



Presentation regarding ADAS “over reliance”, technology limitations and user information

UNECE/GRVA/TF-ADAS

Preliminary web-meeting 19.01.2020

By Norway/S-H. Mundal

Many terms:

Comfort ADAS – Emergency ADAS - Modern ADAS – Hands off ADAS
Supervised Automation – Full Self Driving Capability -Traffic Jam Assistant

Driver in the loop - Relieve of driver task – Automation Level 2

Driver is responsible

HOW CAN THE DRIVER UNDERSTAND WHAT TO DO?



Distraction factors are increasing – fancy animations – touch screen
- missing handles – eyes are attracted to big screens



50-inch (1.25 meters) Screen



GEAR SHIFT HANDLE

Distraction factors – different function activation (not regulated)

WIPER UP



WIPER DOWN



ACC



Distraction factors – different warning signals, too much or absence of warning signal - a challenge for the driver to understand the meaning.



LDWS warn continuously - must be switched off in menu



ACC inactive - CC still active – no warning

Anti Collision System OFF



Distraction factors – different warning signals, too much or absence of warning signal



Normal winter conditions .
ADAS fail and generate warning signals
when the driver need them most



Warning of blocked camera. Message must be read
and then push OK, after an audio warning.

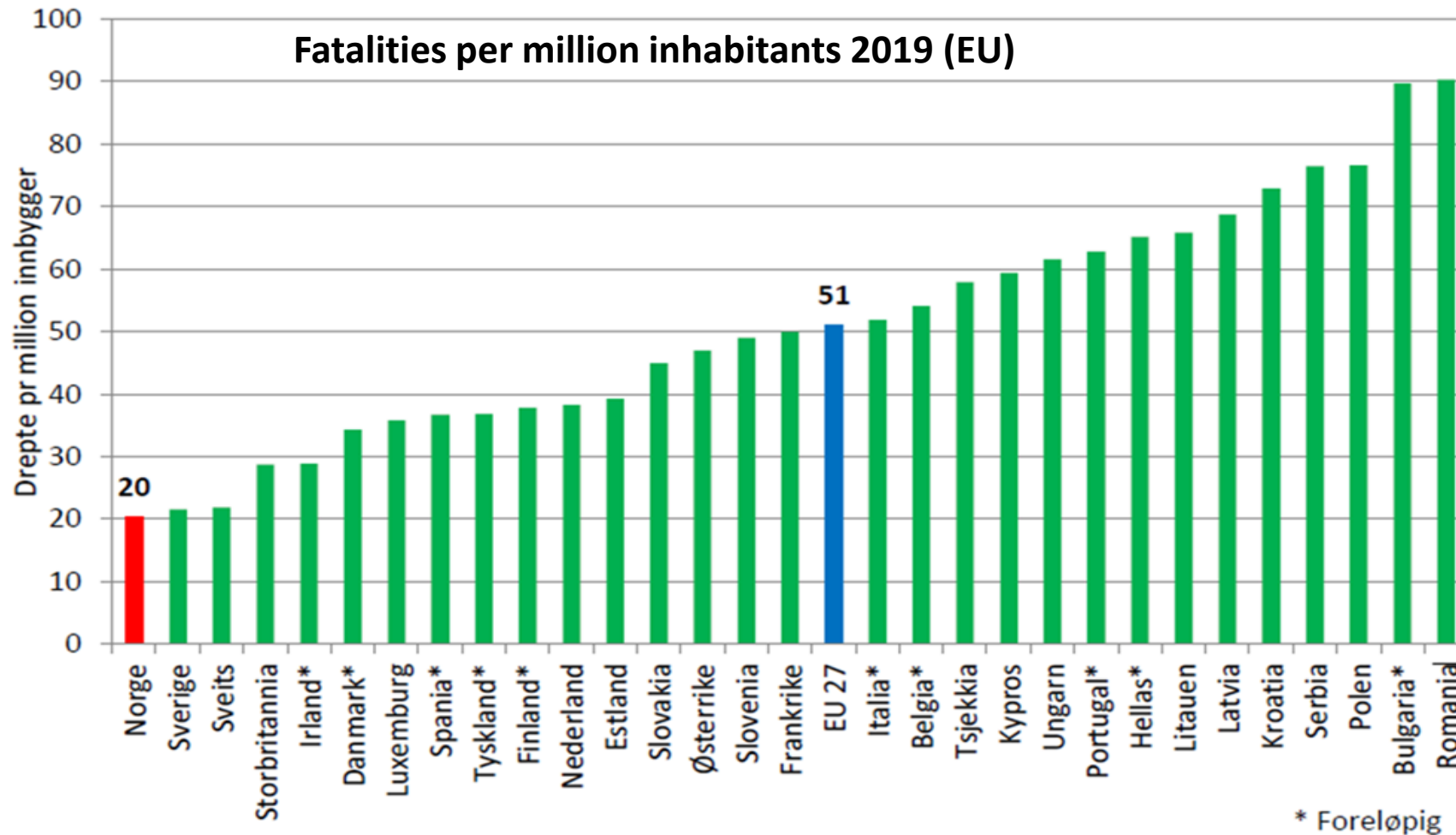
Comfort Assistant systems - Added distraction risk

