



United Nations Economic Commission for Europe

Transport Division

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**WP.29 ITS informal group
23rd session**

**Autonomous vehicles
and
WP.29**

Francois Guichard



Automated driving

- Indicators showing fast moves toward automated driving:
 - Statements at ITC (April 2014): "Google Car is ready in 5 years"
 - OEMs and Suppliers are progressing fast (e.g. Platooning presented at GRRF)
 - UNECE/ITU Symposium on future connected cars
- WP.1: update of the Vienna convention:
 - Established rule: "Every driver shall at all times be able to control his vehicle or to guide his animals"
 - Future amendment: Systems in conformity with *vehicle regulations* are deemed in conformity with the sentence above.
- World Forum for the harmonization of *vehicle regulations*:
 - Forbids e.g. the installation of self steering systems
 - Regulates Advance Driver Assistant Systems



Opportunities / risks

Opportunities:

- Safety benefits
- Environmental benefits
- Traffic improvement

Risks:

- Product liability
- Unbalanced interaction Driver / OEM / Insurance in case of accident
- Infrastructure modification needed?
- Market demands / variants / interoperability

First statements:

- Google will insure their vehicle and take over the responsibility in case of accidents
- Volvo announced made a similar statement

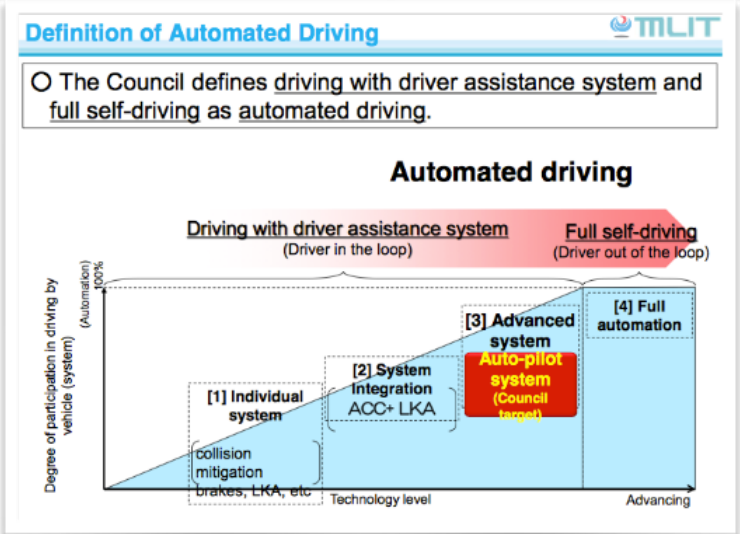
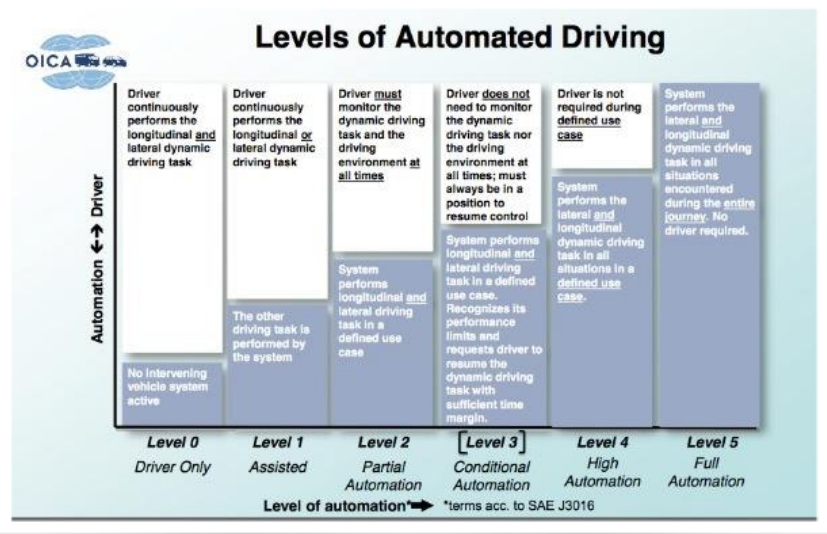
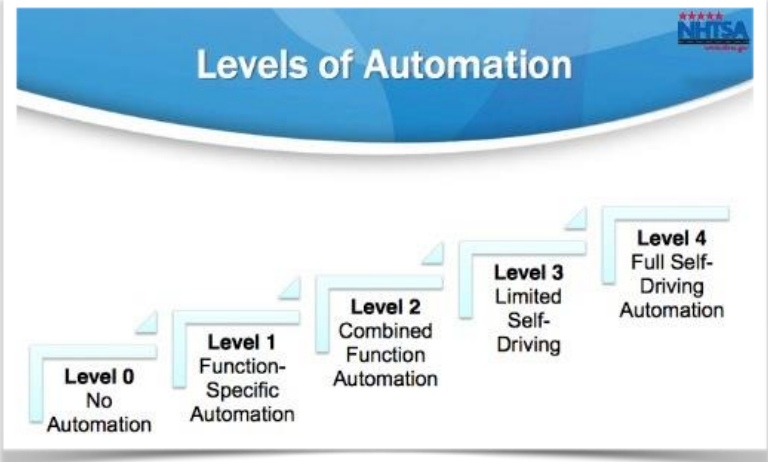




