



eSafety Deployment Workshop Automotive Best Practices

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Agenda

- ❑ The role of ACEA
- ❑ ACEA – General contributions
- ❑ From Research to Reality
- ❑ The Future
- ❑ Future Penetration Rates
- ❑ Best Practices
 - ESC
 - RTTI
 - UWB SRR
 - Digital Camera
 - Commercial Vehicles
- ❑ Summary



Role of ACEA

- ❑ Innovative safety products and services – passive, active safety and eSafety applications - determine the competitive position of vehicle manufacturers
- ❑ The role of ACEA, as representing the interests of its members in the political arena in Brussels, therefore, must be
 - Pre-competitive,
 - Focused on commonalities and
 - Holistic and politicalto support an integrated framework, which allows technical synergies, economies of scale and standards on one side but high flexibility and differentiation on the other side.



ACEA - General contributions

- ❑ On behalf of the industry ACEA plays a key role in the eSafety Forum activities and is fully committed to support deployment
- ❑ ACEA was one of the very first to sign the eCall MoU on 27 August 2004
- ❑ 4 November 2006 ACEA signed the Road Safety Charter and pledged to
 - Continue progressively equipping cars and heavy trucks with seatbelt warning systems and integral/single built coaches with ESC systems, resulting in all new vehicles to be equipped by 1 January 2010 at the latest



ACEA - General contributions

- ❑ Recommendations 12 and 13 of the CARS 21 Report (Competitive Automotive Regulatory System for the 21st century) support
 - Integrated approach to road safety,
 - Implementation of
 - Isofix child restraint systems, seatbelt reminders, daytime running lights, ESC for heavy duty and light commercial vehicles, blind spot monitoring, and better visibility (conspicuity) of heavy duty vehicles
 - Safety improvements of road infrastructure
 - ACEA financially supports Road Safety Audits (EURORAP)



