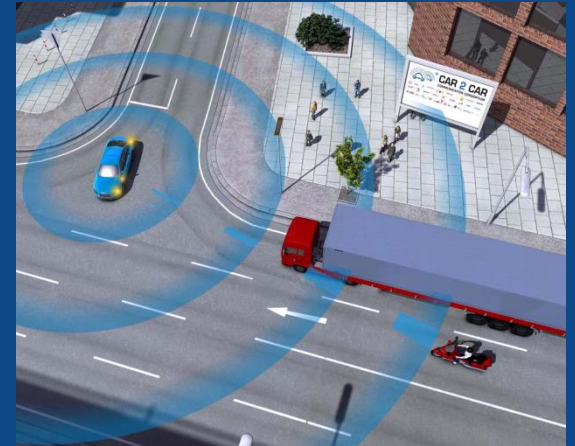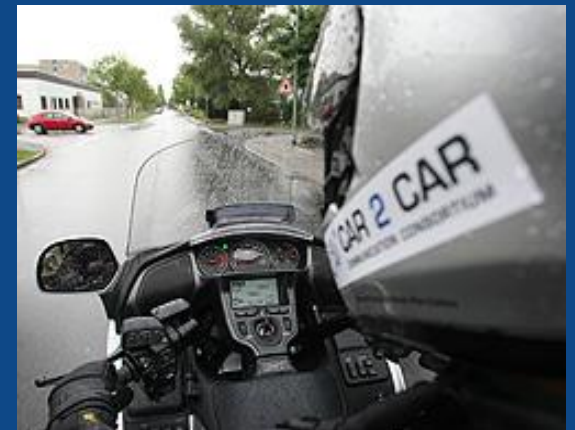# The industry approach to ITS

Source: ETSI

Source: CAR 2 CAR Communication Consortium

Source: Honda

ITS for PTWs
Setting the scene

1. Pre Crash *(crash avoidance/mitigation)*: (C-)ITS
   - **Most progress in terms of** research for cars **and trucks; MC research has started, but more needs to be done**
   - **Further steps towards deployment are described in** MOU Car2Car Communication Consortium and MOU ACEM on ITS deployment

2. Post Crash : eCall
   - Deployment phase for cars / implementation & regulations in progress
   - PTW and trucks foreseen as potential next step

