



HARRI USE-CASE with IPG CarMaker

IPG Apply & Innovate – Tech Weeks 2020

10.09.2020, Markus Wendl, Bennet Gedan

Agenda

Company-introduction

HARRI innovation platform

HARRI UseCase with IPG CarMaker

Roadmap

Outline Bertrandt

1974

Foundation
Bertrandt



Overall performance
FY 2018/19: 1 bn Euro



About 13.600
employees



More than 50 locations in
Europe, the USA and China

From the initial idea to production readiness



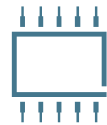
Design



Vehicle Body



Interior



Electronics



Powertrain



Chassis



Simulation

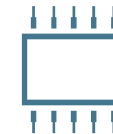


Testing



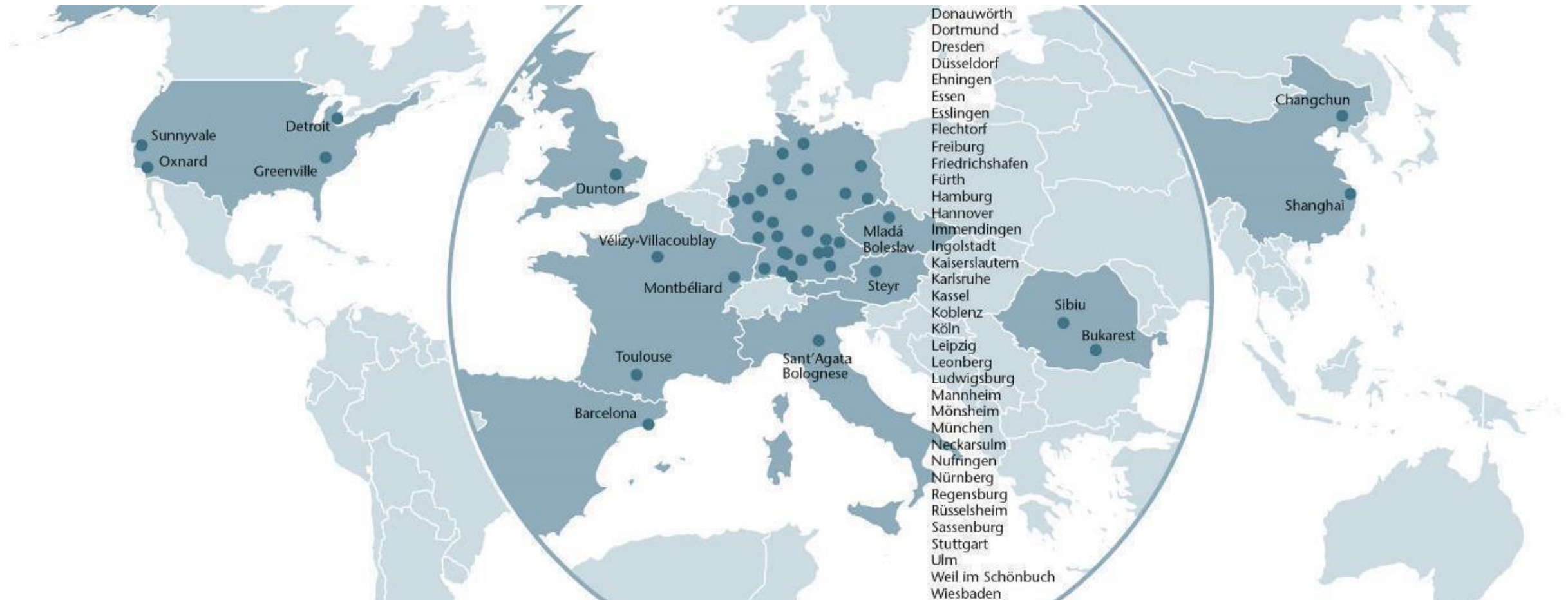
Engineering
Services

In different Industries



We Want to Be Close to Our Customers – Decentralised Organisation

Round **13,000 employees** at more than **50 locations** in Europe, the USA and China.



Range of Services

Trends



Digitisation



Autonomous
Driving



Connectivity



Electric
Mobility



Vehicle
Safety



IT
Services



Virtualisation



Design
Services



Interior



Vehicle
Body



Powertrain



Chassis



Simulation



Electronics



Modelling-
/Rapid
Technologies



Simulation



Engineering
Services

Industries



Automotive
Industry



Aerospace



Commercial
Vehicles



Agriculture



Motorcycle



Electric
Industry



Mechanical-/Plant
Engineering



Medical
Engineering



Energy
Management



Digitisation

Connectivity

Autonomous driving

Electric mobility

Four major trends dominate the markets



„Each trend on its own is an enormous challenge.

