INTELLIGENT TRANSPORT SYSTEMS:

Can powered two wheelers benefit from new technologies deployment?

March 5-6 2014, Brussels

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Day 1: Working Session 1 "Setting the Scene"

Opening words

Bernd Lange, (S&D) European Parliament, Co-Chair of the Forum for the Automobile and Society (Host)
(watch the speech here)
Too often, motorbikes are forgotten in European legislation and strategies, and of course in national legislation and strategies as well. So it's really key to have a clear signal that motorbikes can play an important role in the mobility of the future. Therefore thanks a lot to FEMA for making this event possible.

Frédéric Jeorge, President, FEMA
(see the speech here and watch it here)
This event is an important milestone for FEMA in its work to rightly and fairly integrate motorcycling into transport policies. Discussions will centre around Intelligent Transport Systems and their impact for and on motorcycling. This is a huge debate with influence from many different backgrounds, with different views and understanding. It's also a necessary step, for the European Commission, member states and other authorities, and transport stakeholders, as a lot is being discussed on ITS at all levels within the Horizon 2020 initiative, covering the adoption of the ITS Directive and the action plan. In an efficient European transport policy, deployment of new technologies is critical for mobility and safety. Motorcyclists certainly are keen to use technology to improve their riding experience and safety, but at the same time, as vulnerable road users, motorcyclists are impacted by ITS. We know from the already commercialised ITS, that scanning moving traffic and anticipating hazards would be impactive, although they would require specific training of some sort. At the same time, new technologies should be carefully designed to prevent over-confidence of a rider, as well as any endangering action. What is certain, is that without proper impact assessment and without full understanding of the riding activity, it is highly unlikely that ITS will be accepted, hence impacting industry and more broadly, the sector's commitment to Europe's objectives. It is therefore urgent to properly address this debate to obtain proper understanding of motorcyling's specificities. Investing in fundamental research will be crucial to support PTW's integration with ITS policies and total transport systems.

- Moderator: Bernd Lange (Host), (S&D) European Parliament, Co-Chair of the Forum for the Automobile and Society
- Szabolcs Schmidt, Head of the Road Safety Unit, Directorate-General for Mobility and Transport (MOVE), European Commission (watch here the speech)
- Eric Thiollier, National Delegate of the French Riders Federation (FFMC) (watch here the speech)
- Jesper Christensen, General Secretary of the Swedish Riders Federation (SMC) (watch here the speech)
- Jacques Compagne, General Secretary of the Motorcycle Industry in Europe (ACEM) (watch here the speech)
- Daniel Bell, Scientific Researcher, FACTUM (watch here the speech)
- Shane McLaughlin, Research Scientist - Leader - Motorcycle Research Group, Virginia Tech Transportation Institute (watch here the speech)

ITS deployment in Horizon 2020 - A European Perspective

Maria-Cristina Marolda, Policy Officer, European Commission Innovation and Sustainability Unit
(see here the presentation and watch here the speech)

Europe 2020 has five EU objectives to reach by 2020 on employment, the environment, education, R&D and social inclusion. It is centred around seven flagship initiatives to pool EU and member state actions on major policies and act as levers for growth. Those of most interest to this debate are Innovation Union (on whose objectives the Framework Programme for R&I, Horizon 2020 has been drafted), New Industrial Policy and Resource Efficiency, the reference for the White Paper on Transport, approved in 2011. The Horizon 2020 Societal Challenge Transport stemming from both reference documents has the objective to achieve a European transport system that is resource-efficient, climate-and-environmentally-friendly, safe and seamless for the benefit of all citizens, the economy and society. Policy drivers are organised along two axes:

- Vehicle improvements in the four modes
- Horizontal integration factors of transport system (ITS, infrastructure and logistics) + Urban dimension

ITS will help move transport towards sustainability, road safety, reduce congestion, facilitate intermodal transport and optimise freight transport. European Union engagement to bring ITS to the roads includes the ITS Directive and the ITS Action Plan as well as the recent Communication on Smart Cities and Communities and Urban package.

Panel discussion

Bernd Lange: Does Horizon 2020 adequately address the needs of the motorcycle industry?

Jacques Compagne: Yes, it does. Broadly speaking we can say that ITS covers all types of vehicles including motorcycles. There are many developments regarding ITS features that are unknown, and which we have to clarify through additional research, for which Horizon 2020 provides the right framework. ITS is a very complex topic, involving a range of interactions between vehicles and riders, different vehicles on the road, and OEMs and component manufacturers, as well as between different industries. This is something that is impossible to cover through the classic R&D department, hence the need for Horizon 2020 to bring solutions to the market.

Bernd Lange: What's the situation in the United States?

Shane McLaughlin: My perspective is that Horizon 2020 is a large umbrella, and I don't see a similar picture in the US. I agree that it's important to see how technology can support the rider, and this also includes technology on other vehicles, which is a key aspect in the US too. Research must delivers measurable results.

Bernd Lange: What about the riders' perspective? What do they think about ITS?

Jesper Christensen: I appreciate the work that has gone into Horizon 2020, but we as riders inhabit a different world. We have a lot of basic issues out there on the streets which are still not being addressed. It's not rocket science to solve problems like pot-holes, diesel spill, and gravel on the road, which are killing a number of riders each year and creating a lot of traffic accidents. So we have to ask whether we should solve the existing issues first and then continue, or is it a parallel process?

Motorcyclists are interested in new technologies – especially the younger generation. We also like the freedom to choose the new motorcycles with very nice features like super advanced ABS systems. But choice is key. Motorcyclists are quite frequently forgotten in discussions around new technologies and innovations.

Bernd Lange: In France, are riders also living in a different world?

Eric Thiollier: I think the objectives of Horizon 2020 are admirable: reduce the number of people dying on the streets, less congestion etc. The question is how to get people on board in their day-to-day life. I am reluctant in regard to these new technologies, especially when they seem to be imposed on riders through legislation, because while we recognise the incredible possibilities of improving road safety, riders are probably not ready to accept anything for the sake of novelty or safety. If we valued our safety more than our freedom, we probably wouldn't be riding motorcycles. Nevertheless we still think safety is a concern. The average age of a motorcyclist is 47 so we can forget the image of a young, reckless rider. We are very concerned about road safety but ITS raises a number of questions. For example, we sometimes doubt the contribution of ABS to safety, as in some cases it could increase risk. Another issue is the vulnerability of motorcyclists with very little passive safety, and the road infrastructure has a major impact on motorcycle safety.

Bernd Lange: Does the EU's policy take into consideration the freedom of the rider?

