



## “European Handbook on Good Practices in Safety for Motorcyclists”

ROSA Project has identified (through the different WorkPackages) a series of **problems** to be solved (concerning PTW safety) and **solutions (Good Practices)** to be applied for solving these problems. Therefore, the interpretation that it should be done is:

*The **Good Practices** are those that are going to solve (surely or probably) some problems related to specific subjects of PTW road safety*

Both **problems and solutions** have been classified into the following **epigraphs**:

- 1.- Infrastructure.
  - 2.- Vehicle (Motorcycle).
  - 3.- Human Factor.
  - 4.- Motorcyclist equipment (protection).
  - 5.- Enforcement-Policies (Administration).
  - 6.- Training/education.
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**Interpretation of the information  
(“PROBLEMS” and “GOOD PRACTICES” shown in ROSA):**

In ROSA Project, the information of the **problems** to be solved has been detailed though the so-called “Dossier type 1”. This dossier has different gaps to be fulfilled depending on the type of problems and the information available.

As follows, this “Dossier type 1” is shown, explaining which type of information should be detailed with the aim of characterising this **problem** to be solved by specific **good practices** (with the aim of explaining better this dossier, a specific problem related to Human Factor problems is given).

<b>Problem 3.1.1</b>	<i>Tendency of the young rider to break the law and to violate the rules</i>
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<b>Epigraph</b>	<i>This field will identify the epigraph to which this problem belongs to. Example: 3. Human Factor</i>
<b>Subject</b>	<i>This field will identify the specific subject to which this problem belongs to. Example: 3.1. Socio-demographic aspects of riders: age, gender, experience.</i>
<b>Problem to solve and justification</b>	<p><i>In this field, the problem is detailed as well as justified (showing and giving data-figures that justify this problem and the necessity to be solved). Example:</i></p> <p><i>People involved in road traffic accidents with mopeds and motorcycles differ according to gender and age. The increased crash risk of the young riders may be attributed to the factors of inexperience and immaturity (Yeh and Chang, 2009).</i></p> <p><i>Rutter and Quine (1996) identified particular patterns of youth behaviours, such as a willingness to break the law and to violate the rules of safe riding, which had a much greater role in accident involvement than inexperience.</i></p> <p><i>Young and male were more likely to disobey traffic regulations and particularly young riders also had a higher tendency towards negligence of potential risk and motorcycle safety checks. Nevertheless, female riders were more injurious than male ones (Quddus et al., 2002, Keng 2005), despite the fact that young and male riders perceived themselves to be a greater risk of accidents (Mannering and Grodsky, 1995).</i></p> <p><i>In the United Kingdom, the effects of age and experience together showed that a 22 year old rider with 6 years experience has a crash risk 50% lower than a 17 years old rider with one year of experience (Sexton, Baughan, Elliot, &amp; Maycock, 2004). The MAIDS studying Europe suggests that inexperience riders not as skilled at risk identification or anticipation of dangerous situation as are experience riders (ACEM, 2009).</i></p> <p><i>Riding experience seems more important for motorcyclists than for drivers of other vehicles categories. Limited experience and poor riding skills due to badly designed motorcycle licensing system are critical for young riders, and particularly for young female riders leading in increasing accident risk (Chang and Yen, 2007).</i></p> <p><i>Motorcyclists must also have cognitive skills for riding that can only be obtained through experience. Common crash contributory factors include failure to respond to hazard, ineffective braking and inappropriate road positioning (Haworth,, Smith,, Brumen, and Pronk, 1997)</i></p> <p><i>Moreover, rider behaviour regarding the probability of crash risk is also related to riding exposure (Harrison and Christie). A period of absence from riding might result in a decline in safety-related motorcycle skills.</i></p>

<b>Objective of the Group of Good Practices</b>	<p><i>In this field, the objective of the Group of Solutions (good practices to be applied and to be detailed later) is given.</i></p> <p><i>Example:</i> Avoiding the tendency of the young rider to break the law and to break the rules of safe riding negligence of potential risk and motorcycle safety checks.</p> <p>The same way as improving and developing the superior cognitive skills for riding that can only be obtained through experience, such as: perceptual ability to judge the radius, width and camber of a curve; hazard perception including detection, response choice and execution; etc.</p>
<b>Code of the Group of Good Practices</b>	<p><i>With the aim of identifying each Group of "Good Practice", it is necessary to use a code.</i></p> <p><i>Example:</i> 3.1.1.</p>
<b>Good Practices</b>	<p><b>Effective Good Practices (Group A)</b></p> <p><i>It has to be taken that all the solutions (Good Practice) for this problem are effective (because it is known that have helped to solve the problem) or are possible solutions (because it is thought that they can be effective but there are not studies showing the effectiveness of this second type of solutions). In case of being effective, they will be included in this field (Type A)</i></p> <p><i>A brief text of this Good Practice is given in this field, using the respective code.</i></p> <p><i>Example:</i> Good practice 3.1.1.A.1: The Graduated Licensing System for Motorcyclist (GLS)</p> <p>Good practice 3.1.1.A.2: Option to improve the graduated Licensing System for Motorcyclist.</p> <hr/> <p><b>Other possible Solutions (Group B)</b></p> <p><i>Example:</i> Good practice 3.1.1.B.1: Initial rider training.</p> <p>Good practice 3.1.1.B.2: eMoto Café.</p>
<b>Comments</b>	<p><i>In this field, different sentences coming from Literature review or workshops carried out in ROSA are given with the aim of helping to understand the problem.</i></p> <p><i>Example:</i> Sentence1: Option to improve the Graduated Licensing System for Motorcyclist (GLS).</p>

Once the problem has been detailed, the good practices (solutions) that are going surely or likely to solve the problem will be detailed in a new dossier (Dossier type 2), which is associated to the respective dossier where the problem has been detailed (Dossier type 1).

As follows, this "Dossier type 2" is shown, explaining which type of information should be detailed with the aim of characterising this **good practice** for the specific **problem** (with the aim of explaining better this dossier, a specific good practice related to Human Factor problem type 3.1.1. is given).

<p><b>Good Practice</b> 3.1.1.B.1.</p>	<p><i>The title of this good practice to be detailed is given in this field</i></p> <p><b>Example:</b> <b>The European standard for initial training. Initial rider training program (2007)</b></p>																														
<p><b>Description</b></p>	<p><i>A description of the Good Practice is given in this field. The objective is to give the necessary information to understand the Good Practice, and in case of needing more details, they can be obtaining through the respective link (below):</i></p> <p><b>Example:</b> <i>The model European Initial Rider Training Programme was developed through the IRT Project. The partners' intention for IRT is to become the European standard for initial training.</i></p> <p><i>This new European model places proper emphasis on relevant machine control skills, together with an understanding of the hazards that a rider will face and how they can be avoided and managed, and an appreciation of the importance of rider attitudes and behaviour.</i></p> <p><i>The structure of this Rider Training Programme is:</i></p> <table border="1" data-bbox="448 882 1177 1216"> <thead> <tr> <th><b>Theoretical</b></th> <th><b>Machine control</b></th> <th><b>Traffic interface</b></th> </tr> </thead> <tbody> <tr> <td>1 Road regulations</td> <td>1 Machine familiarity</td> <td>1 Positioning in traffic</td> </tr> <tr> <td>2 Signs and markings</td> <td>2 First movements</td> <td>2 Distance and speed</td> </tr> <tr> <td>3 Dynamics and mechanics</td> <td>3 Gears, brakes and direction</td> <td>3 Curves and bends</td> </tr> <tr> <td>4 Hazard awareness</td> <td>4 Steering and counter-steering</td> <td>4 Junctions</td> </tr> <tr> <td>5 Helmets and appropriate clothing</td> <td>5 Low speed manoeuvring</td> <td>5 Overtaking</td> </tr> <tr> <td>6 Social responsibilities</td> <td>6 Hazard management</td> <td>6 Motorways</td> </tr> <tr> <td>7 Impairment</td> <td></td> <td>7 Anticipation</td> </tr> <tr> <td>8 Attitude and behaviour</td> <td></td> <td>8 Riding together</td> </tr> <tr> <td></td> <td></td> <td>9 Journey planning</td> </tr> </tbody> </table> <p><i>The Programme also refers to an e-coaching element to improve hazard perception and risk assessment. It permits to improve initial rider training, particularly in the context of exposing riders to virtual hazardous situations and consequences of attitude and behaviour without putting them in any way at risk</i></p> <p><i>All these elements address highlights the importance of issues such as hazard awareness, avoidance, rider attitude and behaviour.</i></p>	<b>Theoretical</b>	<b>Machine control</b>	<b>Traffic interface</b>	1 Road regulations	1 Machine familiarity	1 Positioning in traffic	2 Signs and markings	2 First movements	2 Distance and speed	3 Dynamics and mechanics	3 Gears, brakes and direction	3 Curves and bends	4 Hazard awareness	4 Steering and counter-steering	4 Junctions	5 Helmets and appropriate clothing	5 Low speed manoeuvring	5 Overtaking	6 Social responsibilities	6 Hazard management	6 Motorways	7 Impairment		7 Anticipation	8 Attitude and behaviour		8 Riding together			9 Journey planning
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<p><b>Results</b></p>	<p><i>This field shows why this good practice can be considered effective or not:</i></p> <p><b>Example:</b> <i>The IRT Supervisory Board makes sure that the IRT model European Programme will offer a real improvement to most of the pre-licence trainings currently available to riders within the European Union.</i></p> <p><i>The Project has produced a high quality template for initial rider training across Europe.</i></p>																														
<p><b>Conclusions</b></p>	<p><i>In this field, conclusions about this solution are given.</i></p> <p><b>Example:</b> <i>The modular structure and pedagogical approach of the IRT model European initial rider training programme can offer a real improvement to the availability of initial rider training.</i></p> <p><i>Whilst it has been primarily developed to be used in a training environment where the rider is paying for the services of the instructor, it can also be</i></p>																														

	<i>utilised in a range of more informal training situations. It will offer real assistance to the family member or friend, or the motorcycle club or safety organisation, seeking to impart good, safe riding skills, often in circumstances where professional training is not available or offers poor quality.</i>
<b>Geographic location of this specific good practice</b>	<i>In this field, countries, regions, where this good practice have been applied are detailed.  Example: European Union</i>
<b>Specific Good Practice to be applied by:</b>	<i>The objective of this field is to detail which is the focus in charge of applying this god practice: users, manufacturers or administrations.  Example: Administration</i>
<b>Link</b>	<i>More information about this good practice can be obtained from this link.  Example: <a href="http://www.initialridertraining.eu/">http://www.initialridertraining.eu/</a></i>
<b>Others</b>	<i>Any other information can be given in this field.</i>

## “European Handbook on Good Practices in Safety for Motorcyclists”

### - Epigraph: MOTORCYCLIST EQUIPMENT -

As follows, this is the structure (different **subjects**) that the epigraph “Motorcyclist Equipment (protection)” will have:

- 1.- Infrastructure.
- 2.- Vehicle (Motorcycle).
- 3.- Human Factor.
- 4.- Motorcyclist equipment (protection):**
  - 4.1.- Helmet.**
  - 4.2.- Clothing:**
    - 4.2.0.- General.**
    - 4.2.1.- Trunk protectors.**
    - 4.2.2.- Neck protectors.**
  - 4.3.- Others:**
    - 4.3.1.- Acceptance.**
    - 4.3.2.- Homologation.**
    - 4.3.3.- Conspicuity.**
- 5.- Enforcement-Policies (Administration).
- 6.- Training/education.

The list of **problems** (in orange) and **solutions** (good practices – effective (in green) or likely effective (in blue)) detected in ROSA project concerning this epigraph are:

**Problem 4.1.1: Lack of information about how to choose a helmet.**

Good Practice 4.1.1.B.1: Recommendations about how to choose a helmet.

Good Practice 4.1.1.B.2: UK SHARP Helmet Rating.

**Problem 4.1.2: Incorrect use of helmet.**

Good Practice 4.1.2.B.1: Recommendations about how to choose a helmet (more details in “Good Practice 4.1.1.B.1.”).

Good Practice 4.1.2.B.2: Electronic safety system in helmets for avoiding the PTW starting in case of incorrect use.

**Problem 4.1.3: Lack of awareness about the use of helmet.**

Good Practice 4.1.3.A.1: Campaign for the increase of the use of helmet: Italy’s motorcycle helmet Law.

Good Practice 4.1.3.A.2: Campaign for the increase of the use of helmet: Surveillance by Spanish police.

Good Practice 4.1.3.A.3: Campaign for the increase of the use of helmet: Helmets Programmes, Cambodia and Vietnam.

Good Practice 4.1.3.A.4: Campaign for the increase of the use of helmet: Community Youth Helmet Project, Thailand.

Good Practice 4.1.3.A.5: Helmet Campaign: Wear and lock (more details in “Good practice 6.2.1.A.1.”).

Good Practice 4.1.3.A.6: Minnesota Helmet Challenge Campaign (more details in “Good practice 6.2.1.A.2.”).

Good Practice 4.1.3.B.1: Campaign for the increase of the use of helmet: Spanish’s campaign.

Good Practice 4.1.3.B.2: Campaign for the increase of the use of helmet: Netherlands Moped Helmet Enforcement.

Good Practice 4.1.3.B.3: Rules for motorcyclists: MUST/MUST NOT (more details in “Good practice 6.1.1.B.2.”).

Good Practice 4.1.3.B.4: Great Roads, Great Rides 2 NOT (more details in “Good practice 6.1.1.B.4.”).

