



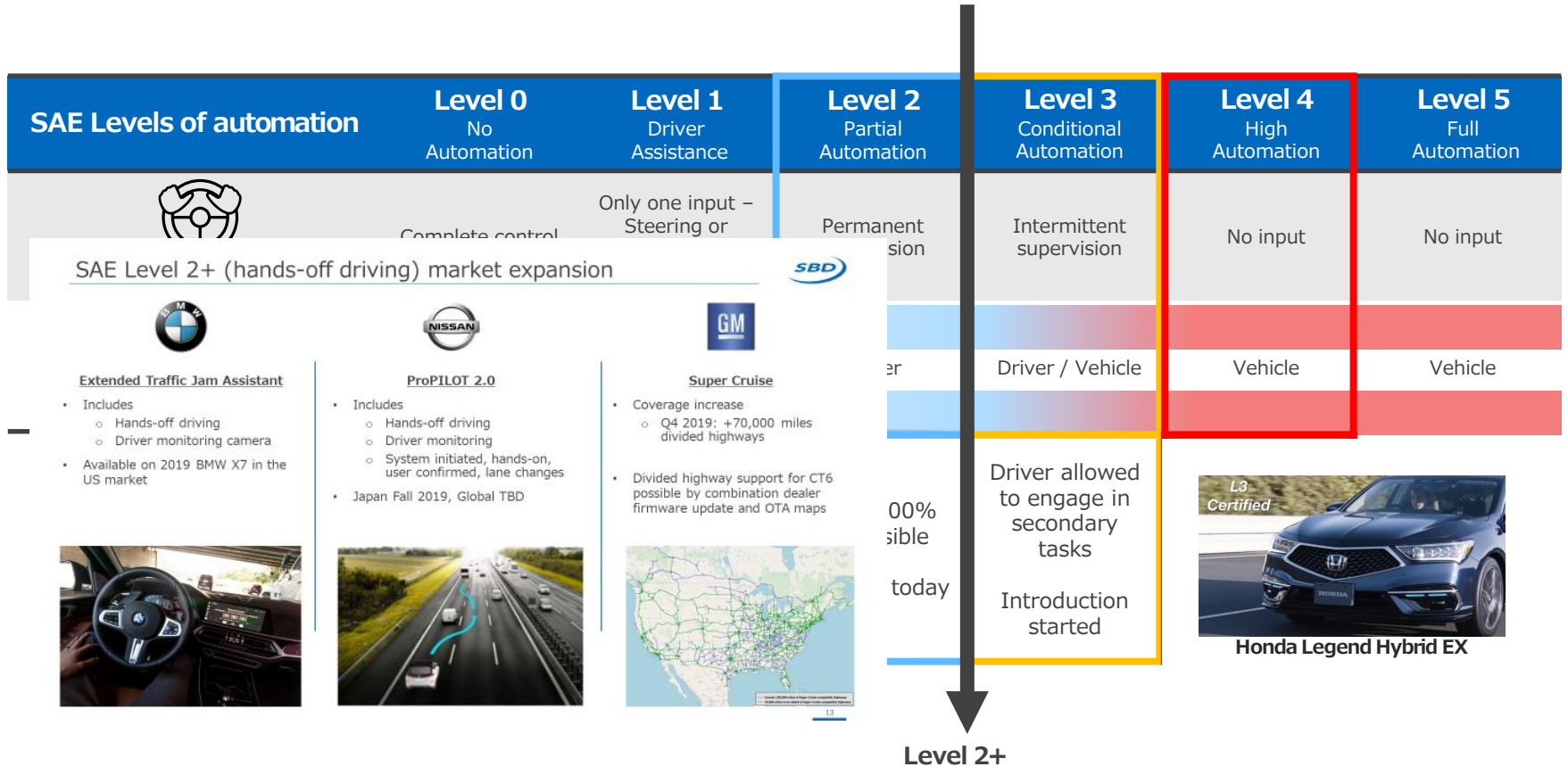
Autonomous Vehicles: are we there yet?

Presented by Dr Alain Dunoyer,
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April 2021



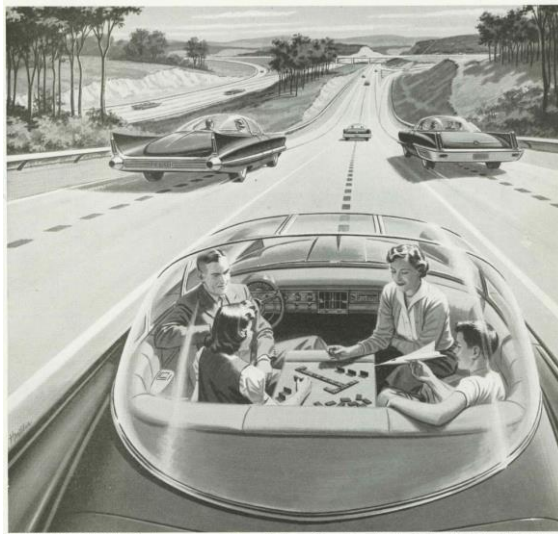
Where are we today?



Level 2+

*Society of Automotive Engineers

Why is it taking so long?



ELECTRICITY MAY BE THE DRIVER. One day your car may speed along an electric super-highway, its speed and steering automatically controlled by electronic devices embedded in the road. Travel will be more enjoyable. Highways will be made safe—by electricity! No traffic jams...no collisions...no driver fatigue.