In Norway the road authorities make continuously safety campaigns, in order to keep the driver's focus on the dynamic driving tasks (driver in the loop) and not being distracted (driver out of the loop).

The “comfort” ADAS (hands-off, RCP..) pull in the opposite direction, distracting the driver and reducing his mental and practical skills to operate the vehicle – especially in an emergency situation.

We strongly recommend that the TF-ADAS Group focus on Emergency ADAS.

Our strategy securing an informed, focused and active driver gives results



Figur 2.15 Antall drepte i vegtrafikken per million innbyggere i 2019 i Norge sammenliknet med øvrige europeiske land (statistikk fra European Transport Safety Council – ETSC)

CAR SALE IN THE 80s

Sales strategies – personal hand over



CONGRATULATIONS!
YOU ARE THE OWNER OF THE
SAFEST CAR IN THE WORLD!
EVEN MORE COMFORTABLE TO CRASH
THAN TO DRIVE.

USER MANUAL 30 PAGES
POSSIBLE TO ACTIVATE FUNCTIONS AND
OBSERVE TRAFFIC



LIMITED NUMBER OF WARNING SIGNALS

CAR SALE MODERN TIME



Statens vegvesen
Norwegian Public Roads
Administration

Sales strategies - on line

← → ↻ 🏠 🔒 https://www.tesla.com/model3/design?redirect=no#battery ☆ ☆ 🗑️ 👤

T E S L A 1. Car 2. Exterior 3. Interior 4. Autopilot 5. Payment

📘 \$1,500 Clean Fuel Reward is now available for California residents.

263mi Range (est.) 140mph Top Speed 5.3s 0-60 mph

Select Your Car

Purchase Price Include potential savings*

All cars have a power trunk, glass roof, and Autopilot.

Rear-Wheel Drive

Partial Premium Interior

Standard Range Plus \$30,190*

Dual Motor All-Wheel Drive

Premium Interior

Long Range \$39,190*

CASH ▾ \$30,190 After potential savings \$36,490 Purchase price Estimate Payment Estimated Delivery: 1-2 weeks NEXT

USER MANUAL: 200-300 PAGES



**CONGRATULATIONS!
YOU ARE THE OWNER OF THE MOST
ADVANCED SELF-DRIVING CAR IN THE
WORLD!
BASED ON AI TECHNOLOGI THE DRIVING
SKILLS WILL IMPROVE WITH USAGE.
OR WHEN THE REGULATIONS ALLOW IT**



Full Self-Driving Capability

- Navigate on Autopilot: automatic driving from highway on-ramp to off-ramp including interchanges and overtaking slower cars.
- Auto Lane Change: automatic lane changes while driving on the highway.
- Autopark: both parallel and perpendicular spaces.
- Summon: your parked car will come find you anywhere in a parking lot. Really.
- Traffic Light and Stop Sign Control: assisted stops at traffic controlled intersections.

- Autosteer on city streets.

Select Option \$10,000

Includes the Full Self Driving Computer





Full Self-Driving Capability is available for purchase post-delivery, prices are likely to increase over time with new feature releases

The currently enabled features require active driver supervision and do not make the vehicle autonomous. The activation and use of these features are dependent on achieving reliability far in excess of human drivers as demonstrated by billions of miles of experience, as well as regulatory approval, which may take longer in some jurisdictions. As these self-driving features evolve, your car will be continuously upgraded through over-the-air software updates.

WARNINGS

https://www.tesla.com/sites/default/files/model_3_owners_manual_europe_en.pdf

NOTE: Touch **Controls > Autopilot > Full Self-Driving Visualization Preview** (if equipped) to display more details about the roadway and its surroundings, such as road markings, stop lights, objects (such as trash cans and poles), etc.

