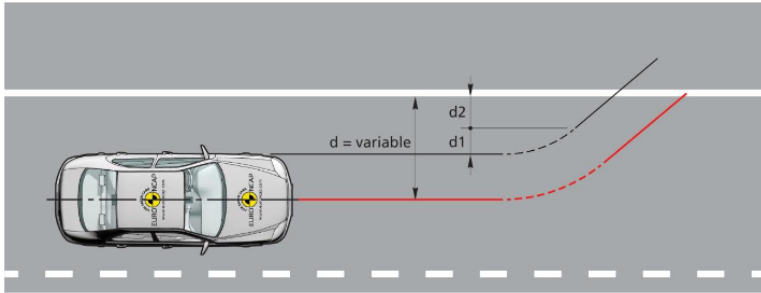


Figure 7-1: Vehicle paths definition

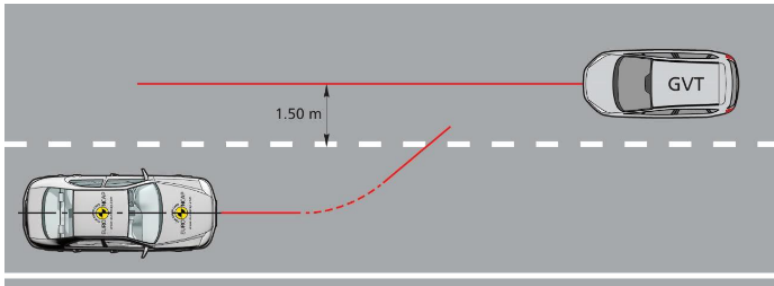


Figure 7-4: ELK Oncoming vehicle scenario paths



<https://www.avl.com/de/standorte/avl-zalazone-proving-ground>



<https://www.applusidiada.com/global/en/what-we-do/services/spain-proving-ground>

<https://www.euroncap.com/media/79865/euro-ncap-iss-test-protocol-v43.pdf>

# Köszönöm a figyelmet!

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- [Levente.fulop@hu.bosch.com](mailto:Levente.fulop@hu.bosch.com)