The Development of ITS Technology, Current Challenges and Future Prospects

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Secretary General

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Session: “Research and Technology Applied to Road Safety”
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Established in 1994, representing L-category vehicle industry
14 manufacturers producing 30 brands
18 national associations, also representing smaller manufacturers & suppliers (SMEs)
37 million users in EU28

Diversity of vehicles, owners and purposes

Commuting, Leisure, Sport

More and more EU citizens using Powered Two-Wheelers (PTWs) for commuting
L-category* vehicles –
More than motorcycles

2-Ws**
Mopeds & motorcycles

3-Ws**
Tricycles

4-Ws*
Quadricycles

* Two- or three-wheel vehicles and quadricycles

** 2/3/4-Wheelers
ITS – Definition

Extract from 2010/40/EU (EU ITS Directive):

‘Intelligent Transport Systems’ or ‘ITS’ means systems in which information and communication technologies are applied in the field of road transport, including infrastructure, vehicles and users, and in traffic management and mobility management, as well as for interfaces with other modes of transport.
ITS – ICT* application and interaction

* Information and Communication Technologies
ITS – “The Bigger Picture”
ACEM is ready to embrace ITS as an integral part of future mobility aimed at:

- improved safety (SAFE)
- more efficient and comfortable transportation (SMART)
- reduced energy consumption (CLEAN)

A growing number of individual ACEM members is actively involved in research and demonstration projects around the world dedicated to cooperative ITS as most promising area for the following reasons:

- highest benefit potential (notably PTW conspicuity)
- well-established standardisation community
- proactive authority support and (co-)funding
- reasonable component/system cost
Cooperative ITS – The Way Ahead

- V2X* can address the most common PTW accident configurations and enhance conspicuity
  - 54% of PTW accident occur at an intersection (MAIDS)
- V2X will progressively appear in cars in the mid term
- PTW safety will benefit from being included in this connected world

* Vehicle to Vehicle (V2V)
Vehicle to Infrastructure (V2I)
Cooperative ITS –
PTW Industry involvement

- Advanced Safety Vehicles (ASV) promotion project (Japan; 1996 – )
- Car2Car Communication Consortium (V2X standardization)
- ITS World Congress 2012 (presentation of Motorcycle Approach Warning System)
- V2X field operational test project SIM^{TD} in Frankfurt am Main (120 vehicles; 5 motorcycles)
- ITS World Congress 2013 (presentation of Motorcycle Approach Warning System (with autonomous driving car))
- DRIVE C2X project
- …
Cooperative ITS – R&D, FOTs* and beyond

* Field Operational Tests
ACEM supports

- Further development of ITS applications which can improve safety for PTWs

- ITS solutions designed with consideration of the specific requirements of PTWs and their riders

- Integration of PTWs in transport management planning, infrastructure projects and consideration by car OEMs to realise the full potential of ITS in improving the visibility of PTW riders as vulnerable road users
ITS = the mobility of the future &
the future of mobility

• The PTW Industry is ready to assume its
  responsibility and play its role in the connected
  society

• PTW manufacturers already work actively on ITS
  individually and in collaboration and will continue
  to investigate ITS technological and market
  potential
Telematics
Responsibility
Awareness
Forward looking
Functionality
Intelligence
Cooperation
PTW + ITS = iPTW
ACEM New Road Safety Strategy

COMING SOON!

New initiatives and commitments of the industry in the ITS domain

Official launch – International Motorcycle Conference, Cologne, 29-30 September 2014
For further information...

www.acem.eu

What's New
ACEM appoints new Secretary General
The European Association for the Motorcycle Industry (ACEM) announce the appointment of a new Secretary General, with effect from 1 May 2014, who after 10 years at the helm of ACEM, has decided to take up a new challenge as ACEM Secretary General and Head of the Industry Politics Department.

The full press release in PDF

Sales of PTWs increased in Europe in February and March 2014. The combined sales of motorcycles and mopeds increased slightly compared to the same period for 2013, with a growth of 0.6 percent. European markets for PTWs increased on Spain (+21.2%), Germany (+2.9%) and Italy (+1.6%).