Szabolcs Schmidt: I think it's good to start with the framework on innovation and research, and then work down to the pot-holes; I think both are important. I share the sentiment that motorcyclists are sometimes left aside when we are thinking of solutions to mobility problems. This has to change. The work under Horizon 2020 is therefore of enormous importance because we can direct research into the right avenues. From a road safety perspective, the motorcyclist has all my sympathy, as 17% of all road fatalities are motorcyclists, yet motorcycles take up less than 10% of the whole fleet. There is a real problem to be tackled. If you look into the causes of motorcycle accidents you will find that 25% of them are simply wrong diagnoses; the rider makes a wrong decision. And here, I think, is enormous potential for ITS solutions; to gather the right information and make it available to the rider. And I think the motorcycling community should take a strong ownership in this area right from the start.

Bernd Lange: Is there a specific need for ITS in motorcycles?

Daniel Bell: I appreciate the fact that Horizon 2020 can open up a lot of fields for research into ITS and the effects on road user safety and look at different road user groups. The main two issues however are the

availability of data and the consistency of data. It will also be very interesting to compare research results from different countries. There is still a lot of work to do though, especially from a social science point of view.

Jesper Christensen: It was mentioned that 25% of fatalities among riders is because they made the wrong decision. This is likely, but we have to realise that in Europe there is a very wide diversity of the type of accidents. Swedish riding fatalities are mainly on winding, rural roads; Dutch fatalities are more likely to be in urban environments. And we are fooling ourselves if we think that only ITS can solve these problems. We have to train riders on their behaviour and riding technique, combined with hazard perception – and maybe ITS can assist us with that. But we have to be careful how we look at the statistics.

Szabolcs Schmidt: I agree that Europe is very diverse and a variety of reasons are involved such as climate, geography, education etc. But I find it striking that such a large number of accidents occurred simply because the rider does not have the right information or does not take the right action. So the question immediately pops up: is there something beyond education, such as ITS, that could help?

Bernd Lange: Could the introduction of ITS be an element to improve the European motorcycling industry?

Jacques Compagne: We certainly shouldn't believe that ITS is the solution for everything. We have seen a lot of ITS devices appearing in recent years, but it might be useful to define ITS. Are we only referring to information technology? If so we can say that most modern motorcycles are already intelligent. Maybe we have to combine information technology with communication technology to qualify as a real ITS solution; I am talking about cooperative ITS. From the perspective of manufacturers this is the most promising technology as it will enable riders to communicate with other road users. But there is really no substitute for training. Technology is important, but specific training will have to be developed. Regarding ITS deployment, it should not be detrimental to motorcyclists, which means that devices should be assessed in a holistic way, not just looking at the vehicle but other road users too.

Delegate: Regarding ITS, we have to be very careful with driver/rider distraction. We have to be aware that some vehicles will be equipped with ITS; some not. And it's difficult and unsafe not to know which is equipped and which is not – for example when following a vehicle that is braking on a curve. Also, if the trend is towards greater automation, we must realise that if a driver is not driving, then he will do other – unsafe – things.

Szabolcs Schmidt: This is one of the huge questions: how to make sure that whatever system comes along, it is deployed in such a way that we don't create double standards on the roads. This is extremely important for road safety. But we must also not leave the automotive industry to go ahead and only when things are settled and deployed, then involve the motorcycle industry. We have to think in an integrated concept so that motorcycles are not lagging behind but that riders are viewed as ordinary road user.

Delegate: Would a faster way to roll out new technologies be to use the smart phone, to connect the rider with the motorcycle?

Jacques Compagne: We have to look at this very carefully. There are many challenges, such as the reliability of the system, and would it be always operational, for example when your phone battery runs out? Also, liability in the case of failure is a major challenge: who would be liable in case of failure of the system?

Jesper Christensen: We tried to do eCall through a mobile phone and soon realised it is never going to work due to reliability and availability issues.

Frédéric Jeorge: Cell phones themselves have been identified as real and major risks. I would not like to see critical applications being put on cell phones, inciting people to keep them on and in their line of sight. I would also like to comment on training. With every technology coming out you have to adjust the training regime: for example, by teaching the different ways to brake with or without ABS, and make people aware of what the technology can and cannot do.

Delegate: It is not the intention to put a burden on a rider by introducing ITS. It's meant to be a help. In terms of fatalities, we (Bosch) have found that most are caused by cars or truck drivers not recognising two-wheelers. In our view this is one of the major benefits of ITS; to give the car or truck driver information that a motorcycle is crossing their path.

Cutting Road Deaths
http://europarltv.europa.eu/en/player.aspx?pid=c7369b80-e53a-44d0-99a7-9e9a012edcfb

Intelligent Cars
http://europarltv.europa.eu/en/player.aspx?pid=18ebf2ff-36e3-488b-b6df-a1a8192bac9a

Can ITS Improve PTW Safety? Findings Based on German Insurers Accident Analyses

Matthias Kühn, Head of Vehicle Safety - German Insurers Accident Research (GDV)
(see here the presentation and watch the speech – part 1 and part 2)

The presentation demonstrated that there are promising ITS applications for PTWs which are able to positively influence safety. Further research is needed regarding the expected benefits of ITS, and it is essential to develop a PTW specific impact assessment methodology. The HMI-interface is crucial (e.g. haptical throttle twistgrip) when adopting ITS systems. And it is vital to always put the rider in the focus when designing safety applications, because riding is not the same as driving.

Panel discussion

Bernd Lange: Are these findings similar to those in the United States?

Shane McLaughlin: There are certainly similarities, and I think it's important that the differences were highlighted between riders and drivers. But a motorcycle is very different from a car, so you can't compare fatality statistics between them easily.

Bernd Lange: What about in France? Any similarities or differences?

Eric Thiollier: It's a very interesting presentation, but I was surprised at the 50% of motorcyclists being responsible for their own accidents. The figures we have from insurance companies in France show that two-thirds of accidents are caused by the other party. Nevertheless there is a difference between accidents and fatalities; there seems to be a bigger responsibility for the motorcyclist in fatal accidents, which is surely something we need to look into. Vehicle to vehicle communication is very promising, especially if two-thirds of accidents are causes by the other driver. If you can have something warning of an approaching motorcycle, that could save a few lives.

Bernd Lange: What about in Sweden?

Jesper Christensen: In Sweden, 40% of all motorcyclists killed in the last two years did not have a valid licence, which shows that we have to be careful with statistics. I would really love to see this curve warning, to see if it might work.

Bernd Lange: Is this in line with your thinking regarding ITS on motorbikes?