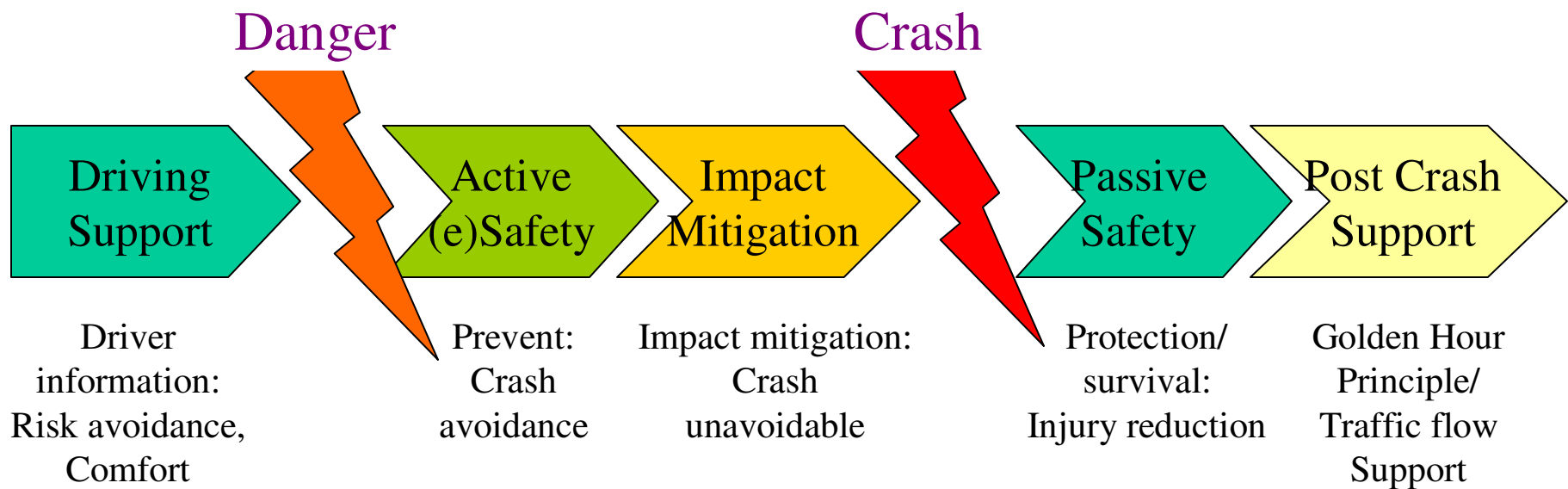
ACEA - General contributions

- ❑ CARS 21 to be continued ...
 - Adequate actions to further improve safety of road use
 - Directive on European driving licenses
 - Cross-border enforcements
 - Ban on drunk driving
 - Enforcement of speed limits, seat-belt and motor-cycle helmet use
 - Introduction of phase II of the Pedestrian Protection Directive
- ❑ Implementation of the European Statement of Principle (HMI) for safe integration of infotainment systems/nomadic devices
- ❑ Initiatives on common radio frequency and eSecurity



From Research to Reality

- ❑ While passive safety has achieved a high standard in Europe with more than 50% of all new vehicles fulfilling the stringent EuroNCAP test norms for 5 star vehicles, active and preventing safety has become the focus in recent years
- ❑ eSafety stands for future connectivity and networked systems





From Research to Reality

Xenon lights
Adaptive curve

Sensor information
Seat-belt reminder

ABS/Emergency
Brake Assist

Crash absorbance/
deformation

Emergency
Services

Horizontal Challenges:

Minimum standards, protocols and specifications

Dedicated radio frequency for safety related applications

eSecurity to ensure privacy and exclude fraud

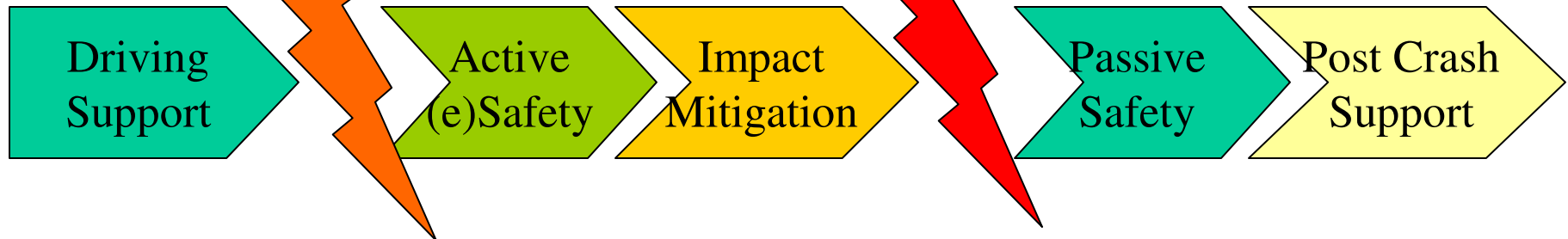
Speed Alert
TPM
Blind Spot
Monitoring
ISA
Traffic sign
recognition
Night vision
Alcolock

Warning/Lane
Change Assistant
Obstacle collision
warning
Intersection/Local
Danger Warning
Driver Monitoring/
Drowsiness

Airbags
Pedestrian
Protection
Activation
ESoP

Seat-belts
Airbags

Hazard warning
High quality
congestion/
traffic
information





The Future

- ❑ Passive safety mitigates accident consequences, active safety avoids vehicle destabilization but benefits are leveling out at least in the older member states
- ❑ To achieve the 50% fatality reduction goal and beyond (zero-vision), therefore, requires new technologies to help drivers making less mistakes
- ❑ 24 GHz or 79 GHz short range radar respectively will enable new safety applications based on surround sensing but there are other technologies (e.g. digital cameras, etc.) as well
- ❑ The future of safety systems was impressively demonstrated at the PReVENT event in Versailles in September 2007