Good Practice 4.1.3.B.5: Operation Pitstop (more details in “Good practice 3.1.1.B.9.”).

Good Practice 4.1.3.B.6: eMoto Café (more details in “Good practice 3.1.1.B.2.”).

**Problem 4.1.4: Improvement of the safety behaviour of the helmet.**

Good Practice 4.1.4.A.1: Helmet with airbag integrated.

Good Practice 4.1.4.B.1: Research projects to know the state-of-the-art regarding motorcyclist’s helmets: Aprosys IP.

Good Practice 4.1.4.B.2: Research projects to know the state-of-the-art regarding motorcyclist’s helmets: COST 327.

Good Practice 4.1.4.B.3: Research projects to know the state-of-the-art regarding motorcyclist’s helmets: MYMOSA.

Good Practice 4.1.4.B.4: Studies for analysing a better behaviour related to noise and ventilation.

**Problem 4.2.0.1. Lack of information about the clothing the riders need.**

Good Practice 4.2.0.1.B.1: Recommendations about how to choose suitable clothing.

**Problem 4.2.0.2: Improvement of the safety behaviour of clothing.**

Good Practice 4.2.0.2.B.1: Research projects to know the state-of-the-art regarding motorcyclist’s clothing: Aprosys IP (more details in “Good practice 4.1.4.B.1.”).

Good Practice 4.2.0.2.B.2: Take advantage of the knowledge transfer from other sports.

Good Practice 4.2.0.2.B.3: Mandatory use of protection equipment during professional races.

**Problem 4.2.1.1: Injuries in the trunk part of the riders: Trunk protectors.**

Good Practice 4.2.1.1.B.1: Research projects to know the state-of-the-art regarding motorcyclist’s trunk protectors: Aprosys IP (more details in “Good practice 4.1.4.B.1.”).

Good Practice 4.2.1.1.B.2: Airbags on jackets.

Good Practice 4.2.1.1.B.3: Thorax protectors.

Problem 4.2.2.1. Injuries in the neck part of the riders: Neck protectors.

Good Practice 4.2.2.1.B.1: Neck protectors.

Problem 4.3.1.1: Lack of acceptance.

Good Practice 4.3.1.1.B.1: Manufacture of equipment more comfortable and easy to put on meeting also the standards.

Good Practice 4.3.1.1.B.2: It is better to convince than forcing to use it, through scientific studies.

Good Practice 4.3.1.1.B.3: Good Kit, Bad Kit campaign.

Problem 4.3.2.1: How to know the correct homologation of the products.

Good Practice 4.3.2.1.B.1: Information campaigns about how to identify if a product (equipment) passes the respective homologation process.

Problem 4.3.2.2: Lack of homologation procedures for all the clothing sold related to riders.

Good Practice 4.3.2.2.B.1: To homologate in Europe any type of equipment to be used by motorcyclists.

Problem 4.3.3.1: Lack of conspicuity.

Good Practice 4.3.3.1.A.1: Use of reflective and brightly colour clothing to be better seen on the road.

Good Practice 4.3.3.1.A.2: Motorcycle rider conspicuity (more details in “Good practice 3.5.1.A.1.”).

Good Practice 4.3.3.1.A.3: Attention and search conspicuity of motorcycles as a function of their visual context (more details in “Good practice 3.5.1.A.2.”).

Good Practice 4.3.3.1.B.1: Helmet Brake Light System.

Good Practice 4.3.3.1.B.2: Advices about how to be seen in urban areas (more details in “Good practice 3.5.1.B.15.”).

Good Practice 4.3.3.1.B.3: The top 10 High-Viz Tip (more details in “Good practice 3.5.1.B.6.”).

Good Practice 4.3.3.1.B.4: “Go High-Viz” Campaign (2008-2010) (more details in “Good practice 3.5.1.B.7.”).



## 4.- Motorcyclist Equipment (Protection).

### 4.1.- Helmet.

<b>Problem 4.1.1.</b>	<i>Lack of information about how to choose a helmet.</i>
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<b>Epigraph</b>	<i>4.- Motorcyclist Equipment (Protection).</i>
<b>Subject</b>	<i>4.1.- Helmet.</i>
<b>Problem to solve and justification</b>	<p><i>Many times, motorcyclists, specially new riders, do not know the main characteristics that a helmet must achieve, specially from the point of view of safety.</i></p> <p><i>Helmet reduces the severity of the head fatal injuries in a 50% (World Health Organization). Although the use of helmets is mandatory in European Union, studies (MAIDS European Project, 2004) show that in severe accidents, around 20% of the helmets were ejected due to different aspects (bad election of the helmet, bad adjustment,...)</i></p>
<b>Objective of the Group of Good Practices</b>	<i>The objective of this good practice is to show information about how to choose a suitable helmet for the riders based on different aspects.</i>
<b>Code of the Group of Good Practices</b>	<i>4.1.1.</i>
<b>Good Practices</b>	<b><i>Effective Good Practices (Group A)</i></b>
	<b><i>Other possible Solutions (Group B)</i></b>
	<p><i>Good practice 4.1.1.B.1: Recommendations about how to choose a helmet.</i></p> <p><i>Good practice 4.1.1.B.2: UK SHARP Helmet Rating.</i></p>
<b>Comments</b>	<p><i>- "The full-face helmet is the safest and more effective equipment for motorcyclists".</i></p> <p><i>- "The manufacturers should give specific instructions to cause a proper use. For example, it is typical to see that the helmet is too big for the rider. It is very important to have the right size, because otherwise, it doesn't protect and causes a major damage".</i></p>

<b>Good Practice 4.1.1.B.1.</b>	<b>Recommendations about how to choose a helmet.</b>
<b>Description</b>	<p><i>Different dissemination campaigns have been carried out with the aim of showing to motorcyclists the different aspects that they must take into account at the moment of choosing a helmet.</i></p> <p><i>The aspects dealt are:</i></p> <ul style="list-style-type: none"> <li>- <i>Helmet construction.</i></li> <li>- <i>Type of helmets.</i></li> <li>- <i>How to identify if the helmet is meeting safety test standards.</i></li> <li>- <i>Recommendations about size and colour.</i></li> <li>- <i>How to use correctly the helmet.</i></li> <li>- <i>Other parameters taken into account: protection against impacts (safety absorption; weight; removal of the helmet after the accident); resistance of the visor; visibility (UV penetration through visor,..); manipulation;...</i></li> </ul>
<b>Results</b>	<p><i>Although there are not obvious results about how these campaigns have helped the riders to choose a suitable helmet, these campaigns will help to improve their safe.</i></p>
<b>Conclusions</b>	<p><i>Advices about helmets and safety aspects are given in different campaigns (disseminated most of them through internet).</i></p>
<b>Geographic location of this specific good practice</b>	<p><i>Different campaigns have been carried out on Internet, therefore the location is international.</i></p>
<b>Specific Good Practice to be applied by:</b>	<p><i>+ PTW users:</i> <i>The own users should read and analyse the different good practices mentioned in this dossier with the aim of taking into account all the parameters to check when they choose a helmet.</i></p> <p><i>+ National administrations in charge of traffic aspects:</i> <i>To disseminate this type of information about the technical characteristics that must be taken into account when the rider chooses a helmet.</i></p> <p><i>+ Manufacturer:</i> <i>To make easier the identification of the characteristics that the helmet has.</i></p>
<b>Link</b>	<p><i>+ European Union:</i> <i>"Protective Equipment for Riders" (ACEM)</i> <a href="http://www.acem.eu/cms/ppe.php">http://www.acem.eu/cms/ppe.php</a> <i>"Report on the Performance of Riders Protective Devices" (Aprosys Integrated Project)</i> <a href="http://www.aprosys.com/Documents/deliverables/AP_SP4_0004_online_version.pdf">http://www.aprosys.com/Documents/deliverables/AP_SP4_0004_online_version.pdf</a></p> <p><i>+ Spain:</i> <i>"Tráfico y Seguridad Vial"-Number 202/2010. Directorate General of Traffic.</i> <a href="http://www.dgt.es/revista/num202/pdf/num202-2010-revistacompleta.pdf">http://www.dgt.es/revista/num202/pdf/num202-2010-revistacompleta.pdf</a></p> <p><i>+ Italy:</i> <i>"L'arte della sicurezza in moto - Associazione Vision Zero ONLUS 2009"</i> <a href="http://www.visionzero.org/blog/wp-content/uploads/2010/02/Arte_sicurezza_moto_2010-02_completo.pdf">http://www.visionzero.org/blog/wp-content/uploads/2010/02/Arte_sicurezza_moto_2010-02_completo.pdf</a></p> <p><i>+ Germany:</i> <i>"Motorradbekleidung von Kopf bis Fuß - Schutz ohne Kompromisse 2010"</i> <a href="http://ifz.de/download/ifz_broschuere_motorradbekleidung-von-kopf-bis-fuss_www.pdf">http://ifz.de/download/ifz_broschuere_motorradbekleidung-von-kopf-bis-fuss_www.pdf</a></p> <p><i>+ France (City of Paris):</i></p>

	<p><i>“Bien-vivre emsemble les 2-roues motorisés en ville”</i> <a href="http://www.paris.fr/pratique/deplacements-voirie/voitures-deux-roues-motorises/les-deux-roues-motorises-a-paris/rub_381_stand_4839_port_1199">http://www.paris.fr/pratique/deplacements-voirie/voitures-deux-roues-motorises/les-deux-roues-motorises-a-paris/rub_381_stand_4839_port_1199</a></p> <p>+ <i>United States:</i> <i>“Basic rider course 7.1”- MSF (Motorcycle Safety Foundation).</i> <a href="http://www.msf-usa.org/CurriculumMaterials/BRC_Handbook_Vs71_noprint.pdf">http://www.msf-usa.org/CurriculumMaterials/BRC_Handbook_Vs71_noprint.pdf</a></p> <p>+ <i>Australia:</i> <i>“ProtectiveClothingForRider”:</i> <a href="http://www.vicroads.vic.gov.au/Home/SafetyAndRules/SaferRiders/Motorcyclists/ProtectiveClothingForRiders.htm">http://www.vicroads.vic.gov.au/Home/SafetyAndRules/SaferRiders/Motorcyclists/ProtectiveClothingForRiders.htm</a> <i>“Motorcycle riders’ handbook”:</i> <a href="http://www.rta.nsw.gov.au/licensing/downloads/motorcycle_riders_handbook.pdf">http://www.rta.nsw.gov.au/licensing/downloads/motorcycle_riders_handbook.pdf</a> <i>“The complete skin care range for motorcyclists”:</i> <a href="http://www.motorcyclesafety.qld.gov.au/docs/TAC_brochure_skincare.pdf">http://www.motorcyclesafety.qld.gov.au/docs/TAC_brochure_skincare.pdf</a></p> <p>+ <i>Others:</i> <i>“Helmets: A road safety manual for decision makers and practitioners”:</i> <a href="http://www.who.int/roadsafety/projects/manuals/helmet_manual/en/">http://www.who.int/roadsafety/projects/manuals/helmet_manual/en/</a> <i>“Motorcycle helmet”:</i> <a href="http://en.wikipedia.org/wiki/Motorcycle_helmet">http://en.wikipedia.org/wiki/Motorcycle_helmet</a></p>
<b>Others</b>	

<b>Good Practice 4.1.1.B.2.</b>	<b>UK SHARP Helmet Rating.</b>
<b>Description</b>	<p><i>New safety ratings for motorcycle helmets were announced by Road Safety Ministry to give motorcyclists the best advices and information on choosing a helmet.</i></p> <p><i>An extra 27 motorcycle helmets were rated by SHARP - the Department for Transport's Safety Helmet Assessment and Rating Programme – taking the total number of ratings published to 202.</i></p> <p><i>All these ratings were published on the new SHARP website which was overhauled to include more information for motorcyclists on how to find the right helmet for them. The site also includes demonstrations of how the SHARP tests are carried out and how to make sure a helmet fits properly.</i></p> <p><i>In addition, new in-store information leaflets are being made available for retailers to give them and their customers more information about the SHARP scheme.</i></p>
<b>Results</b>	<p><i>It has been estimated that 50 deaths could be prevented each year if all riders wore the safest helmets available.</i></p>
<b>Conclusions</b>	<p><i>This good practice consists on providing riders the highest information on how much protection a helmet can provide in a crash. The objective advice, which includes important guidance on how to select a good fitting helmet, will help riders to choose the safest helmet suitable for them. The SHARP tests - which award ratings of between one and five stars - show that the safety performance of helmets can vary by as much as 70%. With helmets across a wide price range scoring highly all riders should be able to find a high performing helmet in a size and style that fits them and at a price they want to pay.</i></p>
<b>Geographic location of this specific good practice</b>	<p><i>United Kingdom.</i></p>
<b>Specific Good Practice to be applied by:</b>	<p><i>+ National administrations in charge of traffic aspects: To disseminate this type of information about the technical characteristics that must be taken into account when the rider chooses a helmet.</i></p> <p><i>+ PTW users: The own users should read and analyse the different good practices mentioned in this dossier with the aim of taking into account all the parameters to check when they choose a helmet.</i></p>
<b>Link</b>	<p><i><a href="http://sharp.direct.gov.uk/">http://sharp.direct.gov.uk/</a></i></p> <p><i><a href="http://sharp.direct.gov.uk/news/new-motorcycle-helmet-ratings-published-website-unveiled">http://sharp.direct.gov.uk/news/new-motorcycle-helmet-ratings-published-website-unveiled</a></i></p>
<b>Others</b>	

