

# Zuragon and HARMAN Form Strategic Co-operation



03/11/2017

Zuragon Technologies and HARMAN Connected Car Division have announced a strategic co-operation for:

- **Road Data Harvesting**
- **Big Data Cloud Analytics**
- **Deep Learning**

Weather, route, type of road, altitude, sunlight, driver behavior and many other factors in numerous combinations impact the development and validation of Autonomous Vehicles of tomorrow and Advanced Driver Assistance Systems of today.

The initiative is the first of its kind and targets deliveries to the production lines of OEM and Supplier customers in 12-24 months.

POINTS OF INTEREST

E-HORIZON



ROUTE GUIDANCE

EASY PARKING

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## **Benny Sjöstrand, CTO, Zuragon :**

Harman is a perfect fit for our partner.

They provide a mature and secure cloud solution already introduced to several OEMs, a real working connected vehicle system and the knowledge and platforms necessary to run the analytics for ADAS/AV.

We look forward to working with HARMAN to advance the safety and performance of our customers in commercial vehicle and automotive.

## **Mike Tzamaloukas, Vice President, Autonomous Drive Business Unit, HARMAN Connected Car Division:**

A Partnership with Zuragon allows Harman access to Zuragon's network of Commercial Vehicle OEMs and their large collected databases.

Zuragon's ViCAnDroid software is well suited for integration into Harman head units to allow ADAS event data collection after SOP in millions of vehicles around the world covering billions of miles.

Paired with Harman's cloud analytics ability, this method will provide an industry leading methodology to validate the performance of ADAS and autonomous driving systems

# THE PROBLEM

## TRADITIONAL DEVELOPMENT OF ADS – ADAS SYSTEMS:

- Majority of learning occurs pre-SOP.
- Based on a handful of development vehicles.
- Learning and improvements:
  - Based on small number of OEM-driven miles.
  - Not based on regular everyday driving.
- Post-vehicle launch:
  - Use of development vehicles skyrocket.
  - Limited ability to learn from development vehicles.
- Missed opportunity to learn from 3,000,000,000,000 US vehicle miles per year.



Vehicle SOP

Feature SOP

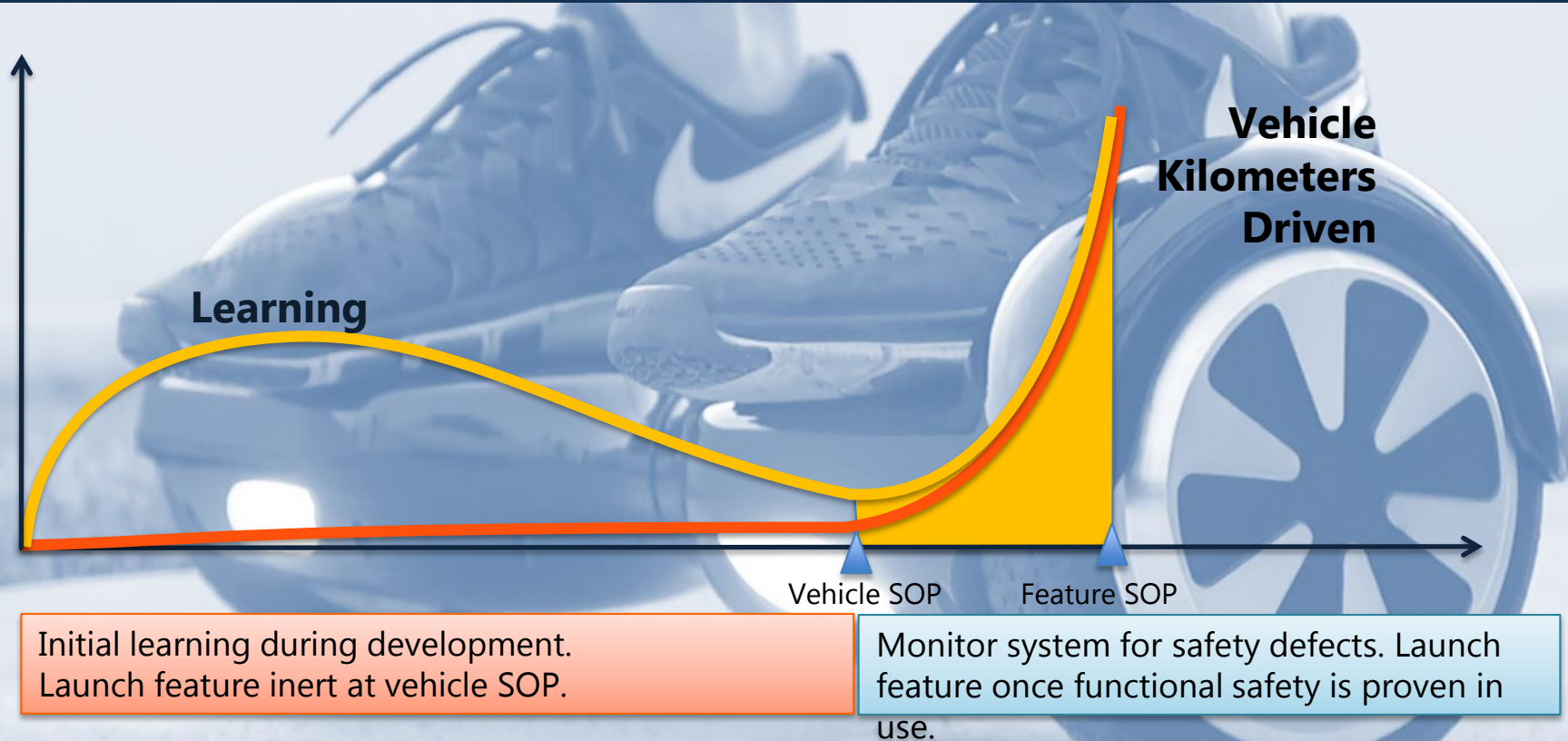
Initial learning during development.  
Launch feature inert at vehicle SOP.