PRE-CRASH – ITS

ITS for PTWs
General industry views

- C-ITS (cooperative ITS) high safety benefit
- Not all ITS applications directly transferable from car
- The control of the PTW must not be removed from the rider
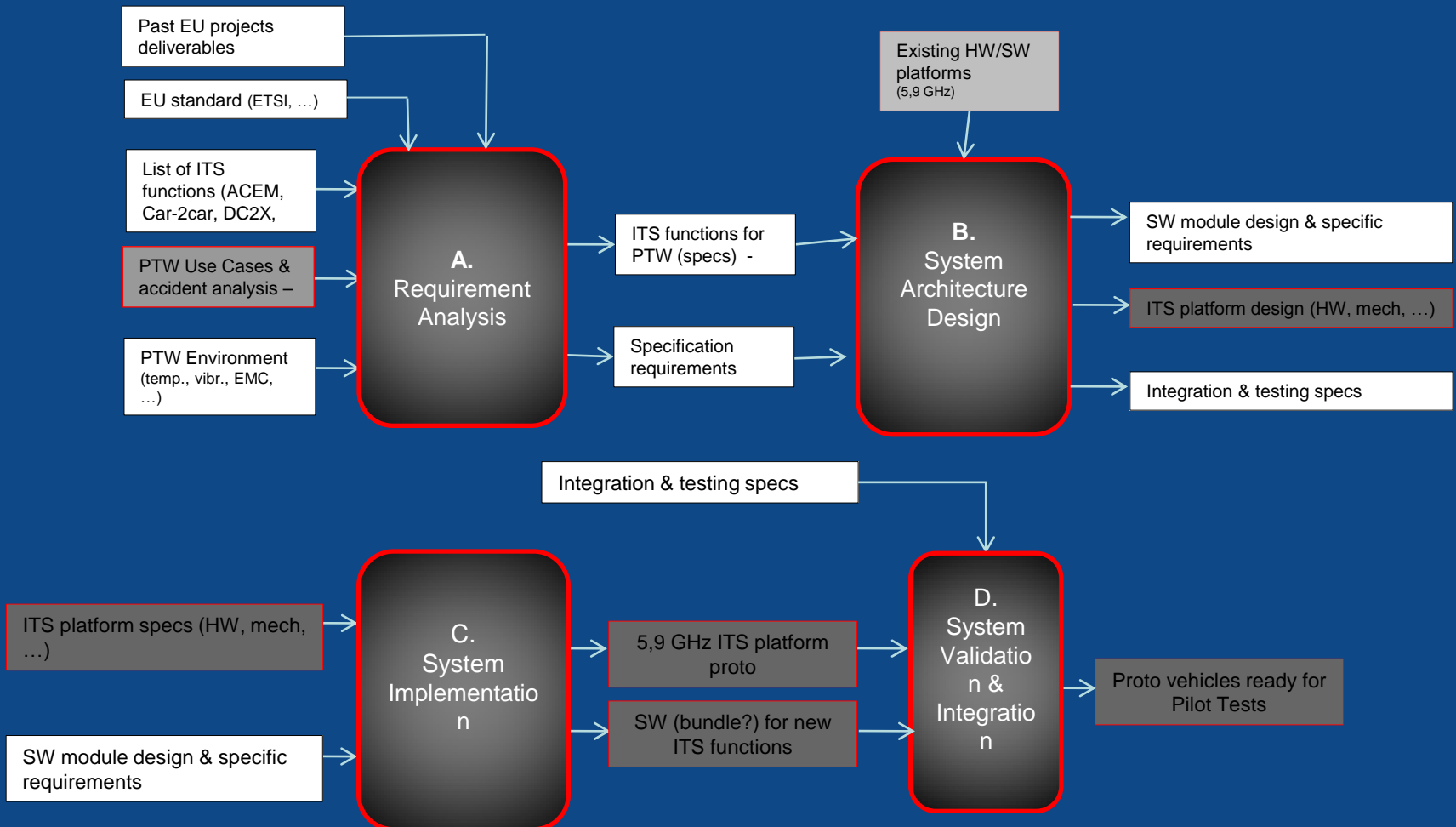- Finding MC HMI solutions for C-ITS is a complex task

Source: CAR 2 CAR Communication Consortium

MC ITS
Design / development flow

Past EU projects deliverables

EU standard (ETSI, …)

List of ITS functions (ACEM, Car-2car, DC2X,

PTW Use Cases & accident analysis –

PTW Environment (temp., vibr., EMC, …)

A. Requirement Analysis

ITS functions for PTW (specs) -

Specification requirements

Existing HW/SW platforms (5,9 GHz)

B. System Architecture Design

SW module design & specific requirements

ITS platform design (HW, mech, …)

Integration & testing specs

Integration & testing specs

ITS platform specs (HW, mech, …)

