

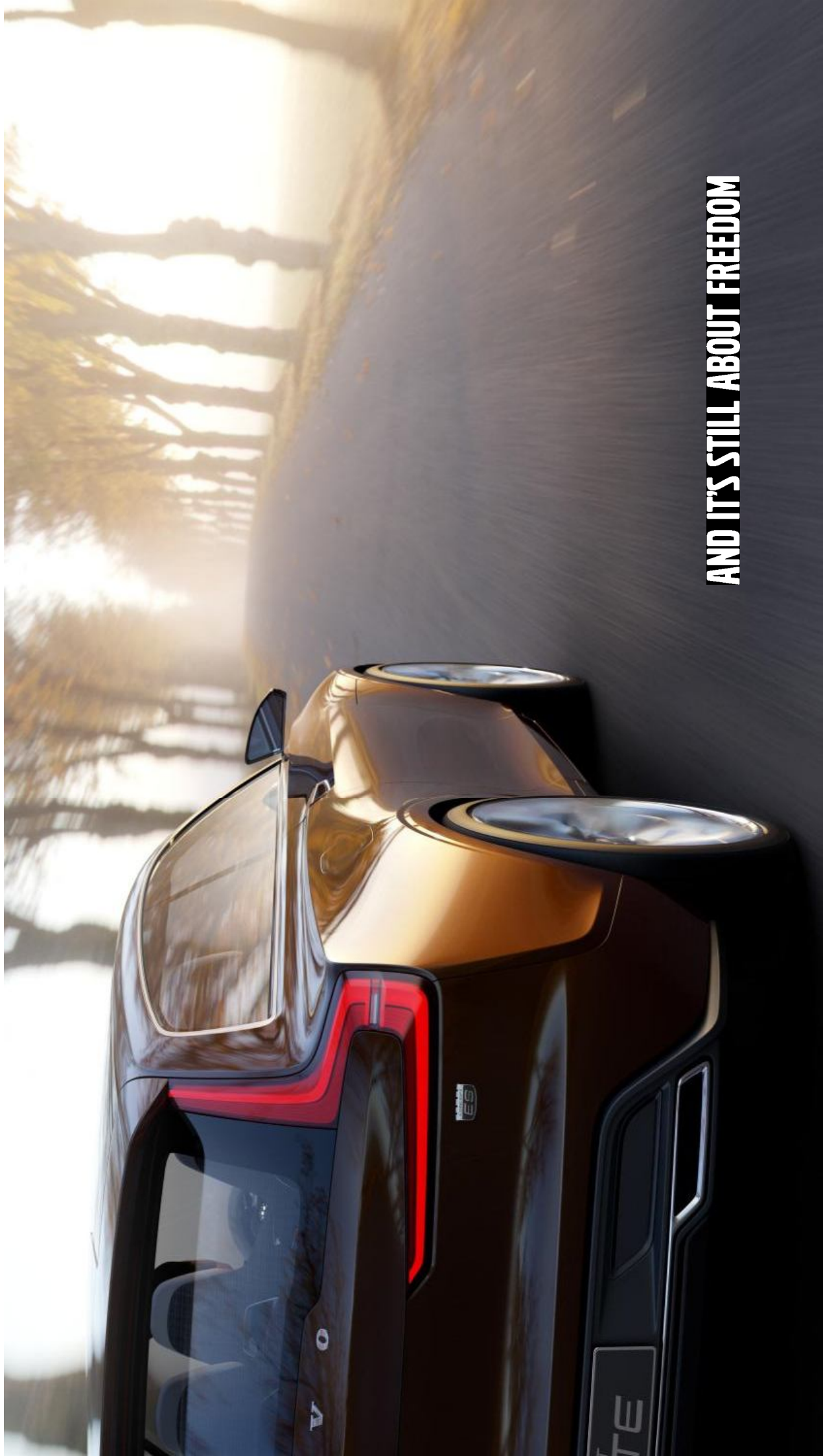
Drive Me
SELF-DRIVING CARS FOR
SUSTAINABLE MOBILITY