The art is about mastering all four trends as well as linking the resulting functionalities.“

Hans-Gerd Claus

Member of the Management Board

Our innovation platform HARRI



Digital



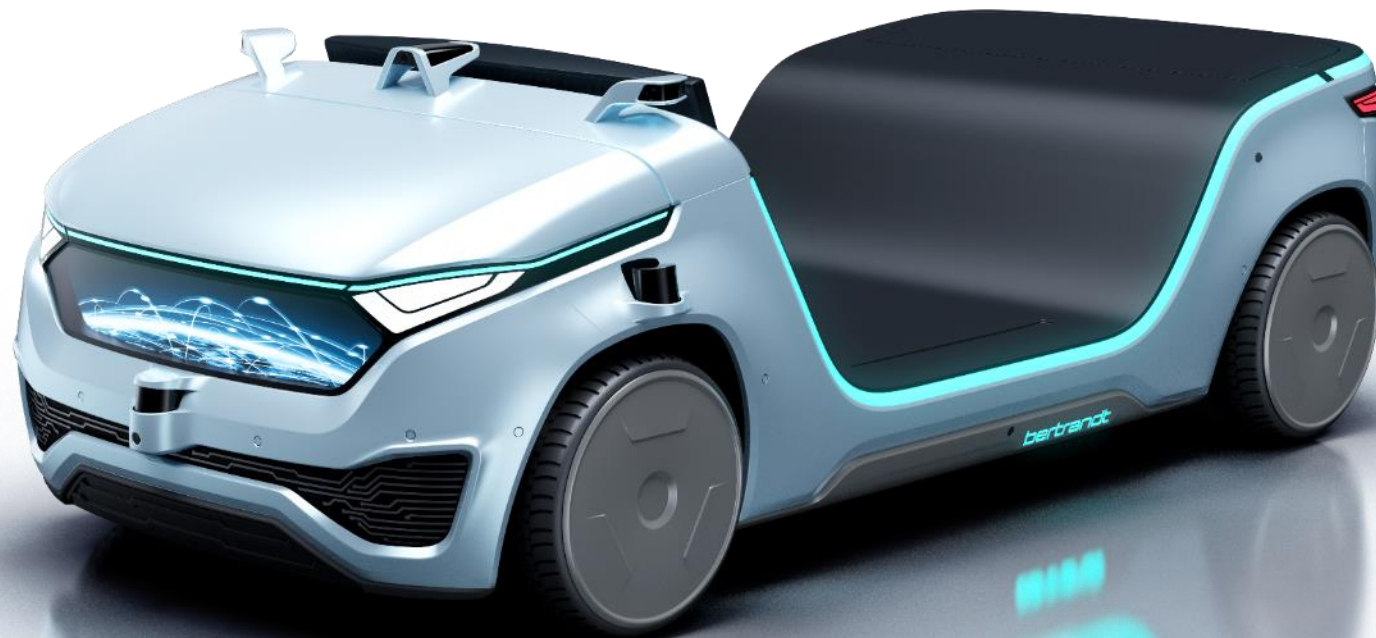