<b>Problem 4.1.2.</b>	<i>Incorrect use of the helmet.</i>
<b>Epigraph</b>	<i>4.- Motorcyclist Equipment (Protection).</i>
<b>Subject</b>	<i>4.1.- Helmet.</i>
<b>Problem to solve and justification</b>	<p><i>There is a problem (into the motorcyclist sector) related directly to the incorrect use of the helmet. It has to be taken into account that:</i></p> <ul style="list-style-type: none"> <li>- <i>Head injury is a leading cause of death in motorcycle crashes (Traffic Safety Facts – Laws. NHTSA. April 2004).</i></li> <li>- <i>81% of the motorcyclist accidents in which the helmet was ejected, this fact was due to improper fastening or modification of the retention system by the wearer (MAIDS Report on Final results (ACEM, 2004)).</i></li> <li>- <i>PTW riders are commonly defined as vulnerable road users since they are more exposed to the improper actions of other road users. Correct helmet wearing is important as a helmet can reduce the risk of a fatality of up to 50% (ETSC).</i></li> <li>- <i>World Bank and World Health Organisation figures show that head injuries are responsible for about 75% of deaths among motorized two-wheeler users (ACEM, "A plan for action" 2008).</i></li> </ul>
<b>Objective of the Group of Good Practices</b>	<i>The objective of the following good practice/s is to help riders to know how to use correctly the helmet.</i>
<b>Code of the Group of Good Practices</b>	<i>4.1.2.</i>
<b>Good Practices</b>	<b><i>Effective Good Practices (Group A)</i></b>
	<b><i>Other possible Solutions (Group B)</i></b>
	<p><i>Good practice 4.1.2.B.1: Recommendations about how to choose a helmet (more details are in "Good Practice 4.1.1.B.1").</i></p> <p><i>Good practice 4.1.2.B.2: Electronic safety system in helmets for avoiding the PTW starting in case of incorrect use.</i></p>
<b>Comments</b>	<i>- "It is necessary to spread these messages: the helmet has an expiry date, to make sure that the size is correct, to fasten it properly and if it has received a hit, its protection capacity has been considerably reduced".</i>

<b>Good Practice 4.1.2.B.2.</b>	<b><i>Electronic safety system in helmets for avoiding the PTW starting in case of incorrect use.</i></b>
<b>Description</b>	<i>This good practice is a patent whose goal is to guarantee the correct use of the helmet by the rider.  This patent consists on a safety device for riders applied on the helmet. The helmet is the electronic transmitter and the motorcycle is the electronic receiver. Both of them join a circuit in which the transmitter sends a signal when the helmet is correctly locked.</i>
<b>Results</b>	<i>No results are available about the possible efficiency of this good practice.</i>
<b>Conclusions</b>	<i>Electronic system (already patented) that can help to avoid head injuries in case of accident due to a correct use of the helmet (position and lock).</i>
<b>Geographic location of this specific good practice</b>	<i>System patented in Spain.</i>
<b>Specific Good Practice to be applied by:</b>	<i>+ Manufacturers: Helmet and motorcycle manufacturers for the development of similar devices.  + Users: Riders should be aware of the correct use of the helmet.</i>
<b>Link</b>	<i><a href="http://www.espatentes.com/pdf/2194617_a1.pdf">http://www.espatentes.com/pdf/2194617_a1.pdf</a></i>
<b>Others</b>	

<b>Problem 4.1.3.</b>	<i>Lack of awareness about the use of helmet.</i>
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<b>Epigraph</b>	<i>4.- Motorcyclist Equipment (Protection).</i>
<b>Subject</b>	<i>4.1.- Helmet.</i>
<b>Problem to solve and justification</b>	<i>Although helmet use is increasing, the percentage of using is still low. For example, a recent study from Greece (Petridou, et col., 1998) showed that the wearing rates are still low.</i>
<b>Objective of the Group of Good Practices</b>	<i>The objective of this good practice is to get the riders aware of the benefits of the use and the correct use of the helmet during the riding.</i>
<b>Code of the Group of Good Practices</b>	<i>4.1.3.</i>
<b>Good Practices</b>	<p><b>Effective Good Practices (Group A)</b></p> <p><i>Good practice 4.1.3.A.1: Campaign for the increase of the use of helmet: Italy’s motorcycle helmet Law.</i></p> <p><i>Good practice 4.1.3.A.2: Campaign for the increase of the use of helmet: Surveillance by Spanish police.</i></p> <p><i>Good Practice 4.1.3.A.3: Campaign for the increase of the use of helmet: Helmets Programmes, Cambodia and Vietnam.</i></p> <p><i>Good Practice 4.1.3.A.4: Campaign for the increase of the use of helmet: Community Youth Helmet Project, Thailand.</i></p> <p><i>Good practice 4.1.3.A.5: Helmet Campaign: Wear and lock (more details in “Good practice 6.2.1.A.1.”).</i></p> <p><i>Good practice 4.1.3.A.6: Minnesota Helmet Challenge Campaign (more details in “Good practice 6.2.1.A.2.”).</i></p>
	<p><b>Other possible Solutions (Group B)</b></p> <p><i>Good practice 4.1.3.B.1: Campaign for the increase of the use of helmet: Spanish’s campaign.</i></p> <p><i>Good practice 4.1.3.B.2: Campaign for the increase of the use of helmet: Netherlands Moped Helmet Enforcement.</i></p> <p><i>Good practice 4.1.3.B.3: Rules for motorcyclists: MUST/MUST NOT (more details in “Good practice 6.1.1.B.2.”).</i></p> <p><i>Good practice 4.1.3.B.4: Great Roads, Great Rides 2 NOT (more details in “Good practice 6.1.1.B.4.”).</i></p> <p><i>Good Practice 4.1.3.B.5: Operation Pitstop (more details in “Good practice 3.1.1.B.9.”).</i></p> <p><i>Good practice 4.1.3.B.6: eMoto Café (more details in “Good practice 3.1.1.B.2.”).</i></p>
<b>Comments</b>	<i>- “Despite the helmet is essential for active and passive safety, when you ask young people “why don’t they use it?”, they say “their hair get in a mess”, “the girls see them” and “it bothers them”. People are not aware and haven’t enough information to value how important this matter is, it is a cultural</i>

	<p><i>problem".</i></p> <p><i>- "In Germany, the riders wear the helmet, as they don't want to be fined, but not because they are aware of its effectiveness. People are not in favour of the helmet because of the following reasons: a) they don't believe they can have an accident b) they don't think about the consequences in case of an accident; and c) due to their weather, they don't think it's useful".</i></p> <p><i>- "People should be aware of the advantages the helmet provides. It should be well fastened with the screen down to avoid particles enter into the eyes".</i></p>
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<b>Good Practice 4.1.3.A.1.</b>	<b>Campaign for the increase of the use of helmet: Italy's motorcycle helmet Law.</b>						
<b>Description</b>	<p><i>Traumatic Brain injury (TBI) is one of the most important causes of mortality and neuromotor, cognitive, and social disabilities in Italy and the world, and motorcycle crashes are one of the leading contributors to this problem. In Italy, there was a revision of the Italian motorcycle-moped-scooter helmet law during 2000.</i></p> <p><i>The revision required all motorcyclist and moped riders to wear a helmet. Prior to the change only those under the age of 18 were required to wear a helmet and this was largely ignored.</i></p>						
<b>Results</b>	<p><i>A research about the impact of this revision identified the resistance to helmet use amongst Italian PTW riders. This was more pronounced in Urban areas and more evident in the south (Rome 22.5%, Naples 3.4%). The focused media and enforcement campaign in the Romagna region resulted in a significant increase in helmet wearing rates and a reduction in traumatic brain injuries (TBI) amongst PTW riders. The results about the efficiency show that before the revision, the percentage of the correct use of helmet was equal to 19.5%, against the percentage of 97.5% after the revision.</i></p> <p><i>An extract from the report is included below:</i></p> <div data-bbox="584 846 1267 1182" style="border: 1px solid black; padding: 5px;"> <p><b>Figure 1</b> TBI hospitalization rates before and after the revised Italian motorcycle-moped helmet law.</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th>Year</th> <th>No of admissions/100 000 population/year</th> </tr> </thead> <tbody> <tr> <td>1999</td> <td>7</td> </tr> <tr> <td>2000</td> <td>2</td> </tr> </tbody> </table> <p>Year 2000: -76%</p> </div> <div data-bbox="488 1216 1362 1379" style="border: 1px solid black; padding: 5px;"> <p><b>Results:</b> Helmet use increased from an average of less than 20% to over 96%. A comparison of TBI incidence in the Romagna region shows that there was no significant variation before and after introduction of the revised helmet law, except for TBI admissions for motorcycle-moped crashes where a 66% decrease was observed. In the same area TBI admissions by age group showed that motorcycle mopeds riders aged 14–60 years sustained significantly fewer TBIs. The rate of TBI admissions to neurosurgery decreased by over 31% and epidural hematomas almost completely disappeared in crash injured moped riders.</p> </div>	Year	No of admissions/100 000 population/year	1999	7	2000	2
Year	No of admissions/100 000 population/year						
1999	7						
2000	2						
<b>Conclusions</b>	<p><i>The combination of police enforcement and an effective education campaign appears to have resulted in a significant increase in helmet wearing and a measurable reduction in PTW rider head injuries.</i></p>						
<b>Geographic location of this specific good practice</b>	<p><i>Italy.</i></p>						
<b>Specific Good Practice to be applied by:</b>	<p><i>+ National administrations in charge of traffic aspects: To carry out two types of tasks: to review the national law to obtain better percentage related to the helmet use and to do awareness campaigns to increase this percentage.</i></p> <p><i>+ PTW users: The own users should analyse this type of campaigns with the aim of being aware of the necessity of the helmet use.</i></p>						
<b>Link</b>	<p><a href="http://www.pubmedcentral.nih.gov/picrender.fcgi?artid=1731012&amp;blobtype=pdf">http://www.pubmedcentral.nih.gov/picrender.fcgi?artid=1731012&amp;blobtype=pdf</a></p>						
<b>Otros</b>	<p><i>Change in Helmet Law in Barcelona</i> <a href="http://www.local-transport-projects.co.uk/files/BP3%20011%20Barcelona%20Helmet%20Law.pdf">http://www.local-transport-projects.co.uk/files/BP3%20011%20Barcelona%20Helmet%20Law.pdf</a></p>						

	<p><i>The Effectiveness of Motorcycle Helmets and Mandatory Helmet Laws. Helmut Schneider. ISDS Department at Louisiana State University. December, 2006:</i> <a href="http://lhsc.lsu.edu/reports/SpecializedReports/Motorcycle__v8.pdf">http://lhsc.lsu.edu/reports/SpecializedReports/Motorcycle__v8.pdf</a></p> <p><i>Worldwide Motorcycle Safety Helmet Laws:</i> <a href="http://www.whohelmets.org/world_helmetlaws.htm">http://www.whohelmets.org/world_helmetlaws.htm</a></p>
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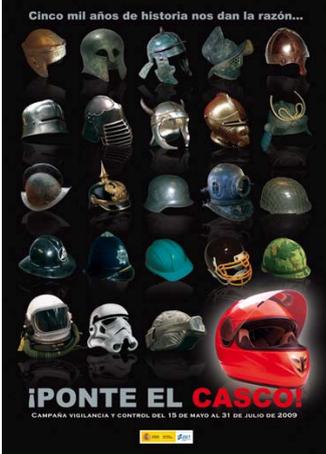
<b>Good Practice 4.1.3.A.2.</b>	<b><i>Campaign for the increase of the use of helmet: Surveillance by Spanish police.</i></b>
<b>Description</b>	<i>This campaign was carried out in the south of Spain (area where the lack of wearing helmet is high due specially to hot weather) from May to July in 2009.  The campaign consisted on advertisements and surveillance by the police.</i>
<b>Results</b>	<i>Results show that in general aspects the use of helmet has increased in small and big cities.</i>
<b>Conclusions</b>	<i>Campaign related to the helmet and its use has been carried out based on advertising and surveillance of the police.</i>
<b>Geographic location of this specific good practice</b>	<i>Spain.</i>
<b>Specific Good Practice to be applied by:</b>	<i>+ National administrations in charge of traffic aspects: To carry this type of campaigns to obtain better percentage related to the helmet use.  + PTW users: The own users should analyse this type of campaigns with the aim of being aware of the necessity of the helmet use.</i>
<b>Link</b>	<i><a href="http://www.dgt.es/was6/portal/contenidos/documentos/la_dgt/recursos_humanos_empleo/oposiciones/Presentacion_campana_casco_Sur_Espana.pdf">http://www.dgt.es/was6/portal/contenidos/documentos/la_dgt/recursos_humanos_empleo/oposiciones/Presentacion_campana_casco_Sur_Espana.pdf</a></i>
<b>Otros</b>	