Future Penetration Rates

- ❑ This is a crystal ball activity as future penetration rates depend on multiple factors like
 - Product availability and marketing
 - Responsive two-way infrastructure
 - Customer awareness, perceived individual benefits, price, demand, possible incentives, etc.
 - Economic environment like petrol prices, car ownership costs
 - Further reductions in accidents by other means
 - Enforcement, regulations and/or quasi regulations
- ❑ Basically it takes 3 years to make a product available, 6 years to offer it across the whole model range (portfolio) and 20 years to have the whole vehicle fleet equipped
 - Provided the product became a standard



Best Practices - ESC

- ❑ The benefits of ESC have been proven in many research projects carried out by industry and independent sources in Europe, Japan and the USA
 - Potential impact: 30-40% of single car crashes could be avoided when all vehicles have the system installed
- ❑ In spite of many efforts the European market is still highly fragmented with equipment rates for new vehicles ranging from below 30% (Greece) to over 95% (Sweden); European average around 50%
 - Different customer priorities, price, spending capacity, competitive situation, etc.
 - Product availability is a consequence of customer demand

but ESC penetration is already much faster than e.g. ABS



Best Practices - ESC



- ❑ Global Technical Regulation on ESC (in progress) is helpful but delays are not a roadblock
- ❑ Industry prefers a voluntary approach based on market demand instead of a mandatory introduction as in the US (proposed from 2012 onwards for all vehicles)
- ❑ The European eSafety Aware! Campaign
 - Key roadblock is lack of knowledge about the benefits of ESC
 - ESC needs to be experienced, practiced, seen, and compared
 - Consolidated action of several stakeholders is ensured
- ❑ Joint OEM insurance promotion to reduce insurance premiums when buying a car with ESC





Best Practices – RDS TMC

- ❑ Accurate, reliable and on-time traffic and travel information has the potential to increase the safety and efficiency of transport systems in many ways
- ❑ Multiple services exist in Europe, with various technologies
- ❑ With regard to broadcasting, RDS-TMC (Radio Data System Traffic Message Channel) is the only available near pan-European service, supported by the TMC Forum
- ❑ Cooperation between car industry and service providers has produced many commercial Travel and Traffic Information services for multiple platforms and new data collection methods (FCD, FPD, xFCD)





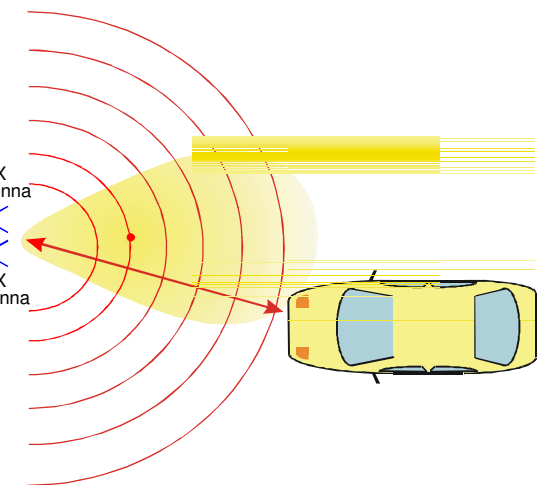
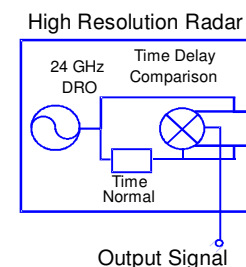
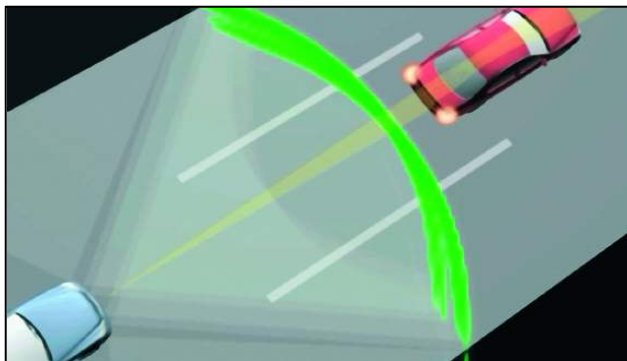
Best Practices – RDS TMC