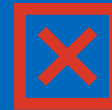
Driverless Car of the Future, advertisement for "America's Electric Light and Power Companies," Saturday Evening Post, 1950s.

Human beings are
actually quite good at
driving!

There were 1,770 road
deaths in the year ending
June 2018 in the UK

=

**1 fatality every 556 million
driven miles**



Robot vehicles will need to
be 2 orders of magnitude
better to be **socially
acceptable**

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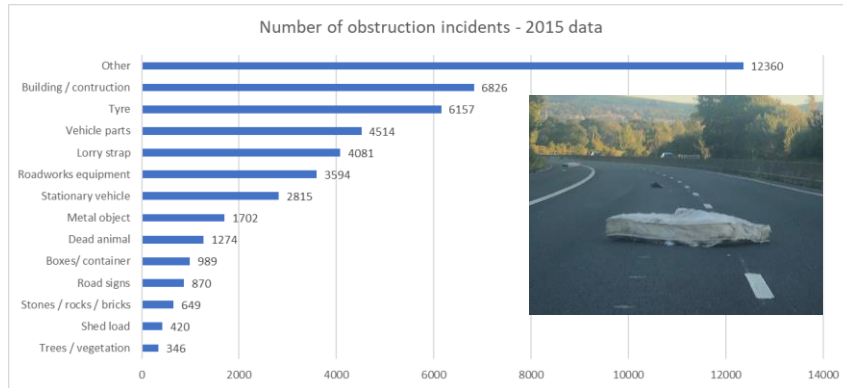
Aviation performance

Reason # 2

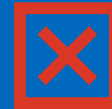
Artificial intelligence does not extrapolate, yet!

In the UK, in 2015 Highways England attended 46 957 obstruction incidents

When driving we can correctly react to objects that do not belong to the road, based on our life experience and extrapolate the best course of action



Source: Highways England

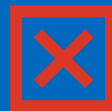


AI is only in its infancy

We cannot predict road friction!



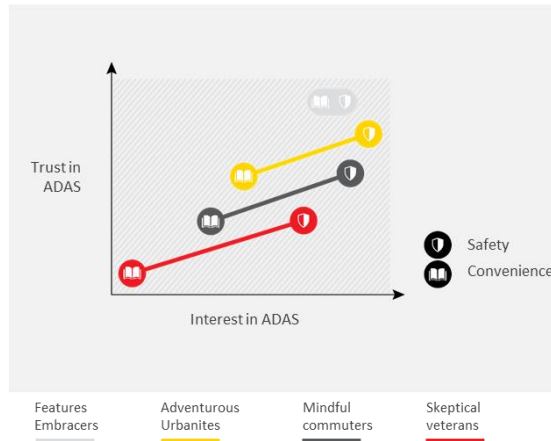
Predicting braking performance ahead of the vehicle is required to achieve the highest levels of safety



There is no sensing technology able to reliably predict road friction

Are consumers ready?

Greater trust and interest in systems providing safety



Much of the industry's focus is currently on the **longer-term opportunity** for convenience-based autonomous driving

This needs to be balanced against the current preference for safety

OEMs need to deliver **better HMI to increase trust**

Safety benefits of
autonomy will plateau
unless priorities are
changed

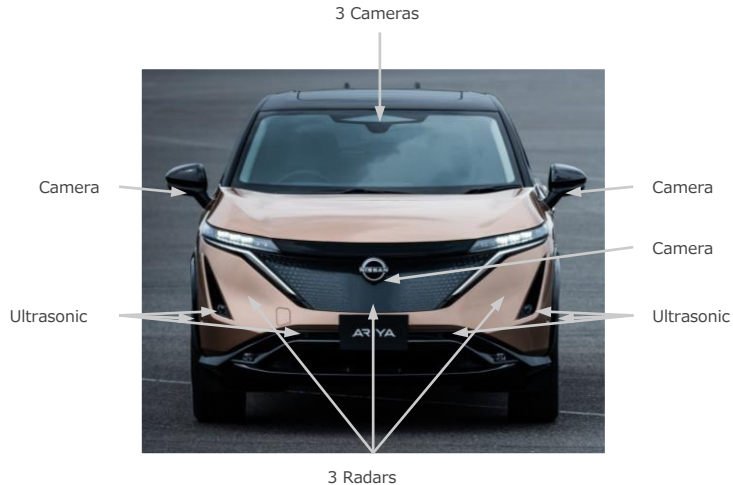


SBD believe that by 2030,
ADAS will reduce accidents
occurrences by
19% to 24%

and will **plateau at 30%**

ADAS today offers very
little protection against
low-speed impact (e.g. car
park fender bender)

More and more sensors are required but...



Total sensor count

- 7 cameras
- 5 radars
- 12 ultrasonic sensors.

Increasing repair costs due to added complexity, calibration time and sensor costs.

The cost of replacing some parts has increased by more than **120%** (Thatcham)

Autonomy roadmap



- Volume vehicle automation (SAE L4) for passenger vehicles is **decades away**
- It has already started with very low volume and geofenced robotaxi services
- Their success (or not) will be **key** to a larger deployment to passenger vehicles under very restricted conditions
- ADAS is very effective at reducing collision speed **but** only for a subset of accident types
- More advancements are required to reduce road fatalities & injuries further. Vehicle automation is **not** the answer
- **Education and better** HMI are key for correct usage of ADAS and establishing trust



THANK YOU

QUESTIONS?



SBD AUTOMOTIVE

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