Szabolcs Schmidt: Yes. We see that in many motorcycle accidents, speed plays a very important role. Six times more motorcycle accidents are due to unadapted speed than is the case with cars. Curve warning systems could help in this instance. Also we must not forget that when we talk about motorcycles in legal terms we include 3-wheelers and 4-wheelers, electric vehicles etc. But the key question to ask, whatever the type of motorcycle, is why should the user of that vehicle enjoy less protection than a traditional car driver?

Jacques Compagne: We must remember that most accidents occur at junctions, which is why we think that cooperative ITS, which we sometimes call digital conspicuity, is something that potentially could address a large proportion of accidents; maybe 50% of cases.

Bernd Lange: Would riders accept ITS solutions?

Eric Thiollier: I asked a safety expert about the potential of these devices – whether they could make a difference between a fatal accident and a non-fatal accident. He said the difference is "luck". But I can't accept that. It's "caution" – the fact that you are increasing your safety margin; that you are being wary and wise; that you anticipate the risks you are facing; that's what makes the difference. And that's where I see risk on the curve warning system. Today I am careful when I go into a curve as I don't know what's around the corner. Tomorrow the warning might go on, and I might lose some caution. Caution comes also from training – not as a way to improve riding techniques so you can ride faster – but training as a way to realise your own limits in a real live situation. ITS has the potential to improve training via simulators, without having to risk your life.

Szabolcs Schmidt: The data from the most recent European accident research is available and should be used. It provided a methodology for accident research and is a good example for member states to carry out their own systematic accident investigation. In addition, I would like to challenge the opinion that the motorcycle society is a very peculiar and special group. I disagree. Motorcyclists are just ordinary members of society and your safety is an issue for everyone.

Aline Delhaye: One of the conclusions of the presentation which I think is interesting is the development of an impact assessment methodology. I think we are missing the basic knowledge about motorcycling, because when we talk about systems, how are we going to assess the different kinds of systems if we don't have a proper kind of methodology in mind? We need to know what's behind the riding activity and before the accident. Only then will we know what kind of effect the system will have on the potential accident. This is missing knowledge; the missing link.

Shane McLaughlin: The naturalistic data are helpful with an impact statement. Usually some weighting factors are necessary. When you see different failure mechanisms you have to weight them to match a larger population.

User needs & acceptance, a key issue

Laurianne Krid, Policy Director (FIA) & Aline Delhaye (FEMA)
(see here the presentation and watch the speeches – Ms Krid and Ms Delhaye)

The presentation discussed the change in mobility trends in Europe and the safety benefits and potential risks linked to connecting users. Key challenges for users' acceptance of ITS include liability issues, driver distraction, awareness and training, safety, vulnerable road users, and pan-European solutions.

Panel discussion

Aline Delhaye: We want fair pricing too when we discuss ITS. ITS is a broad topic covering safety, pricing, the environment. Regarding the safety benefit of connecting users, we have different perspectives. As for the potential risk, we are aligned. As for the challenges, yes, we all have the same challenges such as distractions, training. On many issues we are in line with the car representatives. We are not there yet but fully support this approach and welcome the right to choose the services and data we want.

Szabolcs Schmidt: There are certainly a lot of open questions before ITS is introduced. We should not under-estimate the work that still lies ahead, whether it's data protection, availability of data or the technical interoperability. Questions still need to be resolved. We from the Commission side need to be quite prudent before imposing anything on anyone in terms of technical solutions. We have to make sure that the right framework is established. So that we have interoperability, that we have systems that speak to each other. We have to solve this at a European level. Having 28 different systems is not the right way forward. As recently as 3 December, the Friends of ITS came up with a document defining the main open questions. What is important is that we get all the stakeholders concerned on board to find the right answers as soon as possible.

Eric Thiollier: I am reassured that no system will be imposed on riders. That is really a key issue. We have been discussing these issues in the magazine and we had a lot of reactions from riders. They are really interested in all this new technology but really hate the idea that legislation would impose them, and the fact that they cannot opt in or out. For example we have been told in France that ABS should not be disconnectable, but ABS on gravel is a pain; you need to be able to disconnect it. And this applies to many other options.

Jesper Christensen: Data protection is key and here we have a tremendous challenge. Do we trust the politicians? What are you doing? How are you doing it? We are talking about pan-European systems. Is legislation the right way ahead? Why can't we just say that these systems have to be compatible? The riders

have to be involved; brought into discussions. We are six million and a significant group. And we can provide important understandings. It has been mentioned that PTWs now incorporate 3- and 4-wheelers, but a key difference is whether you counter-steer or not. This is a crucial difference.

Jacques Compagne: As manufacturers we should know how our customers are behaving; how they are reacting when confronted with a wide offer of different products. I think proposing a framework is something that the motorcycle industry fully supports. It's the best way to address the challenges and also the best way to match the different needs in usage we have seen in our market surveys.

Daniel Bell: From my point of view it doesn't depend so much on the empiric effects of the systems but more on the attitudes of the riders. The potential hazardous or negative effects correspond with the results of the VRUITS project. The riders are very aware of potential negative effects and therefore their attitudes are one of the main factors to be considered by the industry. We need to come up with a reliable impact assessment methodology, that should not only focus on the safety aspect but on general mobility. We need a repertoire of tools to assess these technologies and prioritize them.

Delegate: There seems to be two different categories: ITS for cars, and ITS in motorcycles. Also I am trying to work out whether you think that motorcyclists are the same or not as car drivers. I am getting different messages. Interesting research done in the UK shows that accidents tend to be about speeding, impairment, distraction, so the question is which of these are important to motorcycles, and which can ITS help with?

Frédéric Jeorge: There are different types of riders, using different machines, even driving cars. Cultures differ too, which makes it very hard to find one unique solution that could be applied to everyone. Europe and the States often need different configurations too. Within EU countries the same can be said. So a framework is important, to have compatibility, but it's hard to impose as the acceptance from users will be very low. I also think it would be useful to compare accidents between high-tech and low-tech bikes, as the latter seem to have significatively less crashes.

Delegate: Regarding curve warning, we (Bosch) are not intending to deploy this for motorcycles, because cornering speed depends greatly on a rider's ability and we cannot predict his personal performance. About off-road ABS, a test was done by a US motorcycling magazine and the rider was not able to make a shorter stopping distance with off-road ABS. Finally, about air bags, in 356 crashes on race tracks last year with riders using bikes with air bags, there were no shoulder or collarbone injuries. This shows that airbags can have a high contribution to road safety.