Autonomous



Connected



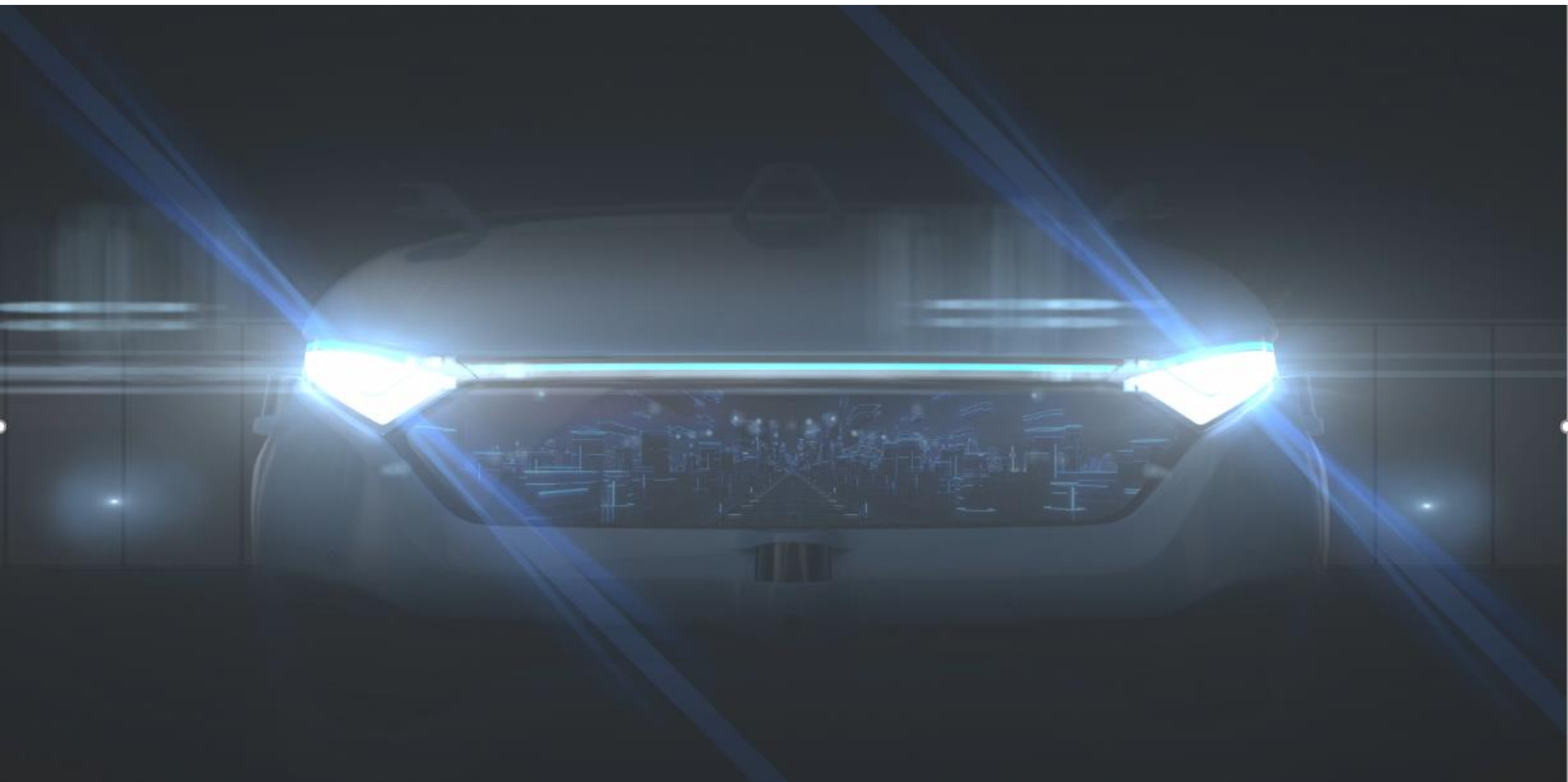
Electrified





HARRI

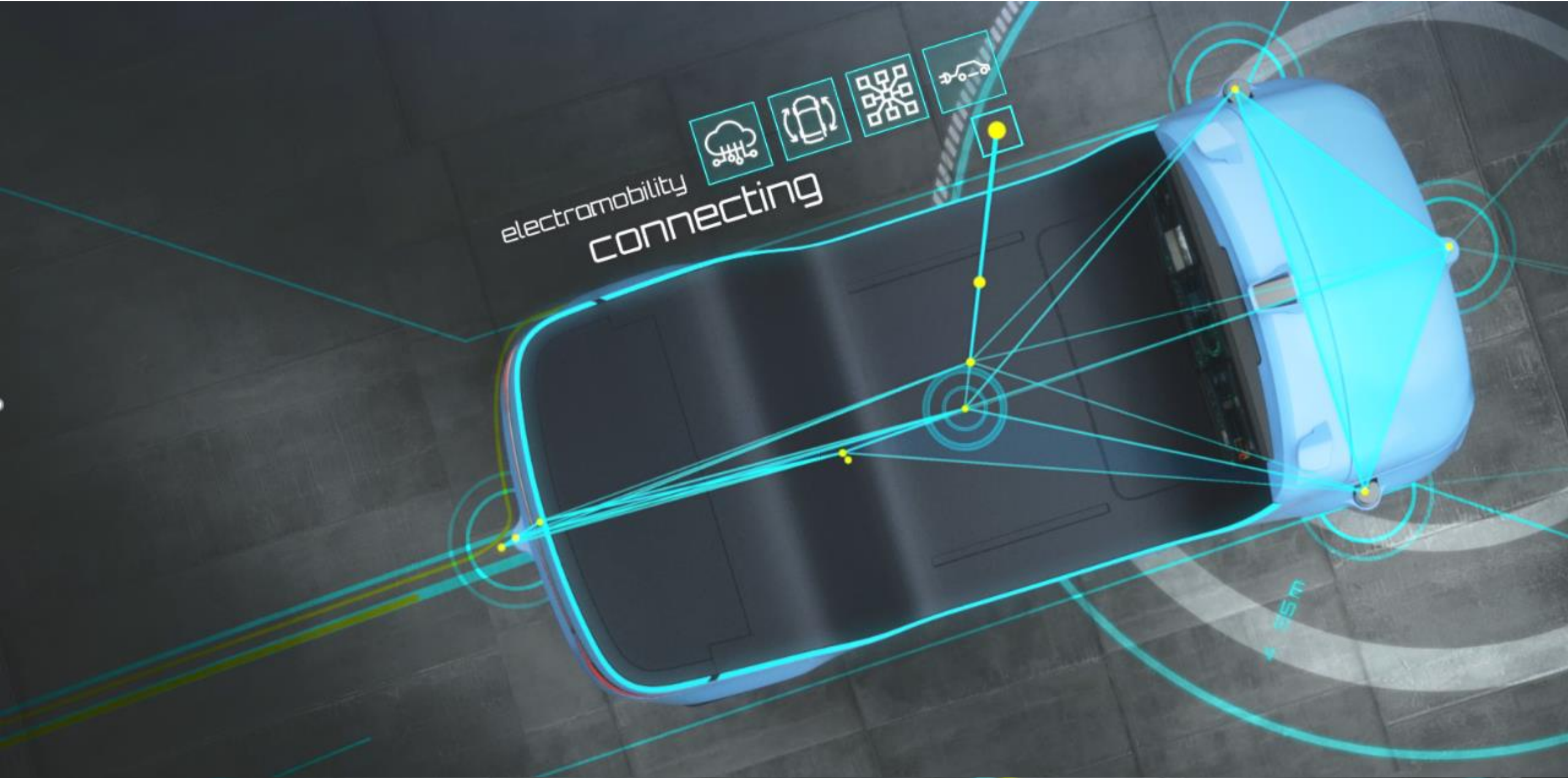
The innovation platform for future mobility concepts.





