



DriveMe

—

Future
Mobility



Anders Eugensson
Volvo Cars

Global Megatrends

A long-exposure photograph of a city street at night. The foreground shows a multi-lane road with light trails from cars, primarily in shades of yellow and white, indicating movement. In the background, several tall skyscrapers are illuminated with various lights, creating a vibrant urban scene. The overall atmosphere is one of a busy, modern metropolis.

Continued urbanisation

Growing number of megacities

Air quality major health issue

Traffic casualties huge global health problem

Congestions – economic and personal losses

Desire for constant connectivity

Desire for individual mobility

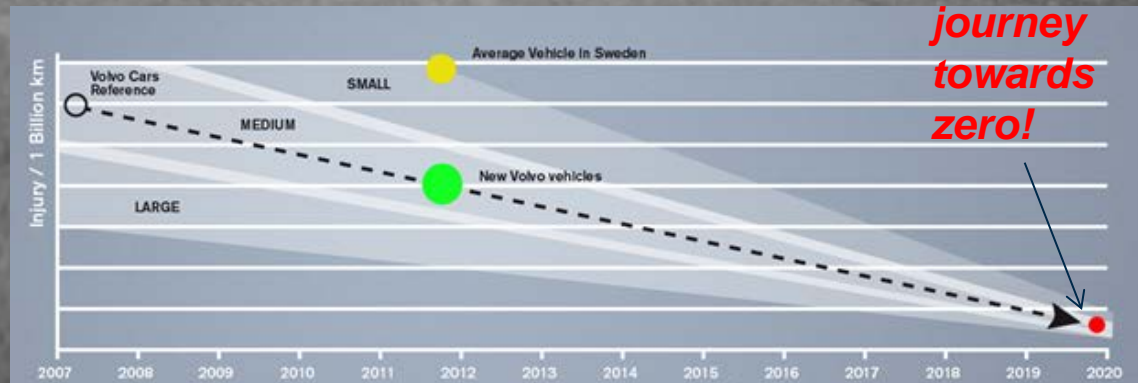
Transition to sustainable fuels/energy

Volvo Vision 2020

By 2020 no-one should be killed or seriously injured in a new Volvo

Our long-term vision is to design cars that should not crash.

Active safety systems needed for the journey towards zero!



Volvo Safety Strategy



State of the driver and traffic environment

Vehicle conflict situation

If possible push back into normal driving mode! Otherwise mitigate.

Driver unable to avoid crash
Car still able to avoid crash

Driver and car unable to avoid
Reduce severity
Prepare to crash

Crash protection



Normal driving

Deviation from normal

Emerging situation

Critical situation

Crash unavoidable

Crash

Time

∞

2-3s

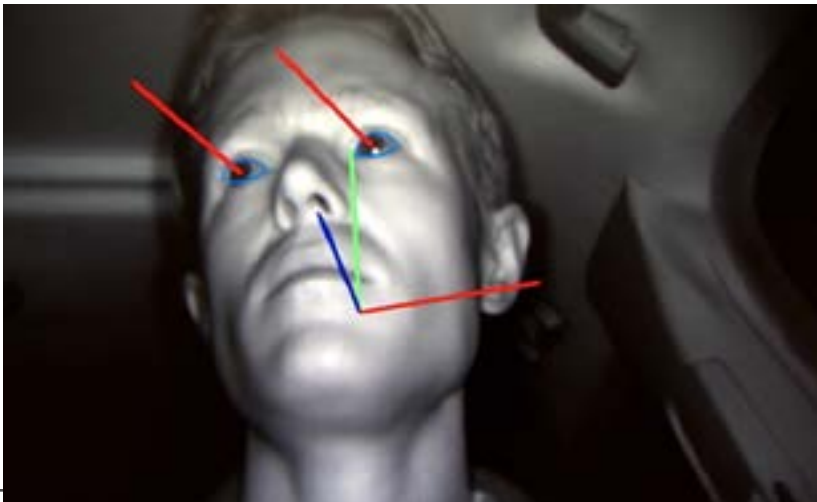
1s

0



Focus on the Driver – not the Technology

- Human error involved in 90-95% of all crashes.
- Monitoring driver attention & assessing driver capabilities the base for active safety technologies.
- Aim is to optimize warning and activation levels for each individual and each situation.
- Technologies ***'Designed Around You'***.



Active Safety Technologies in Production




R. G. G.

Information and Driver Support



Traffic Sign information



Adaptive Cruise Control



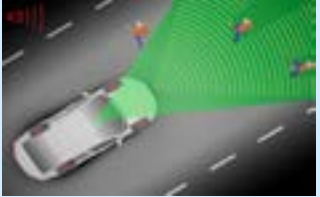
Blind spot detection



Warnings and Automatic Activations



LDW and LKA



Automatic braking for pedestrians



Automatic rear-end braking



Automatic low speed braking

Driver State Measurements



Drowsiness and distraction



Alcohol interlocks

Near Term Active Safety Technologies



Automatic braking for more objects



Automatic braking in darkness



V2V and V2I communication



Road edge and barrier steer assist



Distance and steering assist

The 360° Car

(with some help from above)



Auto Brake Technology – Cyclists & Pedestrians



Brief of
CATARC's
Strategic
Partnership



Possibilities from Technical Developments



Until 10 years ago – self-driving cars something for the long term future.