The full press release in PDF

7 out of 10 Belgians consider themselves motorcyclists
A recent study by Multiscope shows that more than two thirds of Belgians consider themselves motorcyclists. The study was carried out in the context of the 2014 EEC programme for the promotion of the Motorcycle Industry. After all, 7 out of 10 Belgians consider themselves motorcyclists.

The full press release in PDF

Become part of the conference’s anniversary in Cologne, where the Institute for Motorcycle Safety is going to offer an unparalleled platform for motorcycle safety matters to participants from all over the world.

Information about the conference

Information for speakers
Thank you for your attention!
eCall for Powered Two Wheelers
Opportunities and Challenges

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How eCall for Cars works

1. The green car sends an emergency message through the satellite to the network.
2. The network relays the message to PSAP (Public Safety Answering Point).
3. PSAP forwards the message to the appropriate services: fire, police, and hospital.
4. Services respond with voice calls back to the network.
5. The network forwards the voice calls to the car.
6. The car receives the responses and traffic information from the network.
How PTW eCall works

1. **Triggering**: When an emergency occurs, the device triggers an automatic call to the appropriate authorities.

2. **MSD (Mobile Satellite Device)**: The device sends signals to a satellite, which then relays the signal to a network.

3. **Network**: The network processes the signal and redirects it to the relevant emergency service provider.

4. **PSAP (Public Safety Answering Point)**: The PSAP receives the call and connects it to the appropriate emergency service, such as fire, police, or medical services.

5. **Voice Communication**: The affected parties communicate via voice, allowing for real-time updates and coordination.

6. **Traffic Information**: The system also provides traffic information to help responders navigate to the scene more efficiently.

This diagram illustrates the flow of information from the device to the emergency services, highlighting the importance of PTW eCall in ensuring rapid and effective response to emergencies.
Motorcycle eCall a new & different challenge

Common
- Rescue chain
- Communication Standards
- Requirement power supply
- Infrastructure / business case

Difference
- Motorcycle and rider separate
  - Forces vary to vehicle & rider post crash
  - Location vehicle & rider vary post crash
- Accident recognition is complex
  - Stability criteria
  - Sensor types
  - Omni directional sensing
- Voice connection likely unreliable
  - Ambient noise
  - Distance rider-vehicle
Triggering - main challenge

- eCall triggering usually with airbag/acceleration sensors
- Decades of experience with triggering
- Well defined accident scenarios with corresponding parameters

Substantial Unsolved Issues

Focus: define minimum requirements
PTW eCall is most complex

OEM / maker is liable for its product:

- OEM produces (PTW) vehicles
- eCall system needs to be in the vehicle (liability & quality & supply chain)
- Systems not linked to vehicle are out of OEM control and responsibility

Research: Limitations and Minimum requirements
PTW Industry Strategy

• Definition of a PTW eCall system and its requirements

• ACEM project proposal to EC to define Standards for PTW eCall

• Participation of OEM’s in Horizion 2020 project call for PTW safety
To make sure that:

- Users understand what system can do and what not
- Manufacturers are to supply a simple but robust functionality (*PTW eCall standards*)
- Base for test and conformity requirements are necessary
- The OEM - responsible only for the components and functionality of his own system on the vehicle, not for the overall function
- The borderlines for false calls - to be discussed with relevant stakeholders
Minimum requirement - System components

- Automatic & manual triggering system
- eCall box or components with the necessary software (depending on the structure of the specific system/concept) and wiring
- eCall button for termination

- Indicators for the actual status and the current process step of an activated eCall
- Geo location system (GPS)
- Network Access Device
- The MSD + eCall flag (standard for MSD for the transmission via 112)
Indicative Motorcycle eCall Roadmap

1. Define minimum requirements
2. Define open issues
3. Evaluate potential solutions

4. Discussion with stakeholders

5. RESEARCH

6. Standardisation
7. Technical concept development
8. Market information
9. Series development
10. Market introduction
Robust & Reliable PTW eCall

Thank you for your attention!

Still a stretch of road ahead of us