Day 1: Evening Session

Welcoming Words by Bernd Lange

Today I learned a lot about motorcycling – even though I am a biker myself – and also about ITS. It's a really important issue and also important that all stakeholders come together and exchange their opinions and points of view. In my understanding it was the first conference that all stakeholders are debating the ITS issue on motorcycles, and therefore it was a good step forward. I am convinced that this conference marks the beginning of a continuous dialogue about ITS and motorcycles in the future.

1) How can ITS support riders' mobility and leisure activities while improving road safety – Jesper Christensen SMC/FIM

(see here the presentation)

2) Motorcycle safety and Society 3.0 - Erik Donkers, Via.NL

(see here the presentation)

Open discussion

Maria-Cristina Marolda: Personally speaking, and not as a Commission representative, while I think this (Society 3.0) is a powerful tool to highlight factual problems such as the state of the infrastructure, I am extremely concerned about the reporting of personal behaviour. Technology is not 'neutral' and needs to be controlled. I fear a society based on "delation". I do not want a Society 3.0 where judgement on behaviour is left to individual emotions.

Frédéric Jeorge: I think cultural differences play an important role in this (Society 3.0). What might be feasible in the Netherlands might not be transposable to other, perhaps southern European, countries. Not everyone wants to be tracked, especially as a motorcycle is an symbol of freedom for many users. I can't imagine that many riders would agree with such a system of reporting. Also I would like to point out that people often think that a bike is going too fast even when it's not, because of the size and sound. Would all two-wheelers be reported ?

Wim Taal (Dutch Motorcyclists): I don't need a warning for a pot-hole. I need the authorities to fix it! We have a system in our organisation where we actually employ someone – at the cost of our members – to take in the complaints about problems on the road, and send them to the road authorities. We talk to the road authorities to get them fixed. My big problem with VIA is that it is a company making money out of road safety. They don't actually attack road safety. This will leave the gate open for anyone who wants to complain about motorcycling. This is a system we need to keep far away from. Actually we should fight systems like this. Today we have heard a lot of people talking about technical solutions and digital solutions, but very few talk about motorcyclists. Mr Schmidt asked why motorcyclists are not as protected as car drivers. It's because I choose not to be! It's not up to the government, the European Commission or the European Parliament, and definitely not up to a company making money over my back.

Delegate: This shows how important culture is, and I believe these technologies will be used in different ways in different countries. I think an app system if used in the right way may be beneficial.

3) How can eTraining courses contribute to increase road hazard awareness for novice riders - Aline Delhaye, FEMA

(see here the presentation)

Open discussion

Stéphane Espié: It is very interesting. We are working on something similar on the same topic. If we can train people to recognise hazards as early as possible and anticipate them properly we can help them. It's not to add more training but to change it.

Frédéric Jeorge: I think we should make this idea more accessible to more people. What I also think is a good idea is to have a trainee in a car following a motorcyclist undergoing training.

Delegate: This is a testimony to the importance of e-training or e-coaching. We want motorcyclists to be as exposed as possible to critical situations, so this is why Honda has spent a lot of money developing simulators for cars and motorcycles, to provide this virtual experience rather than allow them out on the roads where they will experience these critical situations in real life.

Delegate (Roberto, Palma): These kinds of tools may also be used to familiarise riders with ITS systems. On our riding simulator we invite people to brake with and without ABS and experience the difference in stopping distances and stability issues. This could also be another value if we are going to design new systems.

Stéphane Espié: We have a methodological problem here. You cannot expose a trainee in a simulator to an unsafe situation every 30 seconds; it is unrealistic. In real life this does not happen. It is difficult to find a balance in this respect.

Day 2: Working Session 2 "What are ICT/ITS/IVS for motorcycling?"

Moderator: Casto Lopez-Benitez Policy Officer, Road Safety Unit, Directorate-General for Mobility and Transport (MOVE), European Commission

Keynote Speech: Motorcycling and ITS, a US perspective

Shane McLaughlin, Research Scientist - Leader - Motorcycle Research Group, Virginia Tech Transportation Institute

(see here the presentation and watch the speech – part 1, part 2 and part 3)

This presentation focused on research conducted in the US into ITS. Regarding naturalistic data, it can capture behaviours and human performance capabilities, and provide exposure measures for each participant. It can reveal new causes. If the sample includes a spread of riders, it will bound the problem space. There are issues unique to motorcyclists. These differences should be included in ITS implementation on motorcycles. Whether riders are different from drivers depends on the research question. There is a wide range of proficiency in common riding tasks. Very few people are proficient in the 2.5 seconds before a crash. Very few people want to get hurt. For ITS, it is more productive to assume that all riders are unskilled at extreme manoeuvers than to spend time trying to parse out all the rider types and brands.

ITS systems/applications overview (State of the art)

Stefan Deix, Director R&D, CLEPA

(see here the presentation and watch the speech – part 1 and part 2)

This presentation covered ITS applications with a focus on them being safe (eCall, ABS, AEB), efficient (Dynamic Traffic Management, Tyre Pressure Monitoring, Cooperative ACC) and green (Start Stop Assistant, Energy Efficient Routing, Eco Driving). It described some of CLEPA's key research and innovation areas. It rounded off with a proposed ITS Roadmap, and outlined key similarities and differences between passenger cars and PTWs in the context of ITS.

ITS for PTWs: The Industry Perspective

Erwin Segers, Honda / ACEM Safety Committee Chairman

(see here the presentation and watch here the speech)

After describing some of the key aspects of the European motorcycle industry, the presenter defined ITS according to the EU ITS Directive as '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.' He described how ITS is an interaction between the rider/driver/pedestrian with the vehicle and the infrastructure, and outlined ACEM's view on ITS and a possible action plan. He suggested that cooperative ITS is the way ahead. He whetted delegates' appetite by saying that new initiatives and commitments of the industry in the ITS domain will be launched at the International Motorcycle Conference in Cologne, in September 2014.

RIDERSCAN ITS Survey preliminary results

Niccolò Baldanzini, Assistant Professor, University of Florence (UNIFI)

(see here the presentation and watch the speech – part 1 and part 2)

The objectives of the RIDERSCAN ITS Survey were presented along with how the survey was organised and carried out. Initial results were presented (2905 answers received up to February 27, 2014), but further work has to be done to analyse all the data in detail. France, Italy and the UK are the leading countries involved to date. Further research questions to be included cover topics such as the influence of age on acceptance of ITS, the influence of bike types on acceptance, and the best/worst rated for novice and experienced riders.

Open discussion

Delegate: Did the research look at whether riders have experience with all these systems?