The development of active safety systems have created cars that can:

- Sense the surroundings and brake automatically
- Communicate and transfer useful traffic information
- Adapt the speed
- Keep a distance
- Follow a lane
- Can measure the state of the driver



Autonomous Driving Brings New Opportunities



Autonomous driving creates opportunities on:

- Safety
- Fuel economy
- Traffic flow
- Improved mobility
- Infrastructure
- Comfort
- Urban planning

New Generations – New Challenges



- Young people grow up used to being constantly connected.

- Mobility in the future will require connectivity.

➔ Self-driving cars: combine mobility and connectivity.





Self-Driving Cars for Sustainable Mobility – DriveMe Project

- The worlds first large scale project for self-driving cars
- Project starts 2014
- Self-driving cars on public roads in 2017
- 100 customer cars
- 50 km highway/ max speed 70 kmh
- Automatic parking in 2015



TRAFIKVERKET



TRANSPORT
STYRELSEN



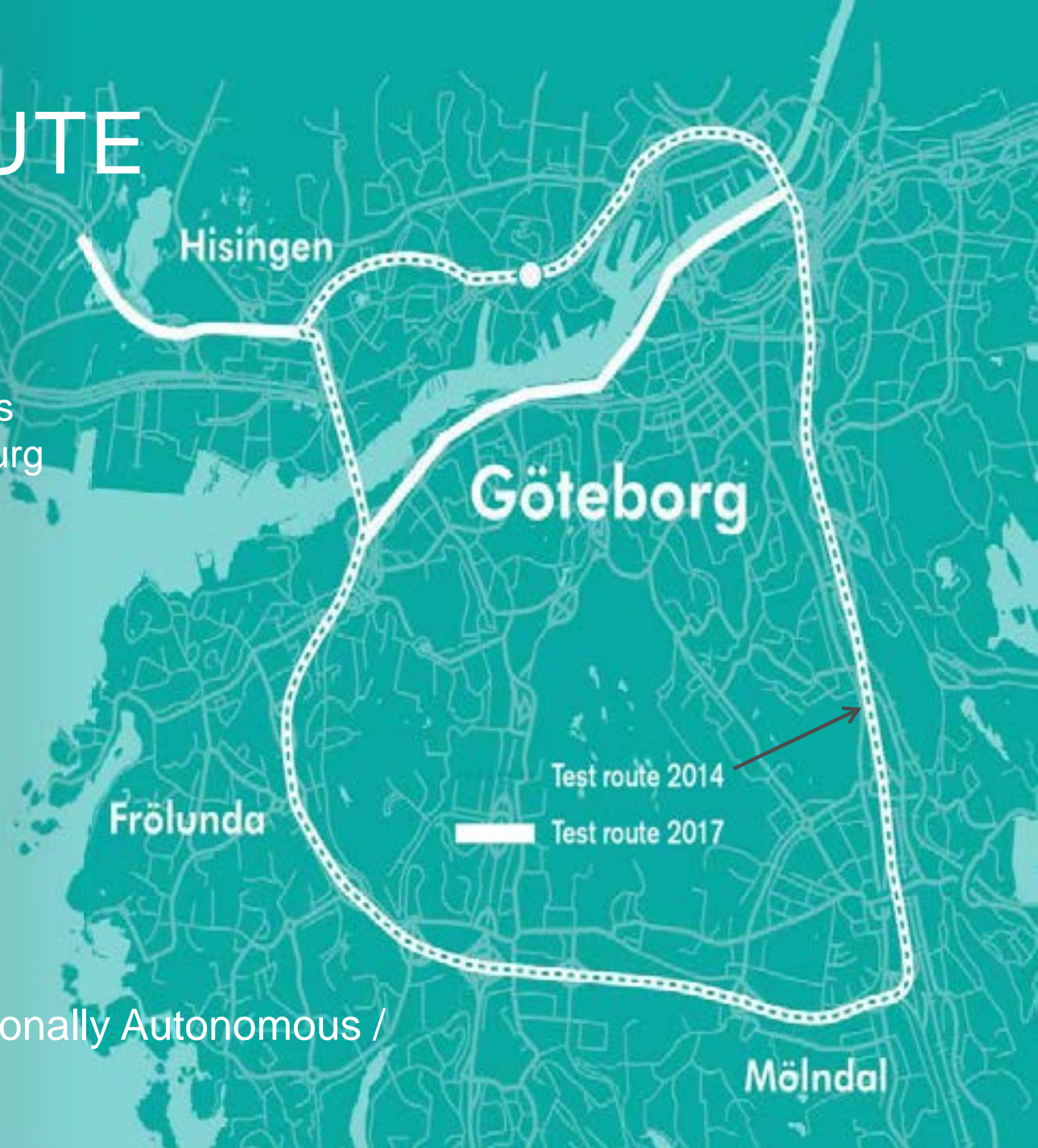
LINDHOLMEN
SCIENCE PARK



TEST ROUTE

- Typical commuter routes in and around Gothenburg
- Several lanes
- Frequent queues
- 4 tunnels
- Few intersections

NHTSA Level 3: Conditionally Autonomous /
Highly Autonomous



The Technology

- Camera
- Radar
- Laser
- Map data
- Cloud connection
- Traffic Control Centre





The Target – To Free Up Time for Drivers While in the Car



Self-driving cars: Offering time, connectivity and a safe ride!