- ❑ Improved travel and traffic information across different traffic modes (pre-trip and on-trip) support mobility of people and goods, facilitates safer driving, avoids problems spots by choosing different routes and helps the environment by less traffic congestion and related emissions.
- ❑ RDS-TMS is operational in 13 European countries, 3 countries have started implementation.
- ❑ The future of RTTI will be determined by the TPEG (Transport Protocol Expert Group) standard, applicable with digital broadcasting media



Best Practice – Ultra Wide Band Short-Range Radar (UWB SRR)*

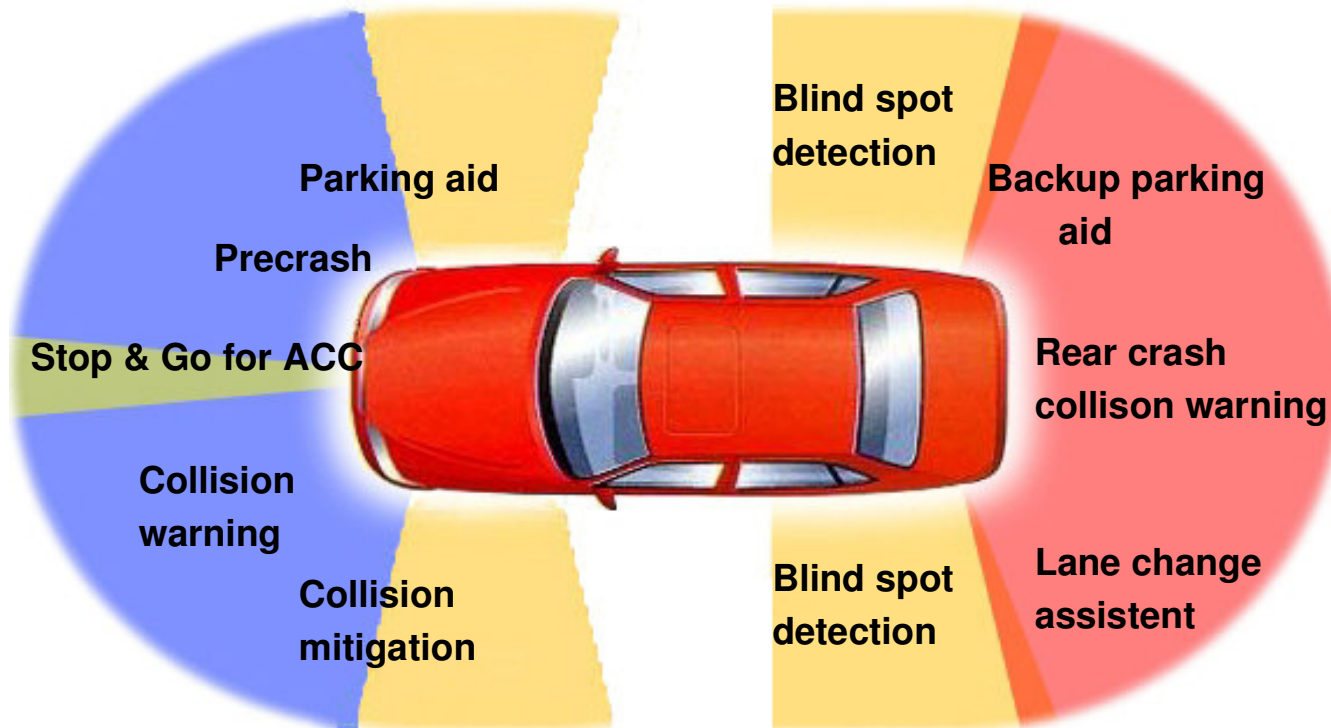
- Information about vehicle surroundings (Object Detection)
- Sensor invisible integrated into the bumper
- Sensing range: Bumper to object: few cm up to 30 m
- Center frequency at 24.125 GHz
- Availability of components off-the-shelf
- Today's 77 GHz ACC technology not applicable for SRR (Substantial development still needed)