Niccolò Baldanzini: They did not have experience with all the systems because we have a limited number of systems available on PTWs. We are aware of this problem. For some of the participants, the systems were rather abstract for them, although we did provide them with explanations of the systems.

Casto Lopez-Benitez: Overall I think the impression I have is positive.

Niccolò Baldanzini: Yes I agree, and it seems that novice riders may be more open to the systems, so they could possibly be used to test the systems during market introduction. I was a little surprised by the negative rating of infrastructure systems.

Casto Lopez-Benitez: As a representative of the European Commission I can assure everyone that we are a long way from making these systems mandatory. But we are keen to make those systems that are important for safety available and inclusive for all road users. Then we can consider mandatory deployment but I think this is not yet on the table.

Casto Lopez-Benitez: I have a question for the industry. To what extent is the current shrinking of the motorcycle market an issue? Will it be overcome globally? How do you see the market evolving regarding ITS?

Erwin Segers: In Europe we see the best possible conditions for moving forward with cooperative ITS. We have confidence in making this work, and probably the US and countries elsewhere are looking to Europe as the most advanced in this area. For us as OEMs and also for our suppliers, being able to expand from Europe will provide us with economies of scale so that the technology is not prohibitively expensive. It has to be cost-effective, which means affordable. Having fancy technology which is too expensive to deploy makes no sense. This is why we are looking at cooperative ITS systems, compared to autonomous systems, which for every bike need an array of sensors.

Delegate (Philips Lighting): What is the role of lighting in the future of ICT?

Stefan Deix: We do not think new ICT technologies will make lighting obsolete. Technologies like adaptive lighting are very significant.

Erwin Segers: I would like to emphasise that cooperative ITS is definitely not a short- or mid-term replacement for any conventional technology that we are deploying today. In this respect, in the visual conspicuity area we can probably make improvements, to make ourselves seen as motorcyclists.

Niccolò Baldanzini: Adaptive lighting was quite appreciated and we have tested such a prototype and the results were positive.

Day 2: Working Session 3: "Opportunities and Challenges"

Moderator: Wolfgang Höfs Head of Sector, EC/DG CONECT/Smart Cities and Sustainability

eCall for motorcycling, challenges and opportunities

Hennes Fischer (Yamaha Motor Europe) The Motorcycle Industry in Europe
(see here the presentation and watch the speech – part 1 and part 2)

The presenter firstly described how an eCall for cars works, and then highlighted the key differences for an eCall system for PTWs. The differences mainly centre around the physical separation of rider and vehicle after an accident. This presents a challenge and substantial unresolved issues. Liability issues also need to be resolved. ACEM is proposing research to define a standard for PTW eCalls, and is inviting OEMs to participate in the Horizon 2020 project call for PTW safety. A PTW eCall Roadmap was presented.

Open discussion

Delegate: Can you comment on the integration of eCall systems into motorcycle airbags?

Hennes Fischer: We are certainly willing to look at existing systems and use them if appropriate. We are not closing the door to developments in other areas to what I have described.

Delegate: Do you believe that we will reach society-accepted level of the limitations of such a system?

Hennes Fischer: Our attitude is to find out to what level we can go to with the technology I have described. There are limitations, for sure. The question is how far do we need to keep the door open for further development.

Frédéric Jeorge: eCall is probably most useful in areas of low traffic where there are fewer people around to inform the emergency services. But in such locations, the cell phone network has probably the least coverage. Do you plan to use a different network?

Wolfgang Höfs: The question of network coverage applies to any eCall system. And you are right, in areas with bad network coverage the system might fail. What we are doing is to use the 112 infrastructure, so that the emergency call is routed independently of any subscription to the next available mobile network provider.

Jesper Christensen: Last night I gave a presentation of the Securify system which contains a website link. In Sweden we were using the 112 priority system. We decided to stop further work as we came across too many problems, mainly around the separation of the rider and the bike after an accident.

PTW Digital Conspicuity: (Pre)Drive C2X project and opportunities

Filip Sergeys, Honda Motor Europe

(see here the presentation and watch the speech – part 1 and part 2)

This presentation covered the Honda Motorcycle Safety Concept, Honda's approach to ITS, and the DRIVE C2X Project (www.drive-c2x.eu), which involves ad-hoc wireless communication between vehicles based on ETSI ITS G5 communications. Focus topics were PTW Digital Conspicuity, and the challenge that it is often difficult to recognise a motorcycle among other vehicles. Conclusions include the fact that digital conspicuity is a promising concept aiming to enhance the conspicuity of the motorcyclist by means of ICT, and that ITS G5 V2X vehicle-to-vehicle communication technology has the potential to significantly enhance overall traffic safety, and at the same time motorcycle safety.

Open discussion

Delegate: This system works with radiowaves. Is there a risk of saturation (cell phones, ITS, computer networks etc.). Can they disturb each other?

Filip Sergeys: This is a highly relevant question. In this specific case of V2X the European Commission has granted a very dedicated frequency which is solely for the use of safety applications. It is granted but not yet commercially exploited. In the US they have a very similar frequency and they have tested up to 300 vehicles at the same intersection and the system did not fail.

Delegate: 'Look but fail to see' is an over-riding issue. It's not about conspicuity, but about people seeing yet not reacting because they are distracted, for example by talking on a mobile phone.

Wolfgang Höfs: This is a very big issue so the Commission is prepared to fund a project to look at this issue.

Delegate (Dutch Ministry of Transport): If you don't get a signal, this can mean one of two things. Either there is no motorcyclist, or there is but he doesn't have this device fitted. How can you make sure that the penetration rate reaches a level so that if you don't hear a signal that means there is no danger ahead?

Filip Sergeys: A good question. How to make sure that early customers of the system can benefit from it, and also that the expectations from a driver perspective are realistic? This is a challenge for cooperative ITS as a whole that we are working to address. It is possible to address it by combining communication technologies; adding cellular communication for instance, to speed up the penetration rate.

Light Motorcycle Safety: informing, inspecting, improving

Luca Pascotto, Global Public Policy Manager, FIA

(see here the presentation and watch here the speech)

The objectives of the Light Motorcycles Project are to try to document the efficiency and user-friendliness of braking systems in various current light PTWs up to 125cc; to look at the availability of the systems in some markets, and to get evidence to increase awareness among consumers. The presenter concluded that a lot can



be done to improve safety on these PTWs. Tests have clearly revealed the weaknesses of these PTWs, which are frequently equipped only with conventional brakes with small disks on small wheels. ABS and CBS may support drivers in braking and help to maintain motorcycle stability and reduce braking space. Riders need to practice and learn the use of new braking technology to make the most of the capabilities of their brake systems. Finally, better availability of systems need to be ensured in the market.

