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Executive Summary

This report discusses the results of a user information survey concerning safety systems on PTWs (Powered Two Wheelers) to obtain insight in the present usage of PTWs and the demand and acceptance for new safety systems for Germany (D), Italy (I) and the Netherlands (NL). Additional information from an extensive UK survey was also analysed. This data allowed survey information to be related to existing data sources and to investigate the trends in PTW accidents. This analysis was used to relate rider characteristics to accident risk and to the user acceptance of systems.

The participants of all the three different countries drove *often* on rural roads, *quite often* on urban roads, *sometimes* on motorways and *hardly ever* on unpaved roads. The German participants drove less frequently on urban roads compared to the other two countries and the Dutch participants drove more frequently on motorways compared to the other two countries.

The driving circumstances differed amongst all three different countries: the participants drove mostly in fair weather and during daytime. However the Italian participants drove more frequently during night and twilight compared to the other two countries.

The results showed that German and Dutch participants drove less reckless than the Italian participants. It was also shown that the participants that owning a sport PTW drove more reckless than the participants that drove other PTWs.

In the UK, two main groups of riders were identified; those who ride in all conditions throughout the year, including in the wet and dark, and those who ride in all conditions during the summer, but do not ride in the winter. The former have a much higher probability of accident involvement than the latter. The survey data suggests that the characteristics of the average EU survey and those of the UK are similar.

It could be concluded that the protection that is most often worn is of the following order:

1. Helmet
2. Motor jacket, motor gloves
3. Boots, motor suit
4. Motor trousers, earplugs, body protector, knee pads and kidney belt

Overall, the Italian participants seemed to wear less protection compared to the German and Dutch participants.

The outcome of the questionnaires referring to the desired systems showed that the PTW drivers were in favour for direct driving support systems such as ABS, ESP, Night vision displays etc. Automatic support systems, taking away tasks from the PTW driver were disliked. It also seemed that the Italian drivers were more interested in the enhanced vision/night vision display than the other two countries. This could be related to the circumstances that the participants drove in. The Italian drove more during night and twilight than German and Dutch participants.

A disparity may exist between user acceptance and the potential benefit of safety systems due to the perception of systems, the motivation of PTW riding and the accident liability for rider groups. However, APHS systems may be the most viable for implementation and could provide the most immediate safety benefits. CWS systems should be prioritised towards inexperienced riders who have reduced hazard perception and observational skills and a high accident liability. This group may also have the least opposition to new safety systems. Although generally considered undesirable, ADTS systems should be focused towards particular user groups since the acceptance, functionality and therefore safety benefit is somewhat dependent on the purpose of riding.



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Summary

This report discusses the results of a user information survey concerning safety systems on PTWs (Powered Two Wheelers) to obtain insight in the present usage of PTWs and the demand and acceptance for new safety systems. This User Information study was conducted in three different countries in the period between August 2006 and January 2007. These countries were Germany (D), Italy (I) and the Netherlands (NL). The total number of correspondents cannot be regarded as being representative for the group PTW drivers in the EU because of the limited amount of countries involved in this study (only GE, I and NL) and also for the concentration of correspondents for Italy and Germany (close to Munich). However, it provides user information for a large group of different types of riders from Germany, Italy and the Netherlands.

A UK survey of 30,000 current motorcyclists who were registered as, private-owner, motorcycle keepers in the UK was also reviewed. The survey data was related to existing data sources to investigate the trends in motorcycle accidents in order that rider characteristics could be related to accident risk and to the user acceptance. The survey achieved an 11,360 (40%) response rate. Given the high response rate and random sampling, this survey provides a good representation of the UK PTW user population. The UK survey was compared with the PISA survey to consider the similarities and differences and to get an insight in the relation between the examined user information and accident risks.

The participants of all the three different countries drove *often* on rural roads, *quite often* on urban roads, *sometimes* on motorways and *hardly ever* on unpaved roads. The German participants drove less frequently on urban roads compared to the other two countries and the Dutch participants drove more frequently on motorways compared to the other two countries.

The driving circumstances differed amongst all three different countries: the participants drove *always* in fair weather and during daytime, *often* during twilight and in queued traffic, *quite often* during night and in the rain and *hardly ever* in the snow. The Italian participants drove more frequently during night and twilight compared to the other two countries and the German participants drove less frequently (*hardly ever*) in rain and snow compared to the other two countries.

The German participants drove mainly for fun. For the Dutch participants it seemed that the participants that drove a sport PTW, roadster, a cruiser or an off-road PTW, drove also mainly for fun. The participants that had a touring PTW drove mainly for economical reasons.

With the scooter drivers included it seemed that the Italian drivers that drove a sport PTW, touring PTW, roadster, a cruiser or an off-road PTW, drove mainly for fun. The participants that had a scooter with an engine size of less than 250cc or a scooter with an engine size of more than 250cc drove mainly for economical reasons. Additionally, there was no clear relation found between the reason for driving a PTW and the amount of driven kilometres, the different road types that were driven and the different circumstances.

The analysis for all data excluding the scooter drivers showed that the German and Dutch participants drove less reckless than the Italian participants. It was also shown that the participants that drove a sport PTW drove more reckless than the participants that drove a touring PTW or a cruiser. The participants that drove a roadster or an off-road PTW drove also more reckless than participants with a cruiser.

The analysis including scooter illustrated that the participants that had sport PTW, an off-road PTW, a scooter with an engine size of less than 250cc or a scooter with an engine size of more than 250cc drove more reckless than participants that had a cruiser.



In the UK, two main groups of riders were identified; those who ride in all conditions throughout the year, including in the wet and dark, and those who ride in all conditions during the summer, but do not ride in the winter. The former have a much higher probability of accident involvement than the latter. The survey data suggests that the characteristics of the average EU survey and those of the UK are similar.

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The outcome of the questionnaires referring to the desired systems showed that the PTW drivers were in favour for direct driving support systems such as ABS, ESP, Night vision displays etc. Automatic support systems, taking away tasks from the PTW driver were disliked. It also seemed that the Italian drivers were more interested in the enhanced vision/night vision display than the other two countries. This could be related to the circumstances that the participants drove in. The Italian drove more during night and twilight than German and Dutch participants.

A disparity may exist between user acceptance and the potential benefit of the APHS systems due to the perception of systems, the motivation of PTW riding and the accident liability for rider groups. However, ABS and ESP may be the most viable for implementation and could provide the most immediate safety benefits. CWS systems should be prioritised towards inexperienced riders who have a high accident liability due to reduced hazard perception and observational skills and may have a reduced opposition to CWS safety systems. Although generally considered undesirable, ADTS systems should be focused towards particular user groups since the acceptance, functionality and therefore safety benefit is somewhat dependent on the purpose of riding.