* Presentation by Dr. Rollmann, Chairman SARA

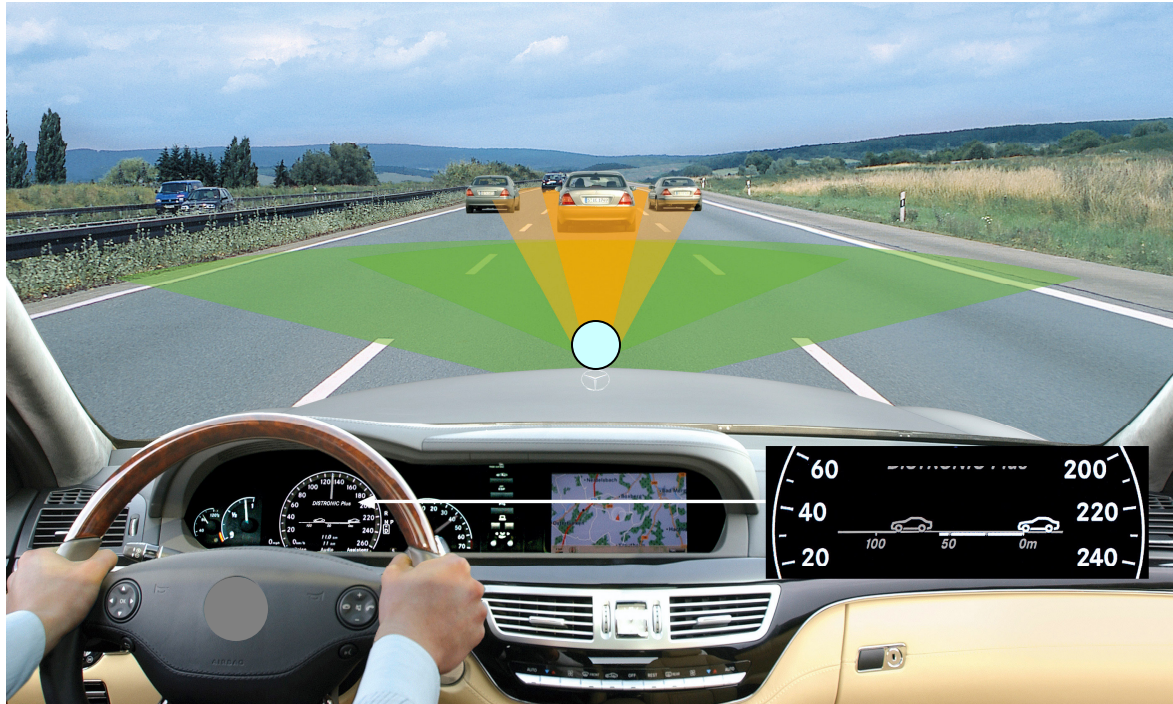


Best Practices - Possible Safety Applications (UWB SRR)



- ➔ Complete surround sensing up to 30 m with 8 sensors
- ➔ Multiple applications with one kind of sensor possible

Best Practices – First Applications (ACC Stop & Go, Collision Warning/Mitigation)



➔ Combination of Long Range Radar and Short Range Radar:
ACC Stop&Go, Collision Warning and Mitigation



Best Practices – First Applications (BAS PLUS and PRE-SAFE)



➡ New dimensions in accident avoidance and occupant protection



Best Practices - 24 GHz UWB Short Range Radar Deployment

- ❑ In Europe up to now two car makers use UWB SRR
 - BAS PLUS, Pre-Safe brakes
 - Night view Assist, Blind Spot Assist
 - Prevented-Safety applications
 - ACC Stop & G/Collision warning
- ❑ In US car makers announced to introduce UWB SRR shortly.
- ❑ In Japan the frequency regulation is expected for early 2008. Japanese car makers observe the market.
- ❑ However, due to time limitation of 24 GHz frequency allocations in Europe SRR car penetration is behind expectations. Some OEMs just change to other technologies.



Best Practices – Advanced Adaptive Headlights

High-Beam Assistant.