Open discussion

Frédéric Jeorge: I would like to comment on statistics. Between 2006-10 you showed a big increase in accidents, but in these years there was also a huge increase in the number of 2-wheelers, especially the lighter ones up to 125 cc. In some cities this has been a 400% increase. So if the accidents have not decreased in absolute number, in proportion it actually got a lot better. I think we should always look at the ratio between the number of bikes and the kilometres.

Delegate: About conspicuity, I think it's important to improve it by also implementing more traditional techniques.

Luca Pascotto: I agree, this is not the only silver bullet and definitely other conventional technologies will be important too.

Aline Delhaye: The impact of new technology on training is important. For example, ABS without training has been found to be less efficient. What are your views on this?

Luca Pascotto: I agree that training on new technologies is vital. We will continue to do this. This has to be introduced in training schools.

Hennes Fischer: Interpretation of signals is important. If you get a warning of an approaching motorcycle, what does the driver do? Accelerate, brake, turn in the opposite direction? This is something we have to take into consideration as a training issue – how to react if a driver gets certain information. What options do they have?

Filip Sergeys: During training I think it would be helpful to help riders/drivers understand new technologies and what they can do and how they can benefit from them. When vehicles get connected in the future, your own vehicle will have enhanced intelligence and will be able to judge whether your behaviour or decision is right or wrong. So in the future your own vehicle may train you in safety while you are riding.

Luca Pascotto: It's also important to consider and know what technology can NOT do. This is just as important as knowing what it CAN do.

Day 2: Working Session 4 "Research and data collection: needs and challenges"

Moderator: Matthias Kühn, Head of Vehicle Safety - German Insurers Accident Research (GDV)

Accident causation data collection and evaluation, a comparison of EU Databases & VRUITS project Expert views

Daniel Bell, FACTUM

(see here the presentation and watch the speech – part 1 and part 2)

The aims of the VRUITS project are to assess societal impacts of selected ITS, and provide recommendations for policy and industry regarding ITS in order to improve the safety and mobility of VRUs; and to provide evidence-based recommended practices on how VRU safety and mobility can be integrated in ITS systems and on how HMI designs can be adapted to meet the needs of VRUs. A further objective is to test these recommendations in field trials. Currently there are limitations regarding the extent of the data and its detail, making it impossible to determine accident characteristics at an in-depth level. There is also a limited capability for discrimination between moped and motorcycle accidents, which makes it difficult to generalise about ITS countermeasures.

Open discussion

Delegate: What kind of technology can you imagine could determine rider performance? Particularly in terms of distraction, abilities and so on?

Daniel Bell: Another task that is occurring in parallel is a mapping of prioritisation of ITS. We are trying to integrate all different applications that are currently available, for pedestrians, cyclists and PTWs. The decision process isn't finalised yet so we have another workshop where we will limit the number of ITS applications.

Hennes Fischer: If the data is inconsistent, as you mentioned, do you think it's still good enough to make it a base for recommendations for technical functions or decisions?

Daniel Bell: Yes, the data is telling us about the most important accident scenarios that we have to take into account. It will serve as the basis for an impact assessment methodology and I think it's sufficient. But to go a step further we need the microscopic data to pick out the systems that can address causing factors.

Hennes Fischer: Based on these scenarios, we cannot make technical recommendations.

Daniel Bell: Absolutely not. That's why we are further developing it and are trying to gather more in-depth data to get a glance at what the problems really are. And to specify the actual accident scenarios.

Bertrand Nelva-Pasqual (Mutuelle des Motards): Did you try and work with insurance companies, as they have plenty of data?

Daniel Bell: We know that insurance companies have this data available but in the first step we focused on the data that was actually available to the partners. In the next phase where we will be focusing on microdata this will be one of the tasks.

Matthias Kühn: There is a lack of sufficient data for a clearer picture. Would you say that traditional post-crash accident data is sufficient, or would you like pre-crash data as well?

Daniel Bell: Absolutely yes, but the problem is that you really need field trials and we have a problem with resources.

Human Factors and ITS deployment needs

Natasha Merat, Associate Professor, Institute of Transport Studies, University of Leeds
(see here the presentation and watch the speech – part 1 and part 2)

This presentation looked at the increasing implementation of automation technology in vehicles, and described how interest in the interaction of drivers with this technology is starting to pick up. The challenge is to ensure that drivers are engaged in the task, adequately trained, use the system correctly, and that designers are aware of the limitations. Also highlighted were possible long-term effects of automation, the effects of automation on other traffic, and potential reaction/interaction with VRUs? Possible implications of automation include a loss of skill, loss of situation awareness, changes in workload (e.g. under-load followed by excessive overload in critical situations), behavioural adaptation, and misuse/abuse.

Motorcycling Human Factors

Alex Stedmon, Coventry University & Open Road Simulation Ltd
(see here the presentation and watch the speech – part 1 and part 2)

The presenter defined Human Factors as covering the interaction between rider behaviour, motorcycle design and human-machine interaction. The presentation also looked at rider cognition, attention and decision-making. He described systems issues such as the performance of one agent affecting others in the same system, as well as training, expertise and confidence, and the differences between novice, experienced and advanced riders. Highlighted were issues such as rider fatigue and alertness, as well as a variety of situational factors. Various ITS solutions and their performance under simulation were described, along with the ITS development needs. These include designing solutions that motorcyclists need and want, and understanding different motorcycling cultures and the complex issues of automation.

Open discussion

Delegate: Do you have an idea of the size of the bandwidth between having control over your bike and going over the edge and having an accident?

Alex Stedmon: It's very variable. Different people are going to have different bandwidths. We could make a generic grouping based on certain attributes (e.g. training, proficiency). It would also be useful to take a system from bike to bike so that your riding history goes with you.

Natasha Merat: If you are talking about position in the road, under normal conditions the bandwidth is not that variable. We can use that measure to see whether people are impaired or distracted. There is some interesting data that shows a difference between visual distractions (looking away from the road) and cognitive distractions (still looking ahead at the road). It shows that when you are visually distracted there is a lot more variation, but when you are cognitively distracted the variation is less. We call it standard deviation of lateral position.

Delegate: I am worried that we are heading down the route of having "empty heads" while riding, when actually we need to concentrate more.

Natasha Merat: This is a huge problem, and not just from mobile phones but from everything that is coming into the car. I think it's very dangerous.