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Technology classification

Discussions ongoing concerning:
Definitions
Automation scenarios
...



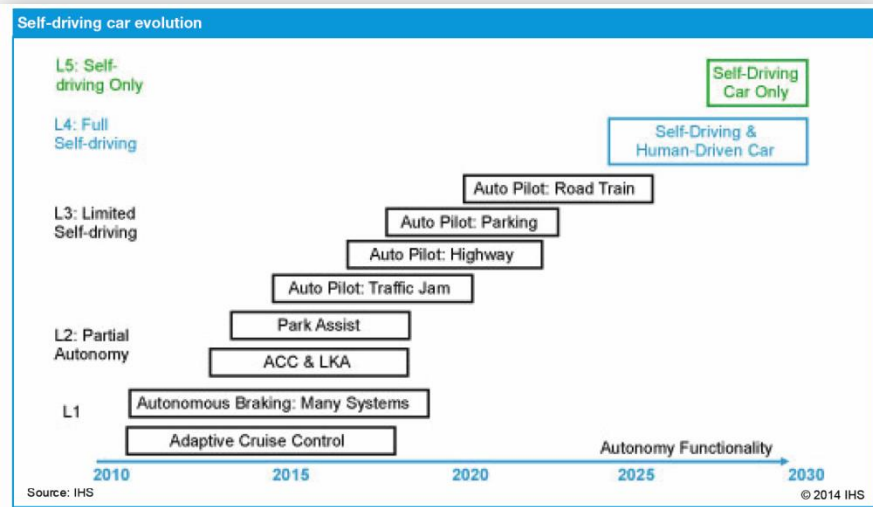


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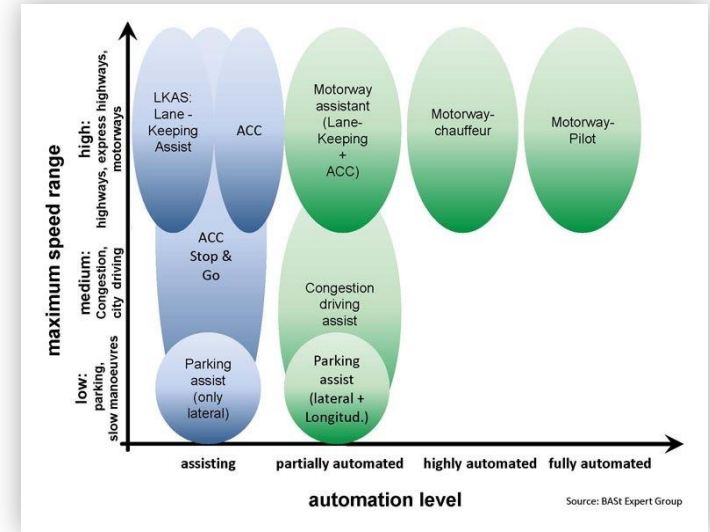
Some projections of self driving evolutions