Focus Areas

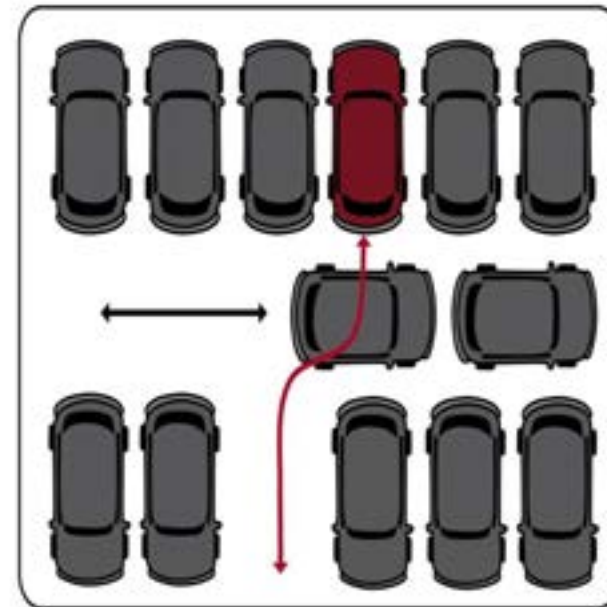
- Societal and economical benefits: improving traffic efficiency, traffic environment and road safety
- Infrastructure aspects
- Suitable traffic situations
- Customer expectations on autonomous vehicles
- How surrounding road users interact with a self-driving car
- Legal and liability aspects



Autonomous Parking



- Space-efficient
- Possibility to use less attractive areas
- Offers convenience
- Safe
- Cost-efficient for society
- Offers possibilities for urban planning

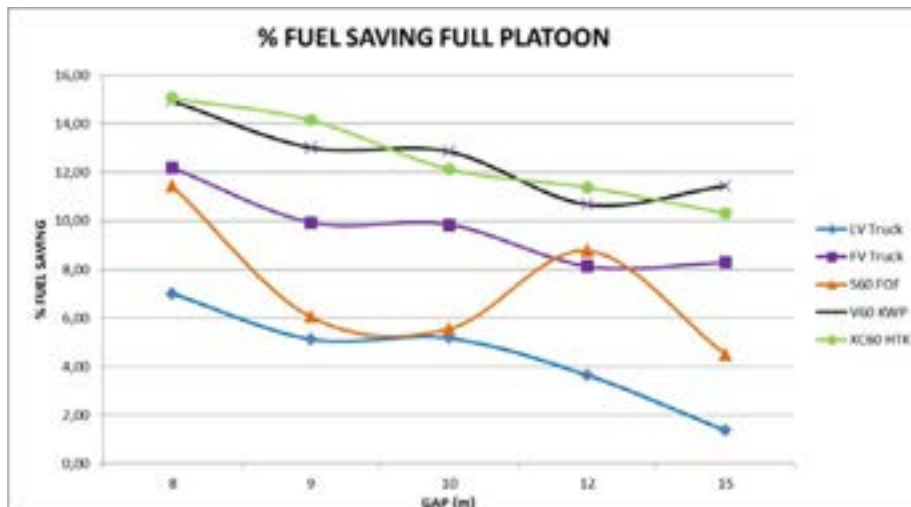


Road Trains/ Platooning



Brief of
CATARC's
Strategic
Partnership

- **SARTRE** = Safe Road TRains for the Environment
 - Pan European road train project.
 - Based on existing technologies.
 - Showed significant reduction in fuel consumption (for 18 feet gap):
 - 5% for lead vehicle
 - 14% for following vehicles
 - Add on cost/ car 2000 Euro.
 - Presented realistic business models





Autonomous Cars for Future Mobility

- Self-driving cars offer many opportunities.
 - Will offer a significant shift in individual mobility.
 - May have consequences for the insurance industry.
 - May significantly change car ownerships -> large consequences for motor vehicle manufacturers.
 - Co-operation between governments and industry will be essential.
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A woman with blonde hair tied back, wearing a black leather jacket and a colorful scarf, is sitting in the driver's seat of a car. She is looking down at a tablet computer she is holding in her hands. The car's interior, including the steering wheel and dashboard, is visible. The background outside the car is blurred, suggesting motion.

*The best way to
predict the future is
to shape it!*

Thank you!