Good Practice 4.1.3.A.3.	<b>Campaign for the increase of the use of helmet: Helmets Programmes, Cambodia and Vietnam.</b>
Description	<p>These campaigns were carried out in Cambodia and Vietnam with the aim of increasing the use of helmet:</p> <p><b>Cambodia:</b> The Global Road Safety Partnership (GRSP) was supporting a programme launched by the National Road Safety Committee (NRSC) to encourage helmet use in Cambodia. It has used TV advertisements and other publicity materials to encourage the correct use of approved helmets.</p> <p>On January 1, 2009, a new law came into effect that required all motorcycle riders to wear helmets or face a fine. The law was the result of co-ordinated efforts between the Cambodian government and NGOs, including Handicap International Belgium (HIB) and GRSP, to develop and implement a National Helmet Action Plan. The plan follows a systems approach with multiple elements focusing on:</p> <ol style="list-style-type: none"> <li>1. Public information and education.</li> <li>2. Enforcement including training of police.</li> <li>3. Development of tougher helmet standards.</li> <li>4. Subsidised helmet programme for police and school children.</li> </ol> <p>To promote helmet wearing nationwide, the NRSC in collaboration with HIB/GRSP ran a public awareness campaign in 2008. The campaign sought to increase awareness of road users on:</p> <ul style="list-style-type: none"> <li>• the benefits of helmet wearing;</li> <li>• the correct way to wear them;</li> <li>• good helmet wearing habits,</li> <li>• and respect of the law.</li> </ul> <p>In an effort to set an example of good practice, 1,900 helmets were distributed to all traffic police officers in the country. To encourage students, 2,000 helmets were subsidised in 4 secondary schools in Phnom Penh. According to the government, the law already increased helmet use from 8% in 2004 to more than 50% in February 2009 in Phnom Penh, showing how change of legislation and increased public education and enforcement have a major positive impact on change of behaviour.</p> <p><b>Vietnam:</b> Over the last decade, a number of legislative and enforcement initiatives to promote helmet use have taken place in Vietnam. These efforts were led by the Government of Vietnam (GoVN) with an objective to increase the use of helmets for all motorcycle users. In 2001, the National Assembly approved a new Road Traffic Code including a helmet wearing law. Later in 2002, the police were instructed to strictly enforce helmet wearing on public highways. However, the fine was minimal, the enforcement was not particularly effective and the resulting compliance rate was low. In 2004, the Government requested the Ministries of Police and Transport, the National Transportation Safety Committee (NTSC) and local authorities to implement compulsory helmet wearing more actively.</p> <p>With more public education and stronger enforcement, helmet use increased. However, in early 2006 the Ministry of Justice requested all People's Committees to cancel all "non-functional" decisions, including compulsory helmet wearing. As a result, the helmet wearing rate was reduced again. Later in 2006, GRSP, the NTSC and the Asia Injury Prevention Foundation (AIPF) conducted a study of helmet wearing in Vietnam and the results were reported at the National Helmet Action Plan Workshop in December 2006. This led to GoVN to reintroduce the compulsory helmet law and in June 2007, the government enacted Resolution 32 to limit traffic accidents. From December 15, 2007, helmet wearing was made compulsory on all roads. The re-enacted law is supported by enforcement and a tough penalty scheme.</p>

<b>Results</b>	<p><i>Both projects indicate an increase in helmet wearing rates and data from Vietnam indicates a reduction in fatal injuries to PTW riders:</i></p> <p><b>Cambodia:</b> <i>The observed wearing rate before the law was 8%. Following the introduction of legislation this rose to 50%.</i></p> <p><b>Vietnam:</b> <i>According to NTSC's report, 1557 lives have been saved in 2008 compared with 2007. Compliance rate has been maintained at more than 90% in city centres.</i></p>
<b>Conclusions</b>	<i>Projects indicating an increase in helmet wearing rates through different campaigns.</i>
<b>Geographic location of this specific good practice</b>	<i>Cambodia and Vietnam.</i>
<b>Specific Good Practice to be applied by:</b>	<p><i>+ National administrations in charge of traffic aspects: To carry this type of campaigns to obtain better percentage related to the helmet use.</i></p> <p><i>+ PTW users: The own users should analyse this type of campaigns with the aim of being aware of the necessity of the helmet use.</i></p>
<b>Link</b>	<p><i>Cambodia: <a href="http://www.grsproadsafety.org/themes/default/pdfs/Helmets%20Cambodia.pdf">www.grsproadsafety.org/themes/default/pdfs/Helmets%20Cambodia.pdf</a></i></p> <p><i>Vietnam: <a href="http://www.grsproadsafety.org/themes/default/pdfs/Helmet%20law%20Vietnam.pdf">www.grsproadsafety.org/themes/default/pdfs/Helmet%20law%20Vietnam.pdf</a></i></p>
<b>Otros</b>	

<b>Good Practice 4.1.3.A.4.</b>	<b>Campaign for the increase of the use of helmet: Community Youth Helmet Project, Thailand.</b>												
<b>Description</b>	<p><i>This campaign (CYHP) was carried out in Thailand with the aim of increasing the use of helmet:</i></p> <p><i>The Global Road Safety Partnership (GRSP) received a grant from the Japan Social Development Fund (JSDF) to implement a motorcycle helmet use road safety project in Thailand. The project commenced in March 2008 and was complete in 2009. Thailand ranks among the top ten in the world in terms of crash injuries and deaths, and for the past few years, road crashes have caused over 1,000 fatalities per month and more than 80,000 serious injuries each year. Over 75% of these deaths and injuries result from motor cycle collisions.</i></p> <p><i>This was a pilot project based on community participation and focused on increasing the rate of helmet use amongst young people (age 12 to 18 years) in poorer rural areas of North Eastern Thailand. The main objectives of the project were to:</i></p> <ol style="list-style-type: none"> <li><i>1. Reduce the severity of head injuries and the injury related deaths due to motorcycle crashes.</i></li> <li><i>2. Increase the use of motorcycle helmets.</i></li> <li><i>3. Increase awareness of road safety issues.</i></li> <li><i>4. Assist young people in target communities to become agents for promoting behaviour change and help influence other age groups to use helmets.</i></li> </ol> <p><i>Short-term success has been measured by the increased level of observed helmet wearing in the target areas, with longer-term outcomes being measured in reduced levels of injury to PTW users due to helmet wearing. Success has been also measured by the continued commitment of the communities to good road safety practice. 120 communities and schools have been identified in the target provinces as implementation sites. Provincial, district and community work groups have been formed and trained, and have prepared proposals for community based road safety activities aimed at increasing helmet wearing in the 12 to 18 year-old age group.</i></p>												
<b>Results</b>	<p><i>The CYHUP model shows clearly to have value in terms of mobilization of local resources, initiating behaviour change, fostering capacity building, and developing a foundation for the sustainability of activities beyond the project; therefore the evaluation team recommends replicating the CYHUP model to other sites in Thailand as well as other developing countries."</i></p> <div data-bbox="608 1400 1243 1861" data-label="Figure"> <table border="1"> <caption>PER CENTAGES OF HELMET USE AMONG CHILDREN BY DISTRICTS</caption> <thead> <tr> <th>District</th> <th>Pre-intervention (%)</th> <th>Post-intervention (%)</th> </tr> </thead> <tbody> <tr> <td>Waeng Yai</td> <td>~5%</td> <td>~28%</td> </tr> <tr> <td>Prathai</td> <td>~8%</td> <td>~25%</td> </tr> <tr> <td>Samrong</td> <td>~5%</td> <td>~15%</td> </tr> </tbody> </table> </div>	District	Pre-intervention (%)	Post-intervention (%)	Waeng Yai	~5%	~28%	Prathai	~8%	~25%	Samrong	~5%	~15%
District	Pre-intervention (%)	Post-intervention (%)											
Waeng Yai	~5%	~28%											
Prathai	~8%	~25%											
Samrong	~5%	~15%											
<b>Conclusions</b>	<p><i>Project indicating an increase in helmet wearing rates through different campaigns.</i></p>												
<b>Geographic location of this specific good</b>	<p><i>Thailand.</i></p>												

<b>practice</b>	
<b>Specific Good Practice to be applied by:</b>	<p>+ <i>National administrations in charge of traffic aspects:</i> <i>To carry this type of campaigns to obtain better percentage related to the helmet use.</i></p> <p>+ <i>PTW users:</i> <i>The own users should analyse this type of campaigns with the aim of being aware of the necessity of the helmet use.</i></p>
<b>Link</b>	<a href="http://www.grsroadsafety.org/themes/default/pdfs/Annual_report_2009+country_pages.pdf">http://www.grsroadsafety.org/themes/default/pdfs/Annual_report_2009+country_pages.pdf</a>
<b>Otros</b>	

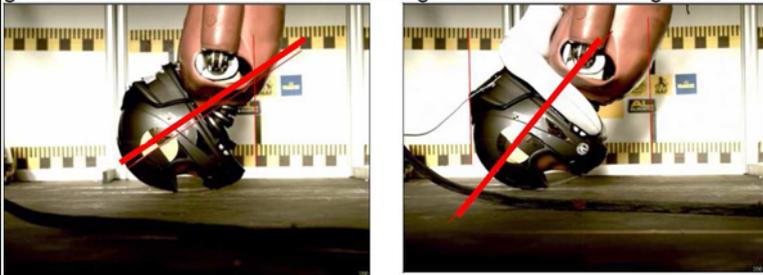
<b>Good Practice 4.1.3.B.1.</b>	<b>Campaign for the increase of the use of helmet: Spanish´s campaign.</b>
<b>Description</b>	<p><i>Different campaigns related to the helmet and its use have been generated by the Spanish Directorate General of Traffic with the aim of increasing the awareness of this use. These campaigns have been carried in the last years via Television, radio, internet, magazines, leaflets,...</i></p> 
<b>Results</b>	<i>No direct results are available about the possible efficiency of this campaign.</i>
<b>Conclusions</b>	<i>Different campaigns related to the helmet and its use have been generated by the Spanish Directorate General of Traffic with the aim of increasing the awareness of this use.</i>
<b>Geographic location of this specific good practice</b>	<i>Spain.</i>
<b>Specific Good Practice to be applied by:</b>	<p><i>+ National administrations in charge of traffic aspects: To carry this type of campaigns to obtain better percentage related to the helmet use.</i></p> <p><i>+ PTW users: The own users should analyse this type of campaigns with the aim of being aware of the necessity of the helmet use.</i></p>
<b>Link</b>	<i><a href="http://www.dgt.es/was6/portal/contenidos/visor_multimedia/#app=7f51&amp;c92c-selectedIndex=3">http://www.dgt.es/was6/portal/contenidos/visor_multimedia/#app=7f51&amp;c92c-selectedIndex=3</a></i>
<b>Otros</b>	

<b>Good Practice 4.1.3.B.2.</b>	<b><i>Campaign for the increase of the use of helmet: Netherlands Moped Helmet Enforcement.</i></b>
<b>Description</b>	<p><i>In the Netherlands, motorcycle helmets were made compulsory in 1972 with the requirement for moped riders to use helmets added in 1975. For many years, all moped riders wore their helmet. After 1996 the wearing percentage has been dropping.</i></p> <p><i>For this reason, helmet use by moped riders became one of the spearheads of the regional enforcement plans. The first police regions started with an enforcement plan in 1999, the last ones started in 2001. The wearing rate for younger riders was less than that for older riders. Many riders wearing helmets do not have them correctly fastened, seriously compromising the effectiveness.</i></p> <p><i>After initial success, wearing rates have fallen back, perhaps as a result of relaxation of enforcement (Ermens &amp; Van Vliet, 2006).</i></p>
<b>Results</b>	<i>This project does not appear to have any monitoring data based on casualty data but the observed wearing rates indicate a successful intervention. The wearing rate increased during and immediately following the introduction of enforcement activity, but fell again thereafter.</i>
<b>Conclusions</b>	<i>Enforcement activity targeted at helmet use should also include correct fastening in order to be effective in reducing casualties and severity of injury</i>
<b>Geographic location of this specific good practice</b>	<i>Netherlands.</i>
<b>Specific Good Practice to be applied by:</b>	<p><i>+ National administrations in charge of traffic aspects: To carry this type of campaigns to obtain better percentage related to the helmet use.</i></p> <p><i>+ PTW users: The own users should analyse this type of campaigns with the aim of being aware of the necessity of the helmet use.</i></p>
<b>Link</b>	<i><a href="http://www.swov.nl/rapport/Factsheets/UK/FS_Enforcement_seatbelt_helmet_redlight.pdf">http://www.swov.nl/rapport/Factsheets/UK/FS_Enforcement_seatbelt_helmet_redlight.pdf</a></i>
<b>Otros</b>	