SW module design & specific requirements

C. System Implementation

5,9 GHz ITS platform proto

SW (bundle?) for new ITS functions

D. System Validation & Integration

Proto vehicles ready for Pilot Tests

C-ITS

Conspicuity

Compared to other road vehicles, PTWs are occasionally hidden and perceived as more distant and slower because of their smaller size
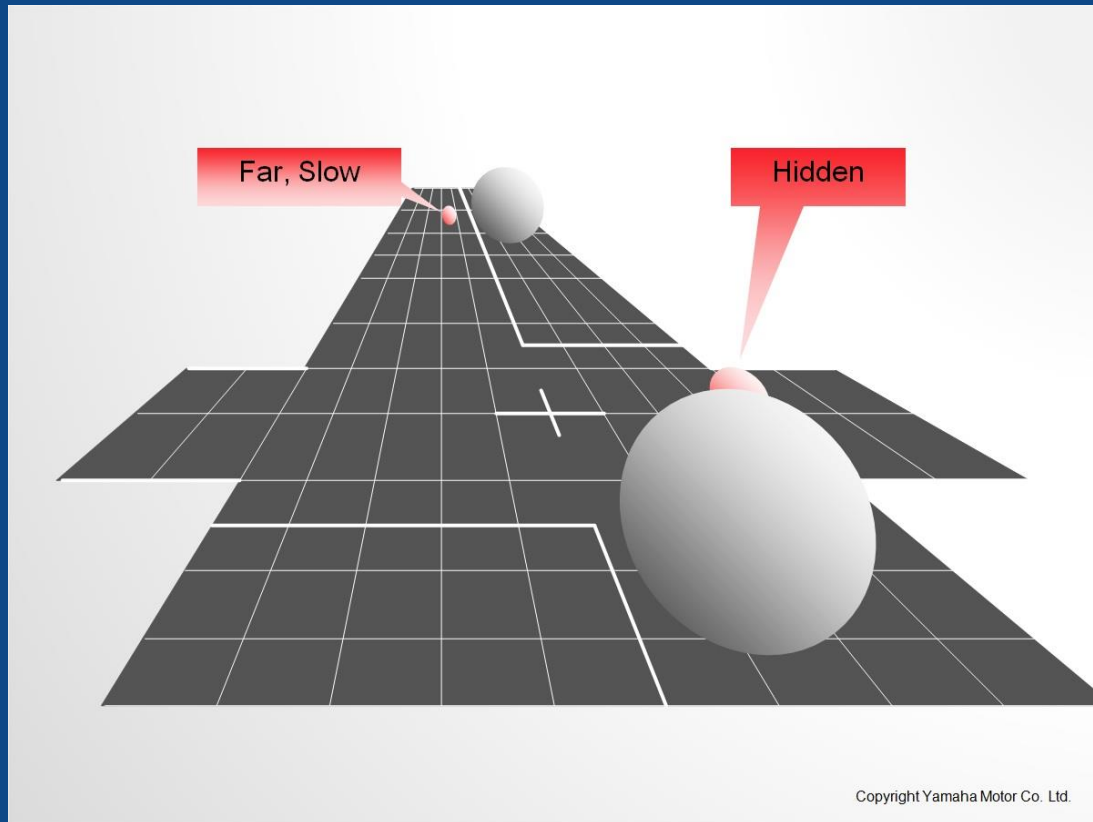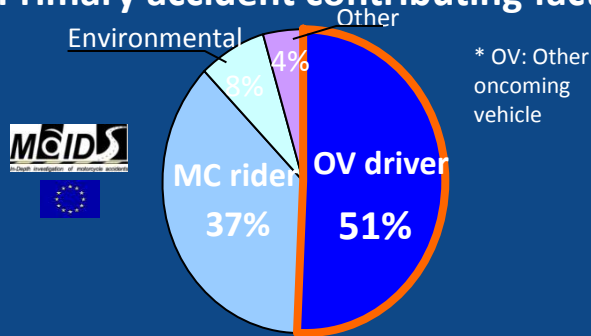
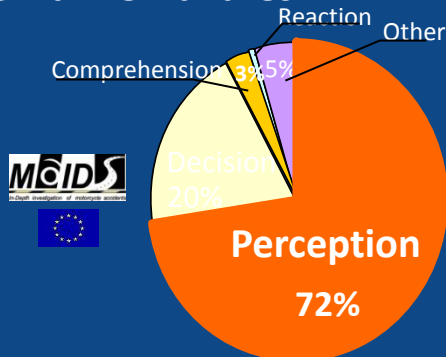# MAIDS (Motorcycle In-depth Accident Investigation Study) Main conclusions

- **Car collides with a PTW in 80% of accidents typically due to perception failure**
- **TTC is less than 2sec in 70% of PTW accidents**
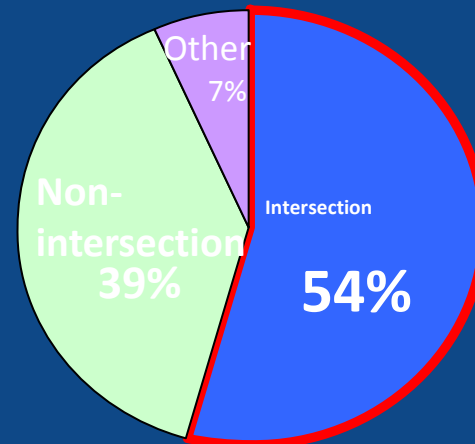
Primary accident contributing factor

Environmental
Other
8%
4%

* OV: Other oncoming vehicle

OV driver
51%

MC rider
37%

Source: MAIDS final report 2.0 (April 2009)