JONAS EKMARK
VOLVO CAR GROUP

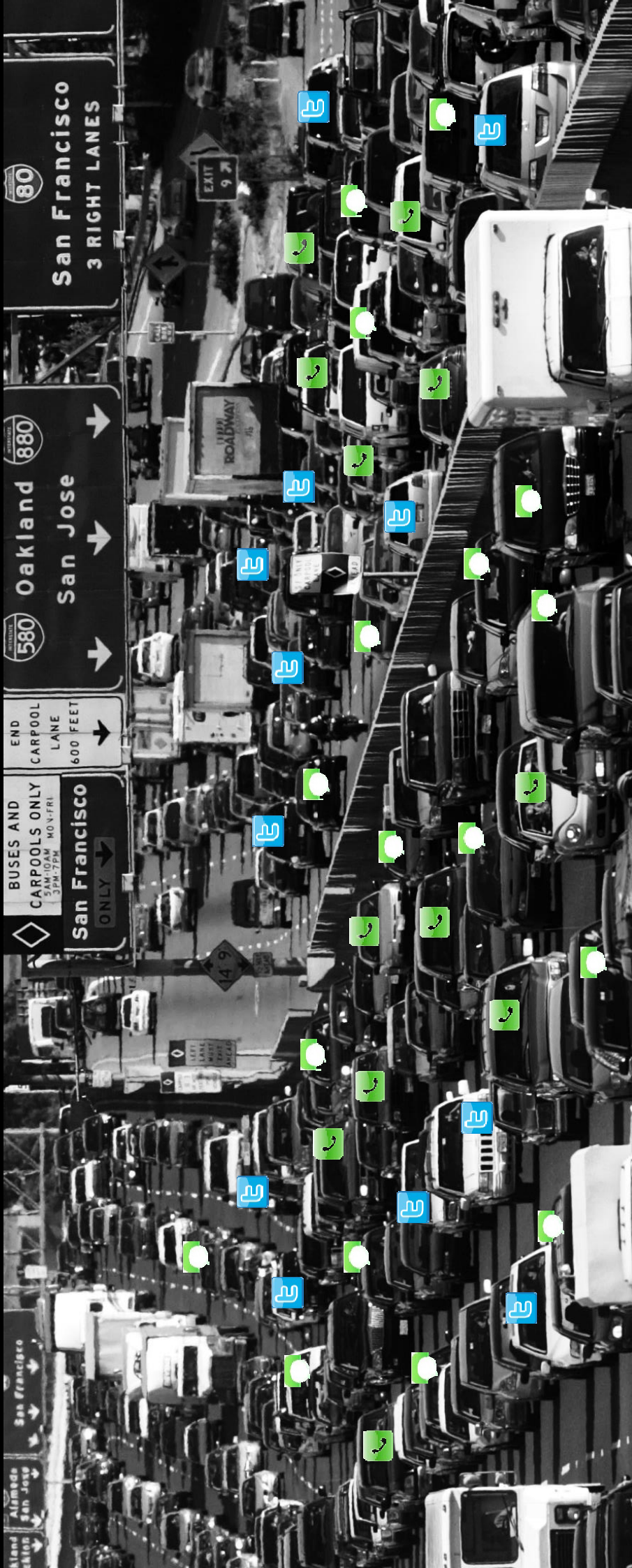
IT WAS ALWAYS ABOUT FREEDOM





AND IT'S STILL ABOUT FREEDOM

TODAY'S REALITY





“ Cars are driven by people.
The guiding principle behind everything we make at Volvo,
therefore, is and must remain, safety”

OUR STRATEGY

Leadership within Autonomous

Driving by pioneering customer offers





Drive Me

SELF-DRIVING CARS FOR
SUSTAINABLE MOBILITY



THE DRIVE ME PROJECT WILL GIVE US KNOWLEDGE ABOUT:

- How to improving traffic efficiency, traffic environment and road safety
- Infrastructure aspects
- Suitable traffic situations
- Customer expectations on autonomous vehicles
- How surrounding road users interact with a self-driving car
- Legal aspects