Monitor system for safety defects. Launch feature once functional safety is proven in use.

# THE SOLUTION

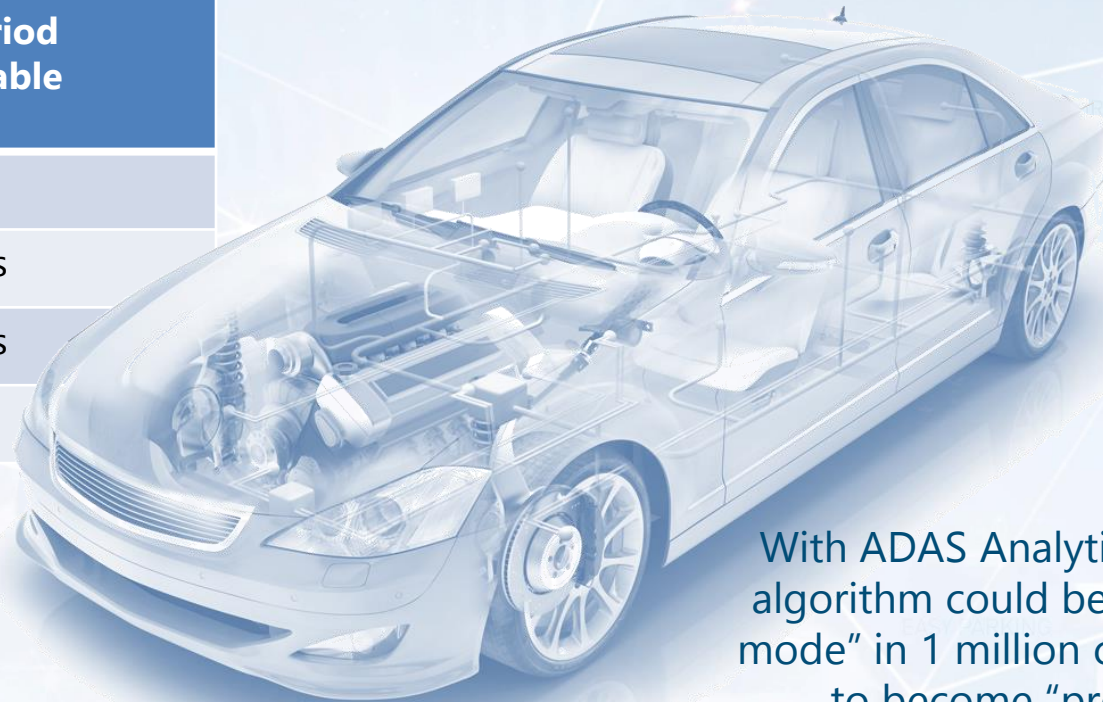


## DEVELOPMENT WITH ANALYTICS AND OTA



## “PROVEN IN USE”

ASIL	Min. service period without observable incident
A	12 million hours
B	120 million hours
C	120 million hours
D	1.2 billion hours



With ADAS Analytics a new ASIL A algorithm could be tested in “silent mode” in 1 million cars for ~2 weeks to become “proven in use”



# Key Aspects ADAS Analytics

- Actively monitor hardware and software for defects:
  - Over millions of hours of operation:
    - Accident prevention?
    - Driver reaction?
- Algorithms validation:
  - Work 100%?
  - Made right decision?
- Artifact for future court cases:
  - Millions (billions) of monitored hours of operation.
  - Versus stacks of theoretical analysis.