OV driver failures

Comprehension
Reaction
Other
3%
5%

Decision
20%

Perception
72%

Motorcycle traffic accident location

Other
7%

Intersection
54%

Non-intersection
39%

Source: MAIDS final report 2.0 (April 2009)

Conspicuity problem
Potential C-ITS features

- MAI (motorcycle approach indication) in car
- Car proximity warning for PTW

Recommendations for ITS:

1. Specific WG about ITS for PTWs is required
The Commission should start a dedicated working group with relevant and active stakeholders to clarify open issues, differences and requirements for the use of ITS in PTWs and identify future research themes

2. For road safety appropriate interaction between vehicle types is necessary
The Commission should ensure that the linking-up and connectivity of ITS-systems and information is given between the different vehicle types on the road.

3. For evaluation of future ITS applications robust data is necessary
The Commission should without further delay start an initiative to improve the EU-wide accident data statistics for the evaluation of PTW-accidents with necessary degree of detail and reliability.

4. ITS systems can only be effective when supported and linked
The Commission should ensure that all EU Member States apply the same holistic approach and show equal consideration for ITS. This should include the uniform integration of PTWs in national transport, mobility and road safety plans.
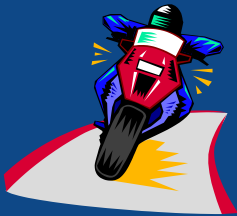
POST-CRASH – ECALL

MC eCall triggering
Main challenge

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

- eCall triggering not defined and not commonly agreed by stakeholders
- Accident scenarios are not well defined, quite complex (more diverse in terms of dynamics/kinematics)
- In most cases, rider and motorcycle are separated after crash

→ *Substantial Unresolved Issues*
FOCUS: define minimum requirements

Research & Development needs

A. Accidentology research to define:

- Potential of reducing the reaction time in case of an emergency
- Scenarios (urban/rural) where eCall could be helpful
- Number of single motorcycle accidents
- Automatic trigger conditions definition

Research & Development needs

B. Triggering (min.) requirements for vehicle-based systems

1. Manual (e.g. push button)
   - Define parameters for secure operation

2. Automatic

   - Definition of relevant crash (test) scenarios
   - Concept of a crash detection algorithm
   - Define scenarios for:
     - no-trigger conditions
     - automatic trigger conditions

Research & Development needs

C. Assessment of various concepts with the previously defined requirements

• On bike eCall system

• On rider eCall system (jacket, helmet,smartphone app)

NOTE: Systems not fitted into the vehicle are out of OEM control and responsibility

Requirements and considerations

- **Manufacturers have to supply a simple but robust functionality** *(PTW eCall standards)*

- **The OEMs are responsible only for the components and functionality of their own system on the vehicle, not for the overall chain functionality (e.g. network coverage)**

- **Test and conformity requirements are necessary**

- **All stakeholders (not just users) need to understand what a MC eCall system can do and what not**

- **False call avoidance - to be discussed with relevant stakeholders**

Motorcycle Industry eCall Roadmap (indicative)

DONE
1. Evaluated minimum requirements
2. Define open issues
3. Evaluated potential solutions

ONGOING
4. Discussion with stakeholders

NEXT STEP
5. RESEARCH

FOLLOWING
6. MC eCall standardisation and evaluation of current eCall standards
7. Technical concept development
8. Market information
9. Series development
10. Market introduction

Recommendations for eCall:

1. eCall is a shared responsibility
The Commission should ensure that the relevant stakeholders sit together to solve the necessary open issues.

2. Riders' acceptance of the system is crucial
User representatives should make sure that the eCall functionalities are well understood and find acceptance within the user community.

3. eCall standards must be adapted for PTW eCall
Relevant EU-PTW-eCall stakeholders (OEMs, users, authorities) should cooperate to develop suitable standards to define appropriate/necessary functionalities and boundaries

4. Car-eCall and PTW-eCall are different
The Commission should support the industry in providing information to the public explaining the differences between car- and PTW-eCall.

5. Minimizing/avoiding false calls is an essential feature for PTW eCall
EU institutions (Commission, Council and EP) should guarantee that PTW eCall can also be provided by TPS-eCall services.

Thank you for your
kind attention