V O L V O



NOW



V O L V O

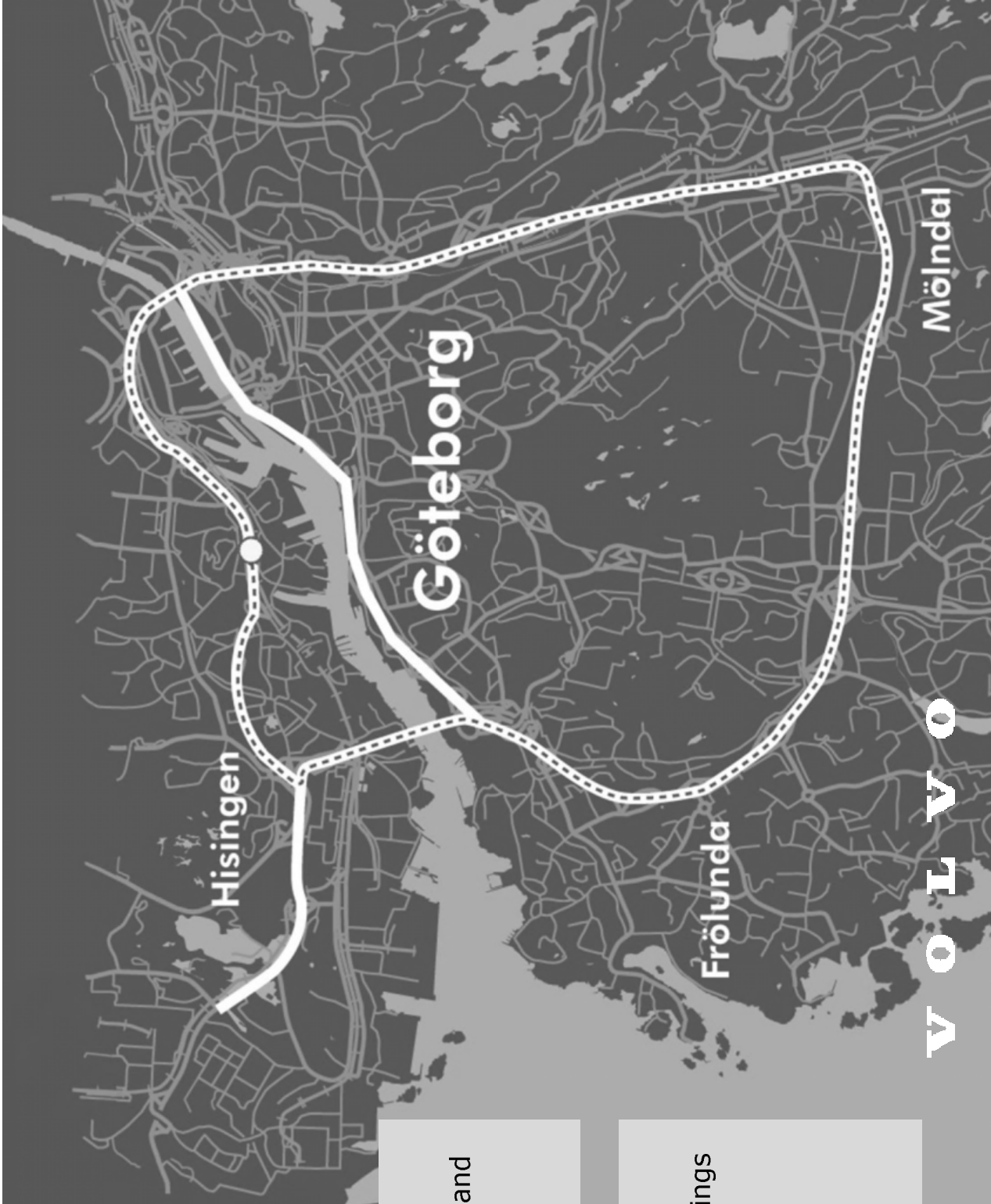
A LIMITED SCOPE

Functionality:

- Highly-automated driving on demand
- Certified roads only
- Weather limitations





Road architecture characterized by:





- No oncoming traffic or level crossings
- Pedestrian and bicycle traffic not allowed
- No traffic lights
- Max 70 km/h








LEVELS OF AUTOMATION



SAE Level 2 – Partial Automation (Supervised)	Impact
<ul style="list-style-type: none"> • The driver supervises continuously and intervenes whenever necessary. • The driver is always responsible. • The driver needs to understand his/her role, e.g. by hands-on detection. 	<ul style="list-style-type: none"> • Driver role  • Technology  • Legal  • Liability 

SAE Level 3 – Conditional Automation	Impact
<ul style="list-style-type: none"> • The driver does not supervise continuously but intervenes whenever necessary. Reasonable? • Unclear technology requirements. Is redundancy needed? • Unclear responsibility in case of accident when driver does not intervene. 	<ul style="list-style-type: none"> • Driver role  • Technology  • Legal  • Liability 

SAE Level 4/5 – High/Full Automation (Unsupervised)	Impact
<ul style="list-style-type: none"> • The driver does not supervise continuously and does not need to intervene. • Redundant and costly technology is under development. • Legal framework is under development. 	<ul style="list-style-type: none"> • Driver role  • Technology  • Legal   • Liability 

THE CHALLENGE



Ambition: Driver out of the loop
(no engineer supervising as in most concept vehicles)



AD vehicles must be able to handle *all* situations
(and *prove* that it can!)

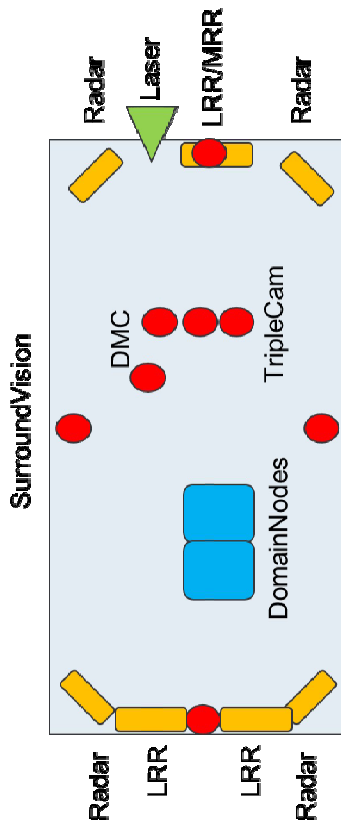
This puts unique requirements on the vehicle,
its sensor, actuators and electrical architecture.

IMPACTS ON ARCHITECTURE



HAD Vehicles require:

- Redundant sensing
- Redundant high-end control units
- Redundant brake system
- Redundant steering
- Redundant signaling paths
- Clustered power distribution
- Safety critical HMI



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VOLVO VISION 2020



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