Alex Stedmon: Shared communication could help inform riders of an accident ahead, but I agree it's dangerous to blindly follow the automotive route. That's why it's important to capture user requirements, and communicate it to the designers, so that if they give us something, it will be something we want.

Stéphane Espié: I think with more automation, we have to give more attention to training. Driving semi-automatically means you lose your skills. Regarding simulators, how far can we use an objectively safe situation in a simulator to transfer and study an unsafe situation out on the road?

Alex Stedmon: We can train people and expose them to situations which they may not normally encounter on the road. Simulation isn't a faithful replication of the real world. We can't mimic what a real bike can do. It's a case of giving them a set of skills that they can then re-use and re-interpret in new situations. It's a toolkit of ways to interpret new situations.

Naturalistic data collection to improve behavioural knowledge, Field operational testing and analytical modeling, HMI design data collection needs

Stéphane Espié, IFSTTAR

(see here the presentationand watch the speech – part 1 and part 2)

Riding is a complex task, using the same infrastructure as cars but with specific characteristics in terms of vehicle dynamic, conspicuity etc. and with a high level of potential risk. There is a great need for scientific based countermeasures to mitigate fatalities and injuries and improve vehicle, infrastructure, and equipment, as well as improve behaviour. Data collection is necessary for a variety of purposes, such as road design and equipment; training/licensing; riding aid devices design/tuning (including HMI); dynamics of the PTW; riders' actions; and the context of riding. The presentation described naturalistic riding studies as well as a set of supplementary tools and methods to support the scientific design of safety counter measures.

Open discussion

Hennes Fischer: I think the big challenge for ITS implementation is to look at the HMI design and decide what we show the rider and when. Otherwise the acceptance levels, especially for experienced riders, will be very low.

Stéphane Espié: We saw that a few years ago with a navigation system. Cars and PTWs need two completely different systems.

Aline Delhaye: In terms of priority, we believe that ITS development should focus on the novice rider's needs. We will not be able to address the needs of all riders, and particularly experienced riders.

Matthias Kühn: We need to understand the behaviour of all rider groups. Conventional accident data is not enough to come up with suitable designs of intelligent systems. We need new tools and naturalistic riding is one of the tools in the toolbox. We need simulator studies, in-depth accident research, and then we have to put these together. Another point is we don't have to invent everything new. Interesting research has already been done in the car business, in planes, and some issues are similar. The rider is still a human. We can learn from these other research studies.

Data protection and Privacy for all road users

Laurianne Krid, Policy Director, FIA
(see here the presentation and watch here the speech)

A video was shown (http://vimeo.com/82273714) to illustrate how vehicles already have the capability to track information on their own. Very soon, they will be able to transmit that data over secured networks, for instance in the event of a breakdown. This can ensure a faster, better equipped and more effective response. However, there are also concerns about data protection. For the FIA, road users should in principle own all data generated by their vehicles; get clear information about the data gathered and its potential use; and be free to share it with service providers of their choice.

Open discussion

Frédéric Jeorge: Can you comment about the issue of longevity and the support of software? Also I am concerned we are heading towards the possibility to do less intervention on a motorcycle for maintenance.

Laurianne Krid: There is a drive to make the system work for the lifetime of the vehicle. If the software goes down I don't think it would prevent the vehicle from running altogether. Telematics is just an interface between the vehicle and the user.

Frederic Jeorge: For some bikes, if the ABS is disconnected the bike will not start.

Aline Delhaye: One of the reasons I wanted this presentation included is that once again motorcycling is lagging behind the discussion for cars. What the FIA is working on is something that I believe all of us as riders would accept. Of course we have specificities that do not apply to motorists, but this decision is taking place now. So while we are still struggling to collect the data, the public debate on the protection of data is ongoing and will be decided before we have finished our own discussions. So we should not lose sight of the other challenges ahead of simple data collection issues.

Day 2: Wrap up Session "What makes riding different from driving?"

Moderation: Aline Delhaye, Secretary General, FEMA

Synthesis (reports from Day 2 Working Sessions)

Working Session 2 "What are ICT / ITS / IVS for motorcycling?"
Rapporteur: Dolf Willigers, Dutch Riders representative (MAG NL)

We listened to Stefan Deix from CLEPA who told us how ITS helps to get safe, efficient and durable traffic, and he was very positive about this. It was clear that automotive suppliers are seeing a lot of future in it. He also said that we need communicated standards to get development right, and he sketched a development which will take us from connected vehicles to cooperative vehicles, and in the end to automated transport. He also recognised the differences between cars and motorcycles, and he explained that although certain technologies being good and useful in cars may require adaptation to be good and useful on motorcycles.

After that we listened to Erwin Segers from Honda/ACEM who confirmed that also the PTW industry in Europe is convinced of the many benefits of ITS as presented by CLEPA. He explained that ITS will indeed help to get safer, cleaner and smarter transport. He emphasised the importance of standardisation but also explained that what goes onto cars doesn't need to or can get onto motorcycles because of the specific dynamics of motorcycles and techniques that are different from cars. An important thing he said is that he sees a future role for Europe in taking the lead in the development of ITS for motorcycles. He also said that the biggest future is in cooperative ITS with vehicle-to-infrastructure and vehicle-to-vehicle info/warning solutions and not as much in for example automatic braking systems and things like that which intervene in the control of the motorcycle.

He also said that the biggest future is in vehicle-to-infrastructure solutions in ITS and not as much as in automatic braking systems and things like that.

Last we listened to Niccolò Baldanzini who talked about the RIDERSCAN programme. It's a bit early for conclusions because of the limited reactions. What surprised me a little was the acceptance from motorcyclists of ITS solutions. This acceptance seems to be greater by younger and inexperienced riders as it is by older and more experienced riders. Maybe over time this will change when more input is provided from Europe, as to this moment input has mainly come from France.

Working Session 3: "Opportunities and Challenges"
Rapporteur: Aki Lumiaho, Chief Consultant, Head of Mobility & Innovation (Ramboll)

First we had Hennes Fischer from Yamaha talking about eCall and how PTW eCall solutions have been already discussed among industry and the European Commission and there is a common understanding of the

possibilities and benefits that eCall might bring. The efficiency of eCall is unknown due to vehicle dynamics and complicated accident scenarios that are totally different from cars. This is one major reason why the current eCall system cannot and should not be brought as such to PTWs. One of the critical issues with a PTW eCall is triggering. There are no best practices for this, there are no defined solutions yet, and a discussion topic is that the triggering mechanism is always in-vehicle or on-bike systems or combined with rider protective gear or helmets such as sensors. For OEMs only the systems that are integrated in the bike are their responsibility and at the moment they are not willing to accept liability for any other solutions used to trigger eCall. The industry also defined their eCall roadmap and is willing to research further eCall triggering possibilities for PTWs within the framework of Horizon 2020, with their mind on the minimal technical requirements. The system must be simple, robust and reliable, and the main reason is the potential high number of false calls.

