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SPANISH APPROACH ON AUTONOMOUS DRIVING



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DGT overview





DGT

- Directorate General for Traffic (DGT)
- Direct responsibility for:
 - Promote legislation in Spain in terms of traffic, vehicles, drivers and mobility.
 - Traffic management and enforcement (non urban roads).
 - National access point for traffic and road safety information.
 - Driving licensing.
 - Vehicle registration.
 - Coordination of research on road safety.
 - National registers of drivers, vehicles, and accidents.





Context





SPANISH CONTEXT





SPANISH CONTEXT





EUROPEAN CONTEXT





EU CONTEXT – ROAD DEATHS PER MILLION INHABITANTS

Tasas de Mortalidad por 1.000.000 de habitantes. UE 2010- 2014.



Datos de 2012



GLOBAL CONTEXT

- **1.25 million** people die each year as a result of road traffic crashes.
- 90% of the world's fatalities on the roads occur in low- and middleincome countries, even though these countries have approximately half of the world's vehicles.
- Every 25 seconds a road user will die





GLOBAL CONTEXT

- Increasing concentration of population in great urban areas.
 - 70% of the popullation in urban areas in 2050.
- New megacities
- Increasing mobility needs



INDIA



SUB-SAHARAN AFRICA



CHINA









VISION ZERO

- Ambitious targets
 - 50% reduction in road deaths 2020
 - EU and WHO
 - Vision zero SPAIN
 - Fatalities
 - Injuries
 - Congestion
 - Emissions







CONTENT

Disruptive environment





PRESENT AND FUTURE MOBILITY

- Disruptive change in mobility.
- New technologies: IOT, Automation, big data, etc.
- Hiper-connected society. 5G communications
- New business models & available services for end-user.
- "The automotive industry will see more changes in the next five years than in the previous 50 years," Mary Barra, CEO of GM.
- Huge benefits:
 - Safety
 - Comfort
 - Efficiency





Autonomous driving





- It's a major change in road transport and mobility.
- New players appear in the "classic" automotive industry
 - Tesla
 - Google
- Essential tool to achieve zero road fatalities.
- There are already standard vehicles with high levels of automation:
 - Tesla autopilot
 - Mercedes Class E.
 - Traffic jam assist VW



- The main benefits are:
 - Safety: Reduce accidents caused by human errors.
 - Efficiency and environmental objectives: Increase transport system efficiency and reduce time in congested traffic. Smoother traffic will help to decrease the energy consumption and emissions of the vehicles.
 - Comfort: Enable user's freedom for other activities when automated systems are active.
 - Social inclusion: Ensure mobility for all, including elderly and impaired users.
 - Accessibility: Facilitate access to city centres.



- The economic impact projected for autonomous driving for the years to come ranging up to €71bn in 2030.
- The estimated global market for automated vehicles is 44 million vehicles by 2030.
- The industrial sector and the legal framework needs to evolve and adapt in a fast pace to stay ahead in global competitiveness.
- New business models for mature markets
 - MaaS
 - Revenues will come from usage more than for selling cars
 - New partnerships (telcos, software, transport,...)
- Incremental approach Vs Disruptive approach



- What role has to play a national traffic administration?
 - Neutral.
 - Promote a stable and flexible regulatory framework.
 - Promote testing and operations of autonomous cars in real traffic.
 - Attract investments for national Research institutes and industries.
 - Inform of the benefits of Autonomous driving to rise the public acceptance. Demonstrate Reliability, Safety and Robustness of Technology.



- DGT State of art
 - The Spanish automotive industry is a world reference.
 - The companies automakers and components form a tandem recognized prestige in terms of competitiveness and performance
 - Important innovation and research centers.
 - Spain has signed but not ratified Vienna Convention.
 - Regulatory framework available for the testing and operation of vehicles on public roads (specific for autonomous driving).



- DGT State of art
 - Definition of the 5 levels of automation
 - Autonomous vehicles are already being tested in Spain.
 - Testing requirements & conditions: flexible, system certification or other MS authorisation or certificate.





- DGTs Strategy
 - Working groups legal framework
 - Future of driving licenses
 - Insurance and responsibility
 - Draft of a new Vehicle code including fully autonomous driving.
 - Promoting real tests of AD vehicles in Spain/Europe
 - Provide some items of the digital infrastructure.
 - No need for new physical infrastructure (Road Side Units/DSRC).
 - Connected traffic cloud services



STRATEGY

- DGTs Strategy
 - Classic/current approaches don't really work with AD
 - Its not about doing the same things
 - Active cooperation with OEMs.
 - Support UNECE technical regulations \rightarrow WP29
 - Learning by doing.
 - Digital and software solutions need a quicker and smarter legal framework.
 - The current road safety system is not the best reference
 - 1,2 M killed in road accidents.



VISION

- Regulation:
 - Neutral: avoid to block development
 - Flexible: adapted to the future
 - Ambitious: Societal needs and industrial advancements
 - Long-term vision: analyze present and future needs
 - Open:
 - easy to include any need without amendments
 - Participation of R&D centers, industry and stakeholders



NEXT STEPS

- Code for vehicles:
 - New version in 2017
 - Specific chapter to A.V.
 - Allow A.V. to drive
 - Conditions and characteristics
 - Levels
 - Operator
- Liability regulation
 - A.V.
 - **2018**



CONTENT

Conclusions





CONCLUSIONS

- Great opportunity to achieve our goals by fostering A.V.
- Promoting ADAS \rightarrow embassador and accelerator of A.V.
- Remove regulatory barriers: National and international
 - Vienna Convention:
 - Interpretation in short-term
 - Amendment in long-term
- Vehicle as the leader actor in mobility
- Regulation must be flexible and open



Thanks for your attention

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