-  **CAUTION:** Ensure all cameras and sensors are clean. Unclean cameras and sensors, as well as environmental conditions such as rain and faded lane markings, can affect Autopilot performance.
-  **WARNING:** Autosteer is a hands-on feature. You must keep your hands on the steering wheel at all times.
-  **WARNING:** Autosteer is intended for use only on highways and limited-access roads with a fully attentive driver. When using Autosteer, hold the steering wheel and be mindful of road conditions and surrounding traffic. Do not use Autosteer on city streets, in construction zones, or in areas where bicyclists or pedestrians may be present. Never depend on Autosteer to determine an appropriate driving path. Always be prepared to take immediate action. Failure to follow these instructions could cause damage, serious injury or death.
-  **WARNING:** Many unforeseen circumstances can impair the operation of Autosteer. Always keep this in mind and remember that as a result, Autosteer may not assist in steering Model 3 appropriately. Always drive attentively and be prepared to take immediate action.

Limitations

Autosteer and its associated functions are particularly unlikely to operate as intended when:

- Autosteer is unable to accurately determine lane markings. For example, lane markings are excessively worn, have visible previous markings, have been adjusted due to road construction, are changing quickly (lanes branching off, crossing over, or merging), objects or landscape features are casting strong shadows on the lane markings, or the road surface contains pavement seams or other high-contrast lines.
- Visibility is poor (heavy rain, snow, fog, etc.) or weather conditions are interfering with sensor operation.
- A camera(s) or sensor(s) is obstructed, covered, or damaged.
- Driving on hills.
- Approaching a toll booth.
- Driving on a road that has sharp curves or is excessively rough.
- Bright light (such as direct sunlight) is interfering with the view of the camera(s).
- The sensors are affected by other electrical equipment or devices that generate ultrasonic waves.
- A vehicle is detected in your blind spot when you engage the turn signal.
- Model 3 is being driven very close to a vehicle in front of it, which is blocking the view of the camera(s).



Accidents in Norway 2020 related to use of “Autopilot/Autosteer”

One fatality. Inattentive driver impacted a truck driver at road side outside the Truck checking goods-attachment. Driver was convicted for murder.
(Representing more than 1 % of the fatalities in Norway 2020)

Several vehicle crashes into road work energy abortion safety devices.
Material damage, shortened pay-back (reduced replacement) to vehicle owner from the insurance companies due to inattentive driver.



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SHOULD BE AVOIDED WITH PROPER WORKING EERGENCY ADAS



Open Questions:

Do the manufacturer feel that their customer is well taken care of with regard to safety information?

Can we expect the user to read the huge amount of user information for different cars?

It is sufficient to read about it?

How can the driver be better informed about system function and limitation?

Who should be responsible for informing the user?

Aviation transport - No accidents acceptance



- Several years of education
- Two pilots (redundant driver)
- Two set control systems
- Several check lists every start-up
- Out-check on each aircraft
- Regularly emergency training

- Guidance from the tower (Infrastructures)
- Dedicated path
- Free way – no obstacles or other road users



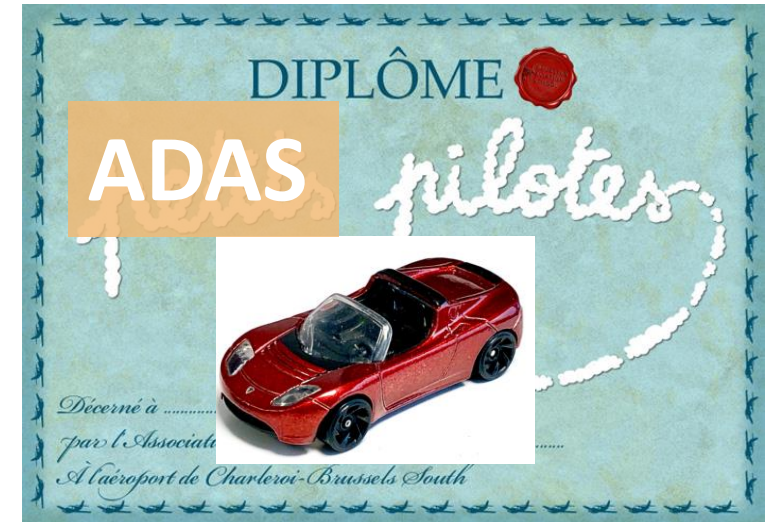
Road transport - Accidents acceptance

PROPOSAL: SYSTEM SPECIFIC EDUCATION

Certified ADAS pilot

Practical training

Web-based learning





**To reduce the “over reliance”
Educate**

THE CERTIFIED ADAS PILOT

**Prior to introduction of new “comfort” ADAS
confusing the driver**