Best Practices – Driver Alert Control

- ❑ Adaptive Cruise Control with Auto-Brake – using front mounted (long-range) radar and digital camera
- ❑ Driver Alert Control and Lane Departure Warning – using front mounted digital camera
- ❑ ACC with Forward Alert using front mounted long range radar
- ❑ Blind spot monitoring systems – using rear facing digital camera





Best Practices – Commercial Vehicles

Press information

Anniversary truck with new safety systems

Just in time for Volvo's 100th anniversary, Volvo Trucks is unveiling an exciting new jubilee version of the Volvo FM and Volvo FH16. Among the many unique features are a specially designed interior and extra-high driver comfort. Above all, however, Volvo has focused heavily on safe truck is the first Volvo truck with Lane Keep driver if the truck accidentally starts to veer

"Safety has been Volvo's foremost characteristic since 1927. That's why we want to emphasize safety on our 100th anniversary," explains Peter Lindgren, CEO at Volvo Trucks.

Comprehensive safety equipment

In addition to Lane Keeping Support, the Volvo new generation of Adaptive Cruise Control (ACC) is new. ACC ensures that the truck maintains a safe distance from the vehicle in front. If the safety gap shrinks too much, the necessary, the wheel brakes too.

"The new generation of ACC contributes to fuel savings Peter Lindgren.

Electrically controlled disc brakes with ESP (VSC) engine brake, Xenon headlights, and LED lights are included in the safety equipment.

Spaciously designed interior

However, not everything is in the work safety. We're making it easier for you when you're working and driving. In access to the, seats and driver's side, driver sits in a deluxe seat with leather-clad upholstery, ventilated seat and leather-clad steering wheel with integrated control buttons and also included. At a Volvo

Press information

First truck in the world with a factory-fitted alcolock

Volvo Trucks is broadening its alcolock offer for heavy trucks. The third generation of alcolocks now being presented is the only system in the world that is type-approved for transportation of dangerous goods.

Volvo Trucks is one of the participants at this year's Työväen Suomalainen 1-3 September. The company will, among other things, be unveiling a new alcolock for commercial vehicles. Volvo was the first manufacturer of heavy trucks to offer such a system. The new alcolock that is now available in Scandinavia as of autumn 2017 has been further developed and improved in a number of ways. One important part in its frame is that calibration of the system is not needed more than once every twelve months. It is the first alcolock in the world to meet the stringent demands on the installation in trucks that carry dangerous goods, so-called ADR transport.

"Volvo supports the Swedish government's initiative on the introduction of alcolocks as standard in vehicles throughout the EU. We are convinced that world-wide many lives, every single day on roads throughout Europe," says Lars-Erik Pålsson, Director Public Affairs at Volvo Trucks.

"In particular, alcohol-related road accidents involving dangerous goods can have devastating consequences. In many cases, these could be averted by carrying large quantities of explosive gases or corrosive liquids."

The alcolock is simple to use and features a status indicator. The system consists of a control unit and a hand-held remote unit with a disposable microphone and a display screen. If the driver's breath contains traces of alcohol, the control unit cuts the current supply to the starter motor, fuel pump or ignition system and the vehicle will not start.

Additional information: <http://www.volvotrucks.com/eng/press> or <http://www.volvotrucks.com/eng/press> for more information. You can also contact your nearest Volvo Trucks dealer or Volvo Trucks Sales Office in your country.

- ❑ Anniversary Truck with safety functions like EBS+ESP, ACC version II, Lane Keeping Support (LKS/LDWS)
- ❑ Regarding Alcolock this is now offered as an ADR approved, EMC and safety tested factory delivered variant (in Scandinavia) to demanding customers



Summary

- ❑ The vehicle industry has significantly contributed to the reduction of fatal accidents by making the vehicles safer (passive safety) and introducing technologies, which help to avoid accident and mitigate their impacts (active safety)
- ❑ The future to intelligently support the driver to make less mistakes (about 95% of accidents are due to human errors) has begun but many systems are still in the testing and evaluation phase to already make an impact
- ❑ Deployment depends on a number of factors, many just beyond the influence of the industry
- ❑ Networked systems require cooperation between different stakeholders (integrated approach) and need to stay affordable