Examples:

BASt >



< IHS



Google Car >



Self-driving car, in 5 years



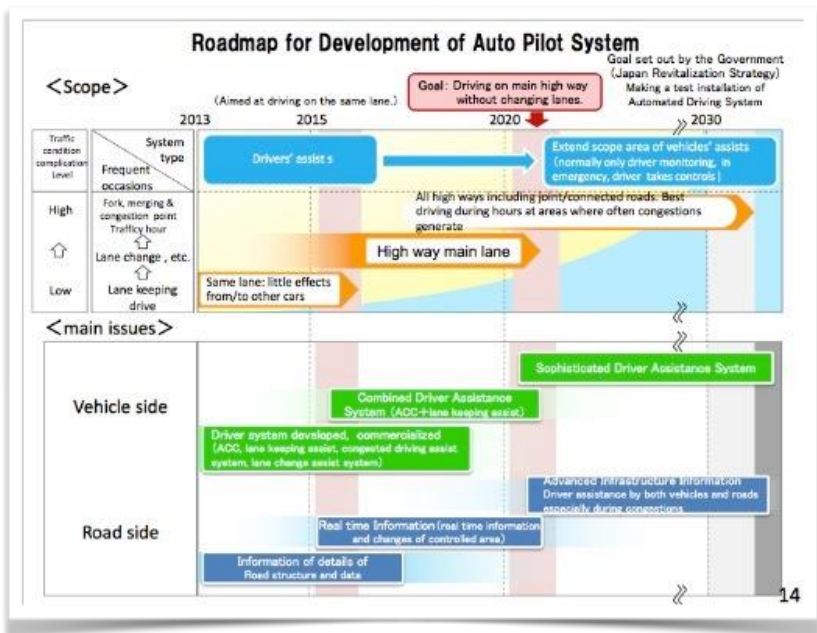


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National or private initiatives

Examples:

In the USA >



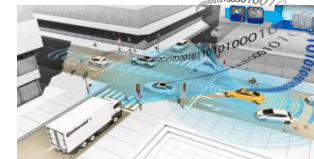
< In Japan



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Challenges

| Regulatory challenges | Other challenges |
|--|---|
| <ul style="list-style-type: none"> • Adapt existing vehicle construction regulations (WP.29) <ul style="list-style-type: none"> • Update existing Regulations (Steering etc.) • Define proper HMI concept (info/instructions) • Identify side effects and address them • Design safe fail-modes • Address interoperability issues • Maintain manual driving skills & excitement • Integrate new technologies - standardization work (e.g. ITU) • Don't neglect traditional vehicle safety issues | <ul style="list-style-type: none"> • Adapt traffic rules (e.g. safety distances) • Adapt infrastructure? • Revise responsibility / product liability concepts <ul style="list-style-type: none"> • Define expectations of the product / its Manufacturer • Adapt the role of the insurance companies • Implement customer protection updates • Define balanced relationship between «driver (owner)» / «Manufacturer» / «insurance» |



How to work on these items?

WP.29 has the clear mandate on vehicle regulations:

Within the framework of the 1998 Agreement

Within the framework of the 1958 Agreement

Difficulties to make decisions on automations:

No regulation on Adaptive Cruise Control – so called **comfort systems**

AEBS – the only regulation addressing controlled longitudinal vehicle behaviors

LKAS discussion

Some parties see the need to address more than the vehicle regulations

Where to discuss the following items:

Insurance issue?

Product liability?

Etc.

The ITS informal group could present a reflection and guidelines useful for Countries making up their minds about autonomous vehicles