<b>Problem 4.1.4.</b>	<i>Improvement of the safety behaviour of the helmet.</i>
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<b>Epigraph</b>	<i>4.- Motorcyclist Equipment (Protection).</i>
<b>Subject</b>	<i>4.1.- Helmet</i>
<b>Problem to solve and justification</b>	<p><i>Different studies (Aprosys IP, AP-SP41-0004) show that "the areas most obviously in need of protection are the head, face and neck where vulnerability is the greatest". Head and face can be protected by the helmet, but there is no protection device which focuses specifically in neck protection. Injuries to the head and eye are closely related to the use or not of the helmet and to the helmet type (full facial, partial...). For instance, full facial helmets are underrepresented in eye region by a factor of two and when talking about face injuries, this kind of helmets is again underrepresented by a factor of two point five. Thus, there is a powerful interaction between safety helmet use, eye protection and reduction of facial injury. On the other hand, it has been observed that the lack of eye protection may be related to accident involvement rather than accident injury causation.</i></p> <p><i>Also (Aprosys IP, AP-SP41-0004), it is necessary to review the factors which affect the safety helmet in relation to neck injury. The helmet mass could contribute to neck injuries as it increase the inertial loading. However, as long as usually the load to the neck is transmitted from the head, the lower the forces on the head the lower the load on the neck. On the other hand, there is no adverse effect and no vulnerability to neck injury by the use of a motorcycle safety helmet.</i></p> <p><i>Due to these and other justifications, it can be said that design and testing of protective devices as helmets for riders should be reviewed taking into account accidentologic and biomechanical studies, to understand in depth what head or neck injuries are, and how are they produced.</i></p> <p><i>Finally, ergonomic aspects related to helmets should be taken also into account.</i></p>
<b>Objective of the Group of Good Practices</b>	<i>The objective of these good practices is to improve the behaviour of the helmets already existing in the market considering biomechanical and ergonomic aspects.</i>
<b>Code of the Group of Good Practices</b>	<i>4.1.4.</i>
<b>Good Practices</b>	<b><i>Effective Good Practices (Group A)</i></b>
	<i>Good practice 4.1.4.A.1: Helmet with airbag integrated.</i>
	<b><i>Other possible Solutions (Group B)</i></b>
	<p><i>Good practice 4.1.4.B.1: Research projects to know the state-of-the-art regarding motorcyclist's helmets: Aprosys IP.</i></p> <p><i>Good Practice 4.1.4.B.2: Research projects to know the state-of-the-art regarding motorcyclist's helmets: COST 327.</i></p> <p><i>Good Practice 4.1.4.B.3: Research projects to know the state-of-the-art regarding motorcyclist's helmets: MYMOSA.</i></p> <p><i>Good practice 4.1.4.B.4: Studies for analysing a better behaviour related to noise and ventilation.</i></p>
<b>Comments</b>	<i>- "We have to know exactly about what do we have to protect. The helmet is designed to protect the head but this level of protection must be coordinated with the level that can be given to the rest of the body organs. Why do we want</i>

	<p><i>to protect more the head if the deceleration of the impact produces heart or cervical broken? I could design a stronger helmet, but would it make sense?"</i></p> <p><i>- "If the pilot wore one of our helmets when the accident occurred..., we try to reproduce it in the laboratory. It's sad to receive more complaints than gratitude from the customers".</i></p> <p><i>- "Regarding the helmets, we are developing a system to evaluate the consequences of the accident".</i></p>
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<b>Good Practice</b> <b>4.1.4.A.1</b>	<b>Helmet with airbag integrated.</b>
<b>Description</b>	<p>The objective of this device is to protect the cervical. When a crash happens, an electronic signal is sent to the helmet.</p>  <p>In the motorcycle, a remote control is installed jointing it with the drummer.</p>  <p>The intercommunication can be set up among different helmets and one motorcycle.</p>
<b>Results</b>	<p>During the different tests carried out, the efficiency of this system was demonstrated related the impact angle. Using this device the flexion angle of the back of the neck was lower than other configurations (without airbag).</p> 
<b>Conclusions</b>	<p>New protective device (airbag) to be installed in the helmets which will help to reduce neck injuries.</p>
<b>Geographic location of this specific good practice</b>	<p>No specific countries can be detailed.</p>
<b>Specific Good Practice to be applied by:</b>	<p>+ Helmet manufacturers: Through the application of this device into the helmets.</p>
<b>Link</b>	<p><a href="http://www.race.es/opencms/opencms/system/galleries/webrace/downloads/informes_segvia/informe_2010_10_airbag_motociclistas.pdf">http://www.race.es/opencms/opencms/system/galleries/webrace/downloads/informes_segvia/informe_2010_10_airbag_motociclistas.pdf</a></p>
<b>Others</b>	<p>-The first helmet with airbag: <a href="http://www.repsolypf.com/SE/Motor/imagenes/motos/flash/flash/ACTUALIM_O_040706_001.swf">http://www.repsolypf.com/SE/Motor/imagenes/motos/flash/flash/ACTUALIM_O_040706_001.swf</a></p>

<b>Good Practice 4.1.4.B.1.</b>	<b>Research projects to know the state-of-the-art regarding motorcyclist's helmets: Aprosys IP.</b>
<b>Description</b>	<p>The APROSYS Integrated Project (6th Framework Programme) on Advanced Protective Systems focused on scientific and technological development in the field of passive safety. The field of passive safety concerns in particular human biomechanics (injury mechanisms and criteria), vehicle and infrastructure crashworthiness and occupant and road user protection systems. In particular, the subproject SP4 "Motorcycle accidents" had the following research objectives:</p> <ul style="list-style-type: none"> <li>• Identification of the main accident scenarios for motorcyclists.</li> <li>• Injury characterization for motorcyclists in the selected accident scenarios.</li> <li>• Proposal of a new test procedure for rider-infrastructure interaction.</li> <li>• Guidelines to design motorcyclist friendly roadside infrastructure.</li> <li>• Design concepts for innovative motorcyclist protective equipment.</li> </ul> <p>The project started in 2005 and was completed in April 2009.</p>
<b>Results</b>	<p>Though this type of projects, important results (which will help to reduce injuries) can be taken into account to improve motorcyclists' road safety. APROSYS outcomes were:</p> <ul style="list-style-type: none"> <li>• New injury criteria and injury tolerance.</li> <li>• New mathematical models of the human body.</li> <li>• New world-wide harmonized crash dummy.</li> <li>• New knowledge and tools for intelligent safety systems.</li> <li>• Enhancement of virtual testing technology.</li> <li>• New test methods and advanced protection systems for injury reduction in most relevant accident types.</li> </ul>
<b>Conclusions</b>	<p>Whilst the APROSYS project is not restricted to PTW safety, the SP4 element could provide valuable guidance and standards for those seeking to reduce motorcycle casualties. Some of the specific results (related to helmets) were:</p> <ul style="list-style-type: none"> <li>.- To give technical indications that could help in the development of a reviewed standard for helmet testing (ECE regulation 22/05 (R22)) because this current standard is limited in what concerns the prevention of specific injuries, like the ones related with the rotational acceleration effects, or the directional dependence of injury criteria.</li> <li>.- Development of a helmet prototype with improved performance (with improved safety on chin part and better behaviour against impacts).</li> </ul>
<b>Geographic location of this specific good practice</b>	European Union.
<b>Specific Good Practice to be applied by:</b>	+ European administrations: The results of the APROSYS project provided valuable information on PTW safety for policy makers concerning new standards or updating.
<b>Link</b>	Aprosys European Project: <a href="http://www.aprosys.com/">http://www.aprosys.com/</a>
<b>Others</b>	

<b>Good Practice 4.1.4.B.2.</b>	<b>Research projects to know the state-of-the-art regarding motorcyclist's helmets: COST 327.</b>
<b>Description</b>	<p><i>Head injuries cause some three-quarters of all fatalities to motorcyclists, while about one quarter of all injured riders suffers a head injury. COST 327 was formed to investigate in detail, motorcyclists' head and neck injuries. The COST 327 action was established with seven research topics, with a timetable and four main objectives, all to be achieved using a wide range of European experience to determine or modify national approaches.</i></p> <p><i>Topics:</i></p> <ul style="list-style-type: none"> <li>• <i>Literature review.</i></li> <li>• <i>Accident data collection.</i></li> <li>• <i>Headform assessment.</i></li> <li>• <i>Reconstruction of helmet accident damage.</i></li> <li>• <i>Mathematical model of the skull, brain, neck, and helmet.</i></li> <li>• <i>Human tolerance to injury.</i></li> <li>• <i>Development of test procedures.</i></li> </ul> <p><i>Objectives:</i></p> <ul style="list-style-type: none"> <li>• <i>The first was to establish the distribution and severity of injuries experienced by motorcyclists, concentrating on the head and neck.</i></li> <li>• <i>The second was to determine the most significant head and neck injury mechanisms.</i></li> <li>• <i>Thirdly, the tolerance of the human head, brain and neck to these injuries and injury mechanisms was to be established.</i></li> <li>• <i>The overall findings were to be used to propose a specification for future testing of motorcycle helmets in Europe.</i></li> </ul>
<b>Results</b>	<p><i>By the end of the project, researchers developed a better understanding of head and neck injury mechanisms and tolerance levels, and how best to model them and test the protective properties of helmets. This knowledge was disseminated to manufacturers and legislators so that further significant improvements in helmet design and construction standards can be achieved. Helmets should then offer motorcyclists and other users substantially improved protection, reducing the incidence and severity of head and neck injury in accidents. COST 327 has played an important part in the decision-making process.</i></p>
<b>Conclusions</b>	<p><i>COST 327 has helped to obtain the following Benefits to Different Users:</i></p> <ul style="list-style-type: none"> <li>• <i>Key input to decision-making:</i> <ul style="list-style-type: none"> <li>- <i>at national and European level in order to determine the most appropriate standards for the design and manufacture of motorcycle helmets.</i></li> <li>- <i>in the health service, primarily at national level, on the most appropriate modus operandi for treatment of motorcycle injuries relating to the head and neck.</i></li> <li>- <i>on safety issues by manufacturers of motorcycle helmets.</i></li> </ul> </li> <li>• <i>Development of the most appropriate test criteria and procedures for those organisations involved in this area.</i></li> <li>• <i>Greater protection for motorcyclists as a result of improved helmet standards and design.</i></li> </ul>
<b>Geographic location of this specific good practice</b>	<i>European Union.</i>
<b>Specific Good Practice to be applied by:</b>	<i>+ European administrations: The results of the COST 327 project provided valuable information on PTW safety for policy makers concerning new standards or updating.</i>
<b>Link</b>	<i><a href="http://ec.europa.eu/transport/road_safety/pdf/projects/cost_327.pdf">http://ec.europa.eu/transport/road_safety/pdf/projects/cost_327.pdf</a></i>
<b>Others</b>	

<b>Good Practice 4.1.4.B.3.</b>	<b>Research projects to know the state-of-the-art regarding motorcyclist's helmets: MYMOSA.</b>
<b>Description</b>	<p><i>This project, belonging to sixth framework programme (Marie Curie research training networks) of the European Commission, had the following objectives:</i></p> <ul style="list-style-type: none"> <li>- to educate 10 Early Stage Researchers (ESR) in the partially unexplored field of Powered Two Wheelers' (PTW) and riders' safety.</li> <li>- to facilitate the development of R&amp;D abilities (personal career development plan) and the formation of a European network of personal relationships in an early stage of the careers of the researchers (many years benefiting their careers/specialization).</li> <li>- to stimulate co-operation between researchers of 5 universities, 3 research centres and 6 industries (2 SMEs) through visits, secondments and training (Transfer of Knowledge).</li> </ul> <p><i>Through the analysis of one of the deliverables, it is possible to compare the current safety helmet testing standards in force in different parts of the world with the EU standards ECE 22_05. Initially the parts of the ECE 22_05 concerning mechanical testing were summarised in this report, then BS 6658:1985 (UK), FMVSS 218 (USA), Snell M2005 and AS/NZS 1698 were examined and the main differences with respect to the ECE 22_05 were highlighted. Numerical simulations were used to present the example of a helmet satisfying the ECE 22_05, but failing the tests required by other standards.</i></p>
<b>Results</b>	<p><i>No results are available about the possible efficiency associated to the fact of comparing different helmets standards with the aim of improving them.</i></p>
<b>Conclusions</b>	<p><i>Comparison among helmet standards was done. The substantial differences among the five examined regulations seem to be three:</i></p> <ul style="list-style-type: none"> <li>• <i>ECE 22.05 is the only regulation not to require penetration tests;</i></li> <li>• <i>Snell M2005, AS/NZS 1698, BS 6658 and FMVSS 218 require a double impact on the same site for the energy absorbing tests whereas ECE 22.05 requires one impact only;</i></li> <li>• <i>ECE 22.05 is the only regulation not to adopt a ball-joint in the energy absorbing impact tests.</i></li> </ul>
<b>Geographic location of this specific good practice</b>	<p><i>European Union.</i></p>
<b>Specific Good Practice to be applied by:</b>	<p><i>+ European administrations: The results of MYMOSA project provided valuable information on PTW safety for policy makers concerning new standards or updating.</i></p>
<b>Link</b>	<p><i>Report "WP3: Personal protective equipment. Comparison of safety helmet testing standards". <a href="http://www.mymosa.eu/">http://www.mymosa.eu/</a></i></p>
<b>Others</b>	<p><i>Other links: "Standards concerning motorcycle helmet": <a href="http://en.wikipedia.org/wiki/Motorcycle_helmet">http://en.wikipedia.org/wiki/Motorcycle_helmet</a></i></p>