autonomous
digital

17.30m



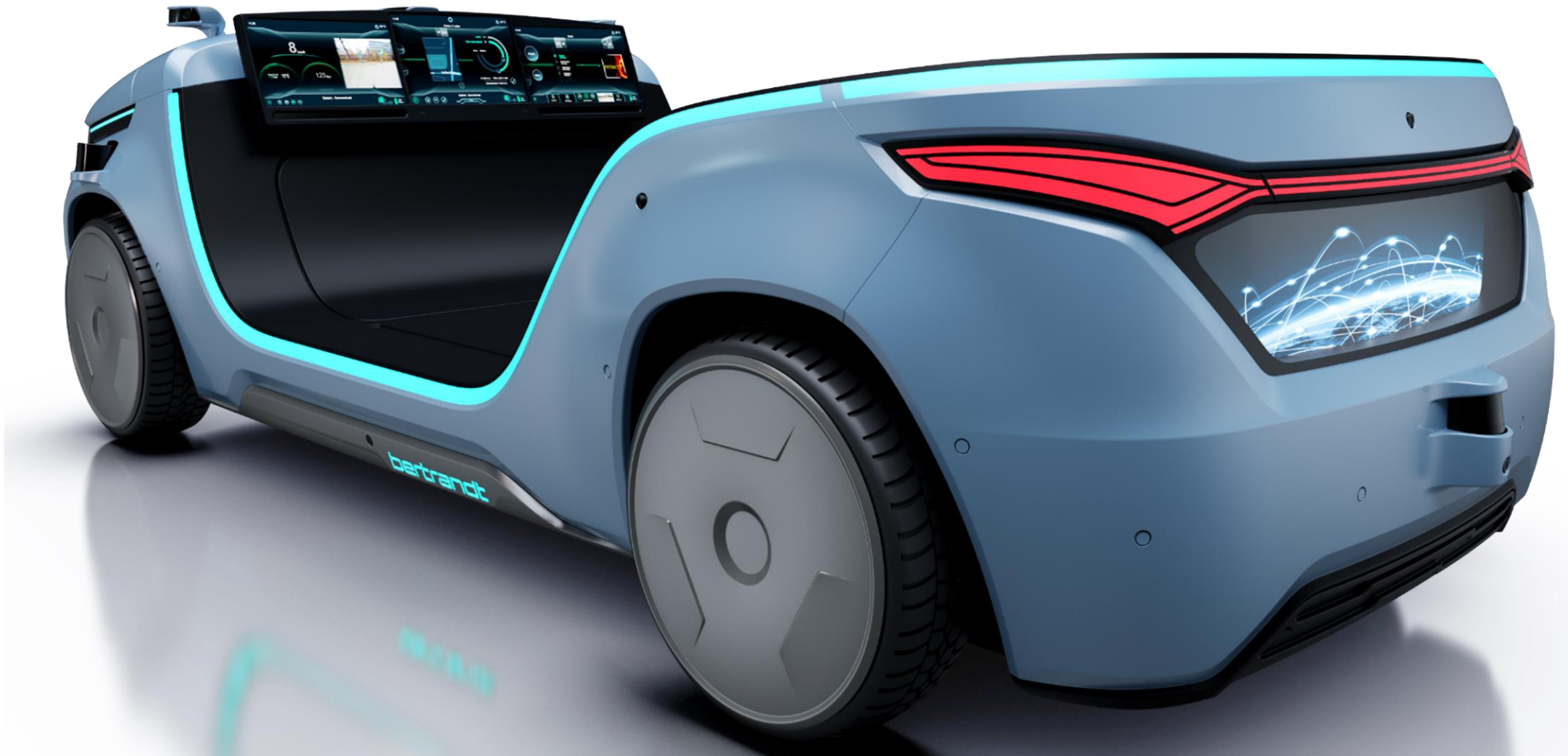


MY NAME IS HARRI:

<https://www.youtube.com/watch?v=HsktY7i4gjjg>

<https://www.bertrandt.com/en/harri/>

HARRI – Our platform for YOUR new concepts of mobility!