Then Filip Sergeys of Honda discussed the visual conspicuity topic, and the leading idea was that we need to see each other better. In CTX there were PTWs and cars that were seeing each other better, there was a role for the car-to-car consortium, also some of the recent research projects like Saferider have already touched this topic. However, the car-to-car consortium is putting a conspicuity platform on cars available around the middle of next year, but around the PTW domain this is totally open. More research is needed there. Then we had the motorcycle approaching warning aspect and here this application would be relevant prior to the pre-crash scenario. The challenge is that the technology is not ready for PTWs. There is a penetration rate in cars and then motorcycles will follow, along with the need to cooperate with the motorcycle approach warning application. As conclusion, visual conspicuity is a promising concept, the technology is becoming more mature, and the PTW industry is willing to look further in this domain.

The third speaker was Luca Pascotto who told us about the light motorcycle braking study they have done. This involved five different light motorcycles below 125 cc and it was shown that the combined braking system with ABS may help riders brake and maintain stability at the same time. However, training and practice was needed to learn how to use these new braking systems as it will be also for other upcoming ITS solutions.

Working Session 4: "Research and data collection: needs and challenges"
Rapporteur: Mihaela Williams, Policy Officer, European Commission, DG Mobility & Transport

For the time being, vulnerable road users such as PTWs are not extremely visible in ITS policy such as the ITS Directive. This is because in order to integrate specific aspects of vulnerable road users in the policy, robust and reliable evidence is needed that would allow making recommendations to policy makers that could be taken up later in the policy making process. But developing this robust and reliable evidence requires reliable data to help build this case. For example if we speak about ITS for improving safety of riders, data could allow assessing the impact of future systems, and understand riders' behaviour (for example why an accident takes place). We need not only to observe but understand rider behaviour in order to develop solutions that riders really need and want. But "riders" is a heterogeneous category and we heard today that there are a lot of factors describing the rider such as demographics, age, gender, riding habits and also experience. Given the heterogeneous nature of the riders group, there might be the need to prioritise, and to address the needs of those who will benefit the most from a certain application. What we have also learned today is that riding and driving are different, also because driving is a very well researched area, while we cannot say the same thing about riding. This leads to insufficient availability of data that could help us understand rider behaviour. Daniel Bell gave us an overview of existing databases for accident data; we could see that the landscape is very fragmented in the sense that there is a series of national databases and very few at a European level. Moreover, only a couple of them go in depth

and there is also methodological inconsistency in the sense that the scenarios and assumptions are quite different. This makes it very difficult later on to process the data which is not consistent or compatible across Europe. Hence, there is a clear need to collect data because it might not be enough to use accident data only. We have learned today that there are various methods and approaches to collect additional data in order to better understand rider behaviour; each of them has benefits and limitations. Stéphane Espié gave examples of collecting data in simulator/on test track/on closed roads, versus non-reproducible situations. It is also very important to have a clear view on what exactly has to be collected and what are the purposes of the data collection, and then to choose the methods. It has also to be taken into consideration that data collection is a very resource-intensive activity both timely and financially. In the case of non-reproducible (naturalistic) riding the outcome of the data collection could be a huge amount of data that has to be processed, analysed and interpreted. A toolbox would be needed, including various methods in order to have extensive data collection.

Also the debate showed that when speaking about the market introduction of new ITS services and applications it is necessary, in addition to quantifiable evidence, to think about cross-cutting issues related for example to data protection and privacy. Data protection is one of the key principles when consumers take up a certain product, together with consumer choice and free competition.

Concluding remarks

Frédéric Jeorge, President, Federation of European Motorcyclists Associations
(see here the President's concluding remarks and watch here the speech)

What I like about this forum is that it is an excellent means to bring us all together. We all need each other: authorities, researchers, manufacturers and of course users. The users are after all the reason for all of this. The users are the riders who suffer from accidents. They are the consumers who buy the products. They are the citizens who have to apply the rules. But also who decide who makes the rules. And they are the human beings, whom science is meant to serve. Unfortunately they are also quite often a bit left out of decisions which affect them quite closely. And sometimes they are not consulted enough. And even if they speak up they may not be listened to. So this forum is positive for all the interactions that happen between all the stakeholders and the riders' organisations, and I think that it is a prerequisite for any new technology to be understood and accepted.

Generally speaking, riders are not stupid. They are very safety aware and want safer infrastructures, safer vehicles, fewer accidents and so on. You only have to look at the many initiatives that FEMA members are doing all over Europe: training, awareness, testing of bikes and equipment, proposing infrastructure evolution, and sometimes even developing their own ITS. In view of that we can trust them to adopt new technologies, if they can actually improve the situation for them and for the other road users.

I am not sure if we should start by wondering how to make the consumer accept a new product. Or if we should force this dissemination by making it mandatory. If the technology is mature enough, and it's a natural improvement, the riders will want it of course. Bikes we ride today have little in common with those we rode a few decades ago. Even the number of wheels has changed! So the priority in my mind is to provide a positive and open frame for innovation, and mostly to make sure that before any new technology is promoted it goes through a proper and intensive impact assessment.

As we have seen in yesterday evening's discussion, it is not because we can do something that we have to do it. There is the possibility of too much technology; too much assistance; and too big a feeling of safety. The right amount in the right place will make a difference, and some of the ITS solutions we discussed today are very promising.

I urge every stakeholder never to lose sight of the human factor. As trainers and riders, the biggest problem we face is over-confidence, and a lack of efficient, direct control. Some speakers mentioned that it will take a long time before enough vehicles are equipped for the system to be safe. I personally fear that the more vehicles will be equipped, the less safe it will be for the few remaining. I also remember that not everything on the road is a vehicle. We have bicycles, animals, kids, and unless you can put a chip on everything, cooperation might be hard. So we always have to keep in mind the human side. Loss of concentration is an issue that should never be under-estimated, and also the freedom of choice is paramount for most riders.

An interesting figure from the insurance companies is that the lowest tech bikes have the least accidents. Of course there could be many reasons for this – the data has to be analysed – but it's something we should keep in mind. This is not a plea against ITS. Far from it. It's just a reminder that too much of a good thing may not be positive. And until we have fully automated vehicles we will still have people in charge of the driving task, and we need to know where we are going, before we get there.