<b>Good Practice 4.1.4.B.4.</b>	<b>Studies for analysing a better behaviour related to noise and ventilation.</b>
<b>Description</b>	<p><i>This good practice consists on a study that proves noises into the helmet due to a bad design of the helmet concerning aerodynamic aspects. This study also shows how to improve this design and avoid these noises.</i></p> <p><i>Regarding the comfort issue, James Tangorra and Albert George (1991) aimed at discovering which areas of a helmet produce aerodynamic noise. In particular, it is believed that discontinuity; openings and edges create disturbances in air flow, regions of turbulence, separation and pressure fluctuations which determine sounds that are propagated inside the helmet. The investigation analysed in detail the three main areas of the helmet:</i></p> <ol style="list-style-type: none"> <li><i>1) The large opening from the chin of the helmet to the neck of the rider.</i></li> <li><i>2) The edges, and the gaps, between the helmet's face shield and the helmet body.</i></li> <li><i>3) Gross separation effects.</i></li> </ol> <p><i>The sound level was recorded for different helmets using a microphone positioned at the level of the right ear of a helmet, which was inserted in the air flow of a open circuit low speed wind tunnel. The noise level created by the air flow was determined by comparing:</i></p> <ol style="list-style-type: none"> <li><i>1) The noise levels inside the helmet when in the air flow.</i></li> <li><i>2) The noise levels in the helmet when it was outside the air flow but in the background noise field.</i></li> <li><i>3) The background noise field levels</i></li> </ol>
<b>Results</b>	<p><i>The study shows that significant reductions in noise level can be obtained through simple aerodynamic modifications to the helmet. The impact of these modifications on noise depends greatly on the helmet.</i></p> <p><i>It was underlined that physiological and ergonomic proprieties are important for the safety aspects because they could influence the rider's concentration.</i></p>
<b>Conclusions</b>	<p><i>In general, the following conclusions, about the helmet areas explored, could be made:</i></p> <ul style="list-style-type: none"> <li><i>✓ Attention must be paid to reducing noise produced by the aerodynamics of the helmet. Besides reducing aerodynamic noise, the insertion of soundproofing materials can also decrease warning sounds which must be heard.</i></li> <li><i>✓ Separation off the back of the helmet has no significant influence on the noise heard by the person wearing the helmet.</i></li> <li><i>✓ The smooth air flow over the gap between the face shield and the helmet only slightly reduces the noise level.</i></li> <li><i>✓ Sealing the lower part of the helmet at the neck of the dummy greatly reduces noise, as turbulent flow is not allowed to enter the helmet.</i></li> <li><i>✓ The majority of improvements to aerodynamic noise are due to the reduction in low frequency noise.</i></li> <li><i>✓ Reducing turbulence on the helmet, whether over face shield, or beneath the helmet, reduces the low frequency sound energy.</i></li> <li><i>✓ The effect of a turbulent flow produced by a fairing increases the sound level compared to a uniform flow. Nonetheless, this aspect requires further, more exhaustive studies.</i></li> </ul>
<b>Geographic location of this specific good practice</b>	<p><i>United Kingdom (location where these tests were carried out).</i></p>
<b>Specific Good Practice to be applied by:</b>	<p><i>+ Manufacturers: Through the design of new helmets that can improve the behaviour of the helmets regarding the ergonomic and aerodynamic aspects that can allow the perfect reception of any noise coming from the road.</i></p>
<b>Link</b>	<p><i>Aprosys European Project: <a href="http://www.aprosys.com/">http://www.aprosys.com/</a></i></p>

	<i>APROSYS. (2004). Report on the performance of riders protective devices and the corresponding injuries of riders. State-of-the-art regarding motorcyclist's helmets and clothing. Future research guidelines. Task 4.1.4. APROSYS Project AP-SP41-0004.</i>
<b>Others</b>	

#### 4.- Motorcyclist Equipment (Protection).

##### 4.2.- Clothing.

##### 4.2.0.- General.

<b>Problem 4.2.0.1</b>	Lack of information about the clothing the riders need.
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<b>Epigraph</b>	<i>4.- Motorcyclist Equipment (Protection).</i>
<b>Subject</b>	<i>4.2.0.- Clothing: General.</i>
<b>Problem to solve and justification</b>	<p><i>The importance of protective requirements has been highlighted in several studies as well as that of ergonomics and comfort demands (Aprosys IP, 2004). In virtue of the fact that to date there is no law obliging motorcyclists to use protective clothing, great attention will have to be given to ergonomic and comfort requirements in order to persuade the motorcyclist to use the garments.</i></p> <p><i>Nevertheless, there are many times, specially new riders, does not know the main characteristics that any equipment must achieve, specially from the point of view of safety.</i></p>
<b>Objective of the Group of Good Practices</b>	<i>The objective of this good practice is to show information about how to choose the suitable clothing for each rider based on different aspects.</i>
<b>Code of the Group of Good Practices</b>	4.2.0.1.
<b>Good Practices</b>	<b><i>Effective Good Practices (Group A)</i></b>
	<b><i>Other possible Solutions (Group B)</i></b>
	<i>Good practice 4.2.0.1.B.1: Recommendations about how to choose suitable clothing.</i>
<b>Comments</b>	<ul style="list-style-type: none"> <li>- <i>"The motorcyclists, like many other professionals, suffer serious injuries in the ear. When you hear a beep after taking off your helmet, it indicates that a small trauma in the ear has been produced. It might be mild, but be aware that it is a cumulative process. It's recommended to wear earplugs, but you can be fined if the police notice you are wearing them or you are using the "bluetooth" or the GPS systems".</i></li> <li>- <i>"The person who can afford to buy a motorcycle, can afford to buy extra protection elements".</i></li> <li>- <i>"It's necessary to inform about the motorcyclists' protection equipments as well as their benefits. Before the MotoGP placed in Jerez, we launched a catalogue in order to provide information. It's also necessary to inform about the products indicating benefits and costs".</i></li> <li>- <i>"Riders should always wear shoes and gloves".</i></li> </ul>

<b>Good Practice 4.2.0.1.B.1.</b>	<b>Recommendations about how to choose suitable clothing.</b>
<b>Description</b>	<p><i>Different dissemination campaigns have been carried out with the aim of showing to motorcyclists the different aspects that they must take into account at the moment of choosing suitable clothing.</i></p> <p><i>The aspects dealt are:</i></p> <ul style="list-style-type: none"> <li>- <i>Visors and Goggles.</i></li> <li>- <i>Ear plugs.</i></li> <li>- <i>Jackets.</i></li> <li>- <i>Gloves.</i></li> <li>- <i>Boots.</i></li> <li>- <i>Trousers.</i></li> <li>- <i>...</i></li> </ul>
<b>Results</b>	<p><i>Although there are not obvious results about how these campaigns have helped the riders to choose suitable clothing, it is probably these campaigns will help to improve their safe.</i></p>
<b>Conclusions</b>	<p><i>Advices about clothing and safety aspects are given in different campaigns (disseminated most of them through internet).</i></p>
<b>Geographic location of this specific good practice</b>	<p><i>International.</i></p>
<b>Specific Good Practice to be applied by:</b>	<p><i>+ PTW users: The own users should read and analyse the different good practices mentioned in this dossier with the aim of taking into account all the parameters to check when they choose suitable clothing.</i></p> <p><i>+ National administrations in charge of traffic aspects: To disseminate this type of information about the technical characteristics that must be taken into account when the rider chooses suitable clothing.</i></p> <p><i>+ Manufacturer: To make easier the identification of the characteristics that the suitable clothing must have.</i></p>
<b>Link</b>	<p><i>European Union:</i></p> <ul style="list-style-type: none"> <li><i>+ "Protective Equipment for Riders" (ACEM) <a href="http://www.acem.eu/cms/ppe.php">http://www.acem.eu/cms/ppe.php</a></i></li> <li><i>+ "Report on the Performance of Riders Protective Devices"(Aprosys Integrated Project) <a href="http://www.aprosys.com/Documents/deliverables/AP_SP4_0004_online_version.pdf">http://www.aprosys.com/Documents/deliverables/AP_SP4_0004_online_version.pdf</a></i></li> </ul> <p><i>Spain:</i></p> <ul style="list-style-type: none"> <li><i>+ "Trafico y Seguridad Vial"-Number 202/2010. Directorate General of Traffic. <a href="http://www.dgt.es/revista/num202/pdf/num202-2010-revistacompleta.pdf">http://www.dgt.es/revista/num202/pdf/num202-2010-revistacompleta.pdf</a></i></li> </ul> <p><i>Italy:</i></p> <ul style="list-style-type: none"> <li><i>+ "L'arte della sicurezza in moto - Associazione Vision Zero ONLUS 2009" <a href="http://www.visionzero.org/blog/wp-content/uploads/2010/02/Arte_sicurezza_moto_2010-02_completo.pdf">http://www.visionzero.org/blog/wp-content/uploads/2010/02/Arte_sicurezza_moto_2010-02_completo.pdf</a></i></li> </ul> <p><i>Germany:</i></p> <ul style="list-style-type: none"> <li><i>+ "Motorradbekleidung von Kopf bis Fuß - Schutz ohne Kompromisse 2010" <a href="http://ifz.de/download/ifz_broschuere_motorradbekleidung-von-kopf-bis-fuss_www.pdf">http://ifz.de/download/ifz_broschuere_motorradbekleidung-von-kopf-bis-fuss_www.pdf</a></i></li> <li><i>+ "Protective Equipment for the child pillion passenger - Sicher hinten drauf. Kinder auf dem Motorra"</i></li> </ul>

	<p><a href="http://ifz.de/download/Broschuere_SHD.pdf">http://ifz.de/download/Broschuere_SHD.pdf</a></p> <p>France (City of Paris): +“Bien-vivre emsemble les 2-roues motorisés en ville” <a href="http://www.paris.fr/pratique/deplacements-voirie/voitures-deux-roues-motorises/les-deux-roues-motorises-a-paris/rub_381_stand_4839_port_1199">http://www.paris.fr/pratique/deplacements-voirie/voitures-deux-roues-motorises/les-deux-roues-motorises-a-paris/rub_381_stand_4839_port_1199</a></p> <p>United States: +“Basic rider course 7.1”- MSF (Motorcycle Safety Foundation). <a href="http://www.msf-usa.org/CurriculumMaterials/BRC_Handbook_Vs71_noprint.pdf">http://www.msf-usa.org/CurriculumMaterials/BRC_Handbook_Vs71_noprint.pdf</a></p> <p>+“Motorcycle Operator Manual”. <a href="http://www.msf-usa.org/downloads/Library_Motorcycle_Operator_Manual.pdf">http://www.msf-usa.org/downloads/Library_Motorcycle_Operator_Manual.pdf</a></p> <p>Minnesota’s Official Motorcycle Safety Program : +“Safety Tips. Protective Riding Gear”. <a href="http://www.dps.state.mn.us/mmsc/latest/MMSCHomeSecondary.asp?cid=5&amp;mid=79">http://www.dps.state.mn.us/mmsc/latest/MMSCHomeSecondary.asp?cid=5&amp;mid=79</a></p> <p>Australia: +“ProtectiveClothingForRider”: <a href="http://www.vicroads.vic.gov.au/Home/SafetyAndRules/SaferRiders/Motorcyclists/ProtectiveClothingForRiders.htm">http://www.vicroads.vic.gov.au/Home/SafetyAndRules/SaferRiders/Motorcyclists/ProtectiveClothingForRiders.htm</a> +“Motorcycle riders’ handbook”: <a href="http://www.rta.nsw.gov.au/licensing/downloads/motorcycle_riders_handbook.pdf">http://www.rta.nsw.gov.au/licensing/downloads/motorcycle_riders_handbook.pdf</a> +“The complete skin care range for motorcyclists”: <a href="http://www.motorcyclesafety.qld.gov.au/docs/TAC_brochure_skincare.pdf">http://www.motorcyclesafety.qld.gov.au/docs/TAC_brochure_skincare.pdf</a> +“What to wear before you hit the road”: <a href="http://www.tmr.qld.gov.au/~media/e9c53cd0-8b1d-47f0-b41c-cf3b99726747/pdf_motorcycle_clothing_full.pdf">http://www.tmr.qld.gov.au/~media/e9c53cd0-8b1d-47f0-b41c-cf3b99726747/pdf_motorcycle_clothing_full.pdf</a></p> <p>Ireland: +“This is your bike a safety guide you and your motorcycle”: <a href="http://www.rsa.ie/Documents/Road%20Safety/Motorcycles/This_is_your_bike.pdf">http://www.rsa.ie/Documents/Road%20Safety/Motorcycles/This_is_your_bike.pdf</a></p>
<b>Others</b>	

<b>Problem 4.2.0.2</b>	<b>Improvement of the safety behaviour of clothing.</b>
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<b>Epigraph</b>	<i>4.- Motorcyclist Equipment (Protection).</i>
<b>Subject</b>	<i>4.2.0.- Clothing: General.</i>
<b>Problem to solve and justification</b>	<p><i>Although efficiency of the use of protective devices (clothing and helmets) is proved, with regard to analysing protection from fractures, results are not unanimous. Some studies (Aprosys-AP-SP41-0004) show that protective clothing is ineffective in protecting against fractures, even if a part of them deem that the severity of these fractures is reduced with the use of protective clothing.</i></p> <p><i>It seems to be obvious the necessity of improving continuously the behaviour of these devices, based on accidentologic and biomechanical criteria to be applied over new test methods.</i></p>
<b>Objective of the Group of Good Practices</b>	<i>The objective of these good practices is to show how the improvement of clothing could be achieved through different ways.</i>
<b>Code of the Group of Good Practices</b>	<i>4.2.0.2.</i>
<b>Good Practices</b>	<b><i>Effective Good Practices (Group A)</i></b>
	<b><i>Other possible Solutions (Group B)</i></b>
	<p><i>Good practice 4.2.0.2.B.1: Research projects to know the state-of-the-art regarding motorcyclist's clothing: Aprosys IP (more details in "Good practice 4.1.4.B.1.")</i></p> <p><i>Good practice 4.2.0.2.B.2: Take advantage of the knowledge transfer from other sports.</i></p> <p><i>Good practice 4.2.0.2.B.3: Mandatory use of protection equipment during professional races.</i></p>
<b>Comments</b>	<ul style="list-style-type: none"> <li>- <i>"Good material and good protection make the ideal safety combination".</i></li> <li>- <i>"The most common injuries are in the lower members. The helmet is important, but also the rest of the equipment; the legs, arms and chest protections..."</i></li> </ul>