HARRI – Keyfacts of an autonomous system

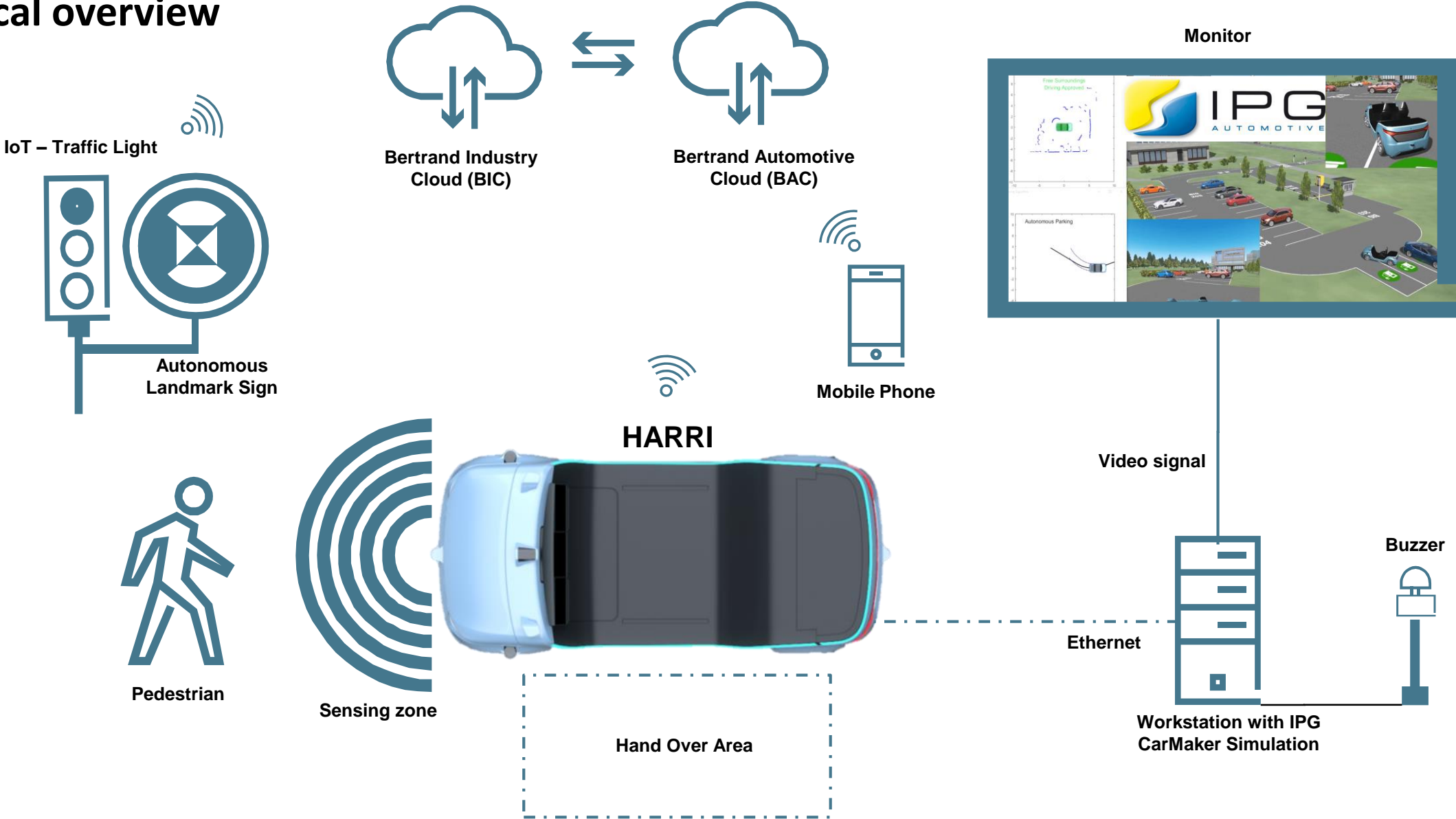


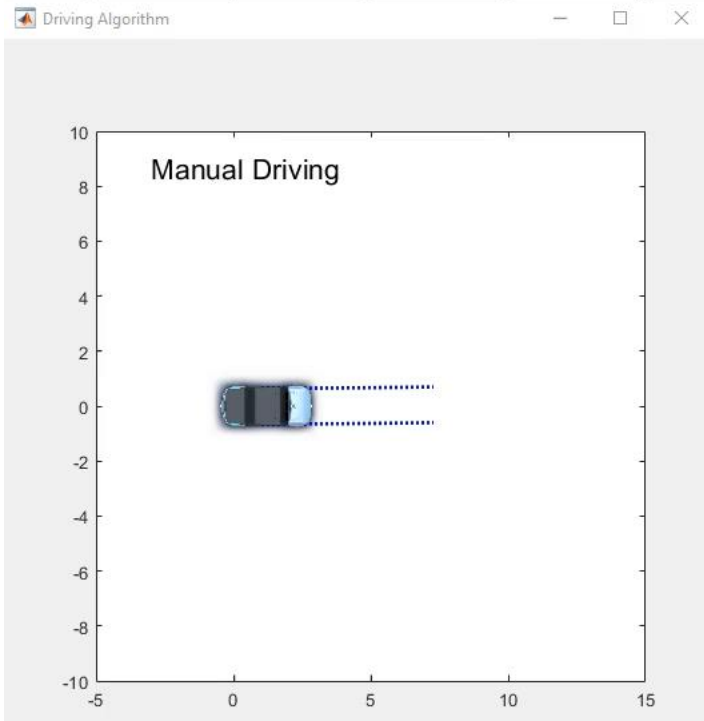
NVIDIA Drive controller with self-developed algorithms

Integrated sensors:

- 4x LiDAR sensors
- 16x Ultrasonic sensors
- 12x Cameras
- 2x GNSS sensors
- 1x Inertial Measurement Unit
- 4x Wheelspeed sensors
- 1x Steering sensor

Technical overview





Why we chose to use IPG CarMaker

- **Minimal development effort** for the connection between vehicle and simulation
- **Fast and easy adapting of the interfaces** between CarMaker, Matlab / Simulink and HARRI
- **Simple integration and parameterization** of the vehicle model -> HARRI's digital twin
- **Easy transfer** from real test environments / tracks to virtual world
- **Appealing virtual representation** of the scenario
- CarMaker was also used to **validate the self-developed algorithms** based on maneuver testing methods
- **Extend the cooperation** between IPG and Bertrandt
- **Experienced support** available anytime



HARRI Roadmap



Customer
TechDay

E-Mobility Forum
Langenargen

Bertrandt
Internal Conference

Bertrandt TechDay
Sunnyvale, USA

Customer
TechDay

2019

2020

Today

2021

ELIV
Bonn

Customer
TechDay

CES 2020
Las Vegas, USA

Munich Management
Colloquium

Connected Car
Fürstenfeldbruck



Bennet Gedan

Team leader
ADAS / Chassis and Vehicle
Dynamics / E-Mobility



Klaus Härtl

Head of the Electronics
Competence Centre

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Thank you for your attention!

Do you have questions? Feel free to get in touch with us!