<b>Good Practice 4.2.0.2.B.2.</b>	<b><i>Take advantage of the knowledge transfer from other sports.</i></b>
<b>Description</b>	<p><i>During the workshops carried out in ROSA project, an important synergy was detected: "It is important to take advantage of all the research carried out in other sports/sectors related to the safety devices manufactured and tested, with the aim of being transferred/applied over PTW users".</i></p> <p><i>An example of possible knowledge transfer could be the one related protective equipment developed for "skiers" or "horse riders" and the possible use of these devices for "motorcyclists".</i></p>
<b>Results</b>	<i>There are not specific results about the possible efficiency of this knowledge transfer.</i>
<b>Conclusions</b>	<i>The products (protective equipment) developed in other sports/sectors could be extrapolated/applied for motorcyclists safety.</i>
<b>Geographic location of this specific good practice</b>	<i>No specific location is defined for this possible good practice.</i>
<b>Specific Good Practice to be applied by:</b>	<p><i>+ Manufacturers:</i>  <i>Once manufacturers from other sports/sectors have developed a specific protective equipment for their users, this device (technology) could be considered to be extrapolated over motorcyclist protective devices.</i></p>
<b>Link</b>	<i>No links available.</i>
<b>Others</b>	

<b>Good Practice</b> <b>4.2.0.2.B.3.</b>	<b>Mandatory use of protection equipment during professional races.</b>
<b>Description</b>	<p><i>Before delivering any type of protective equipment (for motorcyclists) to the market, it should be important to have tested these equipments in real accident situations.</i></p> <p><i>Although specific equipments must have passed respective standard tests (example: EN 13595 for the garment and the abrasion resistance), a good practice for even improving this safety behaviour should be the mandatory use of these devices in professional motorcycling races as "real tests" before being launched into the market.</i></p> <p><i>It is obvious these races (for example, "FIM MotoGP World Championship") are under very safety conditions (for instance, the aspects related to benign banks), but in some occasions accidents happen during the races. For those occasions it should be useful the use of the protective equipment prototypes with a double-objective:</i></p> <ul style="list-style-type: none"> <li><i>+ To analyze the behaviour of these devices with the aim of improving them.</i></li> <li><i>+ To show to the common motorcyclists (not professional) these prototypes and to aware these users about the necessity to use these devices for their safety: "If the professional pilots use these devices, I should use them".</i></li> </ul> <p><i>The organizer of professional races (for instance, "International Motorcycling Federation" should be in charge of making mandatory the use of specific devices during "MotoGP World Championship").</i></p> <p><i>An example of testing specific devices during professional races is the device "Airbag in garment" tested during "MotoGP World Championship". The device tested during these races was an airbag installed in the back-shoulder part of the garment, which activates in case of impact.</i></p> <div style="display: flex; justify-content: space-around;">   </div>
<b>Results</b>	<i>No specific results are available about this possible good practice.</i>
<b>Conclusions</b>	<i>This good practice was detected during the workshops carried out in ROSA project and will help to improve safety behaviour of the equipment through the use of these prototypes during professional races and the later analysis.</i>
<b>Geographic location of this specific good practice</b>	<i>No specific location is defined for this possible good practice.</i>
<b>Specific Good Practice to be applied by:</b>	<ul style="list-style-type: none"> <li><i>+ Manufacturers:</i></li> <li><i>Once official organizers of the professional races have forced to use specific safety prototypes during their races, manufacturers should analyse the behaviour during impacts and improve the behaviour.</i></li> </ul>
<b>Link</b>	<i>No links available.</i>
<b>Others</b>	

4.- Motorcyclist Equipment (Protection).  
4.2.- Clothing.  
4.2.1.- Trunk Protectors.

**Problem 4.2.1.1** Injuries in the trunk part of the riders: Trunk protectors.

<b>Epigraph</b>	<i>4.- Motorcyclist Equipment (Protection).</i>
<b>Subject</b>	<i>4.2.1.- Clothing: Trunk protectors.</i>
<b>Problem to solve and justification</b>	<p><i>Accident analysis (MAIDS European Project) about the distribution of injuries in riders shows that the distribution of injuries greater than AIS=1 is as follows (concerning trunk region): 7.4% in Thorax region; 4.1% in Abdomen region; 5% in Spine region.</i></p> <p><i>With regards to the performance of protective clothing, it can be stated that this helps to prevent injuries due to abrasions and lacerations, and reduces the risk of wounds becoming contaminated. A decrease in the severity of sprains and fractures is obtained with the use of protectors. Care must be taken to maximize physiological and psychological comfort in order to prevent accidents. However, protective clothing cannot guarantee the reduction of injuries in all accident conditions (Aprosys Project - AP-SP41-0004)</i></p>
<b>Objective of the Group of Good Practices</b>	<i>The objective of this good practice is to avoid or minimize the injuries in the trunk part of the riders (thorax, spine and abdomen) through the use of respective protectors.</i>
<b>Code of the Group of Good Practices</b>	<i>4.2.1.1.</i>
<b>Good Practices</b>	<b><i>Effective Good Practices (Group A)</i></b>
	<b><i>Other possible Solutions (Group B)</i></b>
	<p><i>Good Practice 4.2.1.1.B.1: Research projects to know the state-of-the-art regarding motorcyclist's trunk protectors: Aprosys IP (more details in "Good practice 4.1.4.B.1").</i></p> <p><i>Good practice 4.2.1.1.B.2: Airbags on jackets.</i></p> <p><i>Good practice 4.2.1.1.B.3: Thorax protectors.</i></p>
<b>Comments</b>	<ul style="list-style-type: none"> <li><i>- "From the motorcyclist's point of view, the "inflated" safety devices provide them a greater sense of security (eg, jackets)".</i></li> <li><i>- "The back protector and the helmet are the safest equipments, as they protect from a significant number of permanent disabilities. Although their use has increased, it is still unknown for most of the scooter drivers. The use of this equipment may become widespread proving its effectiveness in other sports like skiing. In this way, the best choice would be the model class 2, with belts, installed under the jacket".</i></li> <li><i>- "The first jackets with airbags are on sale. They are still not perfect, but soon they will become popular. They are the best way to protect the neck. I consider the airbag in the jacket more effective than on the bike, as it doesn't hit the driver against the motorcycle during the accident".</i></li> <li><i>- "It's good to take into account the effectiveness and characteristics of the equipment, for example, the back protector: the more flexible and folding, the better".</i></li> </ul>

<b>Good Practice 4.2.1.1.B.2.</b>	<b>Airbags on jackets.</b>
<b>Description</b>	<p>Taking into account that the trajectory of the motorcyclists when he has fallen down is not as easy to determine as the trajectory of the motorcycle, new protective equipments have been developed for mitigating injuries. This is the reason airbags on motorcyclists jackets have been developed as good practice related to equipment.</p>  <p>These devices use bags, inflated, in case of accident by gas. The bags are integrated in the garment which also contains the gas generator. The rider is connected with the motorbike by a cable and, in case of accident, when there is the rider's separation from the motorcycle, the cable produce by a perforator a hole in the gas generator allowing the gas inflation and so the bags deployment. Currently there aren't in the market airbag jackets with electronics systems activation.</p>  <p>These new devices have been tested by specific motorcyclists sector as "police forces" in the city of Madrid. These protective devices must meet "EN-1621" and have 'airbags' built into the jacket which protect the rider if they fall from their machine. The system takes approximately 0.5 seconds to fully deploy but offers some protection from about 0.2 s. For comparison a car based system, using an explosive inflation process, fully deploys in around 0.175 seconds. The system will not deploy until the rider separates from the vehicle, which may result in reduced protection for some rapid impacts.</p>
<b>Results</b>	<p>The jacket was pre-inflated in several tests and worked very well in the few crashes in which it was tried, including angled-stationary impacts in which other solutions mounted on the motorcycle had worked poorly. Concerning real crashes the police from Madrid have had, there are no independent monitoring data available.</p>
<b>Conclusions</b>	<p>Airbags on jackets will help to minimize the injuries over the trunk part.</p>
<b>Geographic location of this specific good practice</b>	<p>Madrid (Spain).</p>
<b>Specific Good Practice to be applied by:</b>	<p>+ Manufacturers: Jacket manufacturers should consider the possibility of integrating this type of devices, which must also meets EN-1621.</p>
<b>Link</b>	<p><a href="http://www.munimadrid.es">www.munimadrid.es</a></p>
<b>Others</b>	<p><a href="http://www.monash.edu.au/muarc/reports/muarc260.pdf">http://www.monash.edu.au/muarc/reports/muarc260.pdf</a></p> <p><a href="http://www.dainese.com/index.php/eu_en/d-air">http://www.dainese.com/index.php/eu_en/d-air</a>). It seems that it is being used by riders like Valentino Rossi and others (<a href="http://www.dainese.com/wd_fr/daineseme/Valentino_Rossi_wears_D-air_racing">http://www.dainese.com/wd_fr/daineseme/Valentino_Rossi_wears_D-air_racing</a>)</p>

<b>Good Practice</b> <b>4.2.1.1.B.3.</b>	<b>Thorax protectors.</b>
<b>Description</b>	<p>During APROSYS European Project, it was highlighted that motorcyclists often suffer injuries on the thoracic body region, and that the level of these injuries is very severe. In consequence, it was decided to develop a new protector for the thoracic area (good practice). Starting from the in depth accidents data collected, the impact conditions were defined and from these, the tests to be performed in order to verify the effective protection offered by this new safety device.</p> <p>Materials selected for the prototype manufacturing were: polypropylene for the rigid shell and aluminium honeycomb for the shock absorption. All these materials were characterized and a series of simulations with HUMOS model were conducted. The protector reduced the risk to become injured.</p> <div style="display: flex; justify-content: space-around; align-items: center;">   </div> <p style="text-align: center;">Male thorax protector      Female thorax protector prototype</p> <p>After the simulations, a series of thorax protector prototypes were manufactured and tested in terms of comfort (ergonomic tests) and protection against impact. Ergonomic test confirmed the good quality of the design, showing that the protector doesn't interfere with the normal rider's movements. A series of real tests impacts using HYBRID III Dummy were carried out and the outcome confirms that the protector increases the level of rider's safety protecting its thorax.</p> <div style="text-align: center;">  </div> <p style="text-align: center;">Validation tests done over the thorax protector</p> <p>Finally, different garments were manufactured with the aim of showing the flexibility of this new protective device.</p> <div style="display: flex; justify-content: center; align-items: center;">  </div> <p style="text-align: center;">Different garment for the male thorax protector</p>
<b>Results</b>	<p>Results come from simulations and real test, but there are not data available about the behaviour of this device in real accidents.</p>
<b>Conclusions</b>	<p>This result contributed to the development of this new protective and advanced device, related directly to minimize the risk of suffering injuries in the thoracic body region in case of accidents.</p>
<b>Geographic location of this specific good practice</b>	<p>European Union.</p>
<b>Specific Good Practice to be applied by:</b>	<p>+ Manufacturers: Through the commercial exploitation of these devices in the market.</p> <p>+ PTW users: The use of this type of devices with the aim of preventing these injuries.</p>
<b>Link</b>	<p>Aprosys European Project: <a href="http://www.aprosys.com/">http://www.aprosys.com/</a></p>
<b>Others</b>	

#### 4.- Motorcyclist Equipment (Protection).

##### 4.2.- Clothing.

##### 4.2.2.- Neck Protectors.

<b>Problem 4.2.2.1</b>	<b>Injuries in the neck part of the riders: Neck protectors.</b>
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<b>Epigraph</b>	<i>4.- Motorcyclist Equipment (Protection).</i>
<b>Subject</b>	<i>4.2.2.- Clothing:Neck protectors.</i>
<b>Problem to solve and justification</b>	<p><i>Different studies (Aprosys IP, AP-SP41-0004) show that "the areas most obviously in need of protection are the head, face and neck where vulnerability is the greatest".</i></p> <p><i>Hurt and Ouellet (H.H. Hurt, J.V. Ouellet, D.R. Thom (1981)) analysed in a study that the severity of the head and neck injuries is demonstrated by the fact that 8.4% were recorded as critical or fatal. The authors state that "the areas most obviously in need of protection are the head, face and neck where vulnerability is the greatest". Head and face can be protected by the helmet, but there is no protection device which focuses specifically in neck protection. Regarding neck, the configuration of the typical motorcycle accident consists on the motorcycle rider head first contacts with the outer surfaces of an automobile or striking his head and shoulder on the road. So, loading of the neck occurs more often by transmitted force from the head to the neck. Inertial loading of the neck does not appear as frequently as in car crashes as the body of the rider is not restrained.</i></p>
<b>Objective of the Group of Good Practices</b>	<i>The objective of this dossier is to show those good practices related to the protection of neck through specific protective devices.</i>
<b>Code of the Group of Good Practices</b>	<i>4.2.2.1.</i>
<b>Good Practices</b>	<b><i>Effective Good Practices (Group A)</i></b>
	<b><i>Other possible Solutions (Group B)</i></b>
	<i>Good practice 4.2.2.1.B.1: Neck protectors.</i>
<b>Comments</b>	<ul style="list-style-type: none"> <li><i>- "It is difficult for the rider to wear the neck protector when it's hot".</i></li> <li><i>- "Safety is a priority, I am a doctor and I'm in favour of the neck protectors".</i></li> <li><i>- "The researchers should focus on improving the jackets and the neck protectors instead of the new devices to be developed".</i></li> </ul>

<p><b>Good Practice</b> 4.2.2.1.B.1</p>	<p><b>Neck protectors.</b></p>
<p><b>Description</b></p>	<p><i>With the aim of avoiding possible neck injuries, neck protectors have been developed. The objective of these devices is to reduce neck injuries, both by excessive rotation as per load transfer.</i></p> <p><i>For a scientific point of view, the neck protector design should take into account:</i></p> <ul style="list-style-type: none"> <li><i>.-The asseveration must consider research in accidentologic and biomechanical studies, to understand in depth what neck injuries are, and how are they produced.</i></li> </ul> <div data-bbox="639 555 1216 770" data-label="Image"> </div> <ul style="list-style-type: none"> <li><i>.-To carry out experimental tests:</i> <ul style="list-style-type: none"> <li>• <i>Direct impact on helmet.</i></li> <li>• <i>Direct impact on thorax.</i></li> <li>• <i>Multiaxial impacts:</i> <ul style="list-style-type: none"> <li>○ <i>Impact testing of a motorcycle rider against barrier (UNE 135900).</i></li> <li>○ <i>Motorcycle-against-car impact testing (ISO 13232).</i></li> </ul> </li> </ul> </li> </ul> <p><i>.-To limit the rotation of the head and the forces supported by the neck, using biomechanical criteria based on forces (Fx y Fz), flexion-extension Moments (Mcoy), or specific criteria for the neck (Normalized Neck Injury Criterion (Nij) o Neck Criterion Rear Impact (Nkm), among others.</i></p> <p><i>.-To consider comfort based in ergonomic studies to allow high percentage of use.</i></p> <p><i>.-To allow flexibility of movement.</i></p> <p><i>.-To be compatible with other protective equipment (for instance: back protection)</i></p> <p><i>The behaviour of this device concerning the different tests and criteria would define the advisability of the neck protector. Although there is not a specific standard for this type of protectors, it seems to be logic the more rigorous the criteria are, the better safety and comfortable behaviour it will have.</i></p> <div data-bbox="802 1444 1051 1688" data-label="Image"> </div>
<p><b>Results</b></p>	<p><i>It has been demonstrated that a neck protector that meets these criteria will achieve a reduction of 30% in Hiperextension values when testing a direct impact on helmet, and an overall reduction of about 20% in injury values when testing against protection barriers.</i></p>
<p><b>Conclusions</b></p>	<p><i>Neck protectors should meet strict impact and comfort test to assure the safe behaviour during impacts. There are still not standard about the requirements for these devices.</i></p>
<p><b>Geographic location of this specific good practice</b></p>	<p><i>Spain.</i></p>

<b>Specific Good Practice to be applied by:</b>	<p>+ <i>European administrations:</i> <i>To define a standard for the approval of a neck protector related the protection of this part of riders during impacts.</i></p> <p><i>To disseminate the necessity of using these devices due to the lack of protection in this part.</i></p> <p>+ <i>PTW users:</i> <i>To use this type of protective clothing.</i></p>
<b>Link</b>	<a href="http://www.moveosafety.com/">http://www.moveosafety.com/</a>
<b>Others</b>	

#### 4.- Motorcyclist Equipment (Protection).

##### 4.3.- Others.

##### 4.3.1.- Acceptance.

<b>Problem 4.3.1.1</b>	Lack of acceptance.
<b>Epigraph</b>	<i>4.- Motorcyclist Equipment (Protection).</i>
<b>Subject</b>	<i>4.3.1.- Others: Acceptance.</i>
<b>Problem to solve and justification</b>	<p><i>It has been studied that motorcyclists do not use always the suitable clothing they should used. MAIDS European Project showed the following percentage for riders in accidents: No helmet used (8%); no rider gloves (35%); no rider pants (light pants in 8%) and not rider footwear (50%). These percentages can be associated to the lack of acceptance of protective equipment in general due to:</i></p> <ul style="list-style-type: none"> <li><i>- the lack of obligation.</i></li> <li><i>- comfort evaluation. Ergonomics are described as the study of how people interact with machines and how the machines can be designed to make life easier. It should be pointed out that "the major source of discomfort were aches and pains, which was quoted by nearly 60 % of the riders who reported discomfort. Thermal (cold/heat) was a problem for 33 %. Overall, the worst affected area was the buttocks (39%), followed by the neck (30%), lower back (29%) and right hand/wrist (about 21-25%)". The data indicated that not all the motorcycles are rated equally but there may be differences in the patterns of discomfort among different classes of motorcycles and for different sizes of riders (Aprosys - AP-SP41-0004).</i></li> </ul>
<b>Objective of the Group of Good Practices</b>	<i>The objective of these good practices is to obtain a better acceptance of the protective equipment for motorcyclists.</i>
<b>Code of the Group of Good Practices</b>	<i>4.3.1.1.</i>
<b>Good Practices</b>	<b><i>Effective Good Practices (Group A)</i></b>
	<b><i>Other possible Solutions (Group B)</i></b>
	<p><i>Good practice 4.3.1.1.B.1: Manufacture of equipment more comfortable and easy to put on meeting also the standards.</i></p> <p><i>Good practice 4.3.1.1.B.2: It is better to convince than forcing to use it, through scientific studies.</i></p> <p><i>Good practice 4.3.1.1.B.3: Good Kit, Bad Kit campaign.</i></p>
<b>Comments</b>	<ul style="list-style-type: none"> <li><i>- "We will make mistakes in the field of training, spreading information and in the collective awareness while there are exemptions in the law that still allow driving motorcycles without wearing the helmet. We have requested the elimination of such exemptions and it seems that they will take notice of that".</i></li> <li><i>- "The helmet, the gloves, the back protectors and the boots should not be mandatory; it's not a good policy. Despite the rules, especially in Italy, they still don't use them; it's better to make people understand how effective they are for their safety. To this aim, MotoGP pilots are very useful to spread this message, as the young people have a very good impression from their idols".</i></li> <li><i>- "The industry should develop equipments easy to use and to take off (for emergency reasons, for example). These equipments would be better accepted if they were lighter, with more resistant materials, easier to put on and take off and more adaptable to weather conditions".</i></li> <li><i>- "The equipment acceptance will depend on the image (design, colours, etc...)"</i></li> </ul>

<b>Good Practice 4.3.1.1.B.1.</b>	<b><i>Manufacture of equipment more comfortable and easy to put on also meeting the standards.</i></b>
<b>Description</b>	<p><i>This good practice has been obtained from the workshops carried out in the ROSA project and show the two aspects that protective equipments must consider with the aim of increasing the level of acceptance:</i></p> <ul style="list-style-type: none"> <li><i>.- Comfort (meeting on the other hand with the "EN340: 2003 Protective clothing: General requirements" or "EN-1621-1"; "EN-13595"; "EN-13594").</i></li> <li><i>.- Easiness of using.</i></li> </ul> <p><i>When protective equipment for motorcyclists is designed, several questionnaires to users should be taken into account to obtain the "better" product related to these two criteria.</i></p>
<b>Results</b>	<i>No results are available about this possible good practice.</i>
<b>Conclusions</b>	<i>It is necessary to develop/manufacture equipments more comfortable and easy to put on/off. Equipment which does not meet these criteria will not be used by the riders and will not help to avoid injuries.</i>
<b>Geographic location of this specific good practice</b>	<i>No specific location is defined for this good practice.</i>
<b>Specific Good Practice to be applied by:</b>	<p><i>+ Manufacturer:</i> <i>They must consider all the requirements the users needs for a higher acceptance of these devices (problems related to weather conditions, easiness of using,...)</i></p>
<b>Link</b>	<i>No links are detailed concerning this good practice.</i>
<b>Others</b>	<p><i>Manufacture of Helmets more comfortable:</i></p> <ul style="list-style-type: none"> <li><i>+ BMW Motorrad Wireless Communication System: <a href="http://www.saferider-eu.org/benchmark/helmetbmw.html">http://www.saferider-eu.org/benchmark/helmetbmw.html</a></i></li> <li><i>+ MOTOROLA Wireless Helmet Headset HS380: <a href="http://www.saferider-eu.org/benchmark/helmetmotorola.html">http://www.saferider-eu.org/benchmark/helmetmotorola.html</a></i></li> <li><i>+ NZI: <a href="http://www.saferider-eu.org/benchmark/helmetNZI.html">http://www.saferider-eu.org/benchmark/helmetNZI.html</a></i></li> </ul>

<b>Good Practice 4.3.1.1.B.2.</b>	<b><i>It is better to convince than forcing to use it, through scientific studies.</i></b>
<b>Description</b>	<p><i>Through the dissemination of studies in which the efficiency of using protective equipment is proved, it is possible to obtain a better acceptance of these devices by the own PTW users.</i></p> <p><i>This good practice consists on the study carried out with the aim of proving the efficiency of protective equipment at the moment of minimizing injuries. The study entitled "The protective effect of a specially designed suit for motorcyclists" examined the protective effects provided by the suit developed in the previous study in order to evaluate:</i></p> <ul style="list-style-type: none"> <li><i>✓ properties of leather and shock absorbing material.</i></li> <li><i>✓ effects of the suit produced on bodily injuries.</i></li> </ul> <p><i>The study set itself the objective of assessing:</i></p> <ul style="list-style-type: none"> <li><i>✓ body movements during an accident.</i></li> <li><i>✓ differences between different types of leather and between samples of leather of the same type.</i></li> <li><i>✓ influence of temperature on the shock-absorbing materials.</i></li> <li><i>✓ influence of humidity on the shock-absorbing materials.</i></li> <li><i>✓ shock-absorbing capacity between suits provided with shock-absorbing materials and those without these materials.</i></li> </ul> <p><i>Different leathers were analysed in the laboratory, assessing wear and tear, strength and firmness. The shock-absorbing material Comfort Foam was tested both on the road and in the laboratory. Laboratory tests were performed at different temperatures and with different degrees of humidity. To judge the effects of the suit in bodily injuries, studies were conducted among motorcyclists insured by the company Folksam, considering:</i></p> <ul style="list-style-type: none"> <li><i>✓ a sample of 1,001 motorcyclists</i></li> <li><i>✓ a sample of motorcyclists who were injured between 1983 and 1984;</i></li> <li><i>✓ all motorcyclists who received a medical disability of over 10% from 1976 to 1982.</i></li> <li><i>✓ The data was completed with questionnaires aimed at showing how the motorcyclists were dressed.</i></li> </ul>
<b>Results</b>	<p><i>The study gave the following conclusions:</i></p> <ul style="list-style-type: none"> <li><i>✓ leather clothing reduces the risk of injuries by at least 50% in conditions of impact between the body and the ground or other objects;</i></li> <li><i>✓ leather clothing decreases the risk of injuries becoming contaminated by at least 50%;</i></li> <li><i>✓ shock absorbing material in the knee, elbow and shoulder reduce fractures by at least 50%;</i></li> <li><i>✓ at least 50% of all disabling injuries are concentrated in the knee, elbow and shoulder.</i></li> </ul>
<b>Conclusions</b>	<p><i>The following considerations can therefore be made from the experimental studies:</i></p> <ul style="list-style-type: none"> <li><i>✓ the quality of leather varies, and therefore it is important to perform continuous monitoring when producing suits for motorcyclists;</i></li> <li><i>✓ different shock-absorbing materials can probably be used;</i></li> <li><i>✓ comfort foams were tested, used and seem suitable;</i></li> <li><i>✓ the qualities of comfort foam vary and must be tested;</i></li> <li><i>✓ the performance of comfort foams varies in relation to the degree of humidity; therefore, they must be protected against water.</i></li> </ul>
<b>Geographic location of this specific good practice</b>	Sweden.

<b>Specific Good Practice to be applied by:</b>	+ <i>National administrations:</i> <i>To carry out dissemination campaigns showing the effectiveness of the use of these protective equipment.</i>
<b>Link</b>	<i>Aprosys European Project: <a href="http://www.aprosys.com/">http://www.aprosys.com/</a></i>
<b>Others</b>	

<b>Good Practice</b> 4.3.1.1.B.3.	<b>Good Kit, Bad Kit campaign.</b>
<b>Description</b>	<p><i>Leeds City Council, working with Road Safety Partnerships in South Yorkshire and Humberside, has carried out this good practice which consists on producing a poster and leaflet explaining the need for protective clothing for motorcyclists.</i></p> <p><i>The ultimate aim is to explain the benefits of wearing correct helmets, gloves, boots, trousers and jackets. In the leaflet you can visit other webs which are about safety gear, The resources illustrate the difference in the severity of the injuries likely to be sustained in a collision by both a well protected rider and one wearing only ordinary 'street' clothes.</i></p> 
<b>Results</b>	<i>No results are available about the possible efficiency of this campaign.</i>
<b>Conclusions</b>	<i>It can be applied above all for the young motorcyclist to improve their awareness to have an appropriate gear. Good kit can make all the difference in the event of a crash. The difference between a bruise and a break, a graze and a skin graft. Good kit does not mean expensive leathers either.</i>
<b>Geographic location of this specific good practice</b>	<i>Leeds City Council (United Kingdom)</i>
<b>Specific Good Practice to be applied by:</b>	<i>+ National administration in charge of traffic aspects: To carry out campaign for the increase of acceptance of any type of protective equipment.</i>
<b>Link</b>	<a href="http://www.roadsafetygb.org.uk/downloads/STD-LEAFLET.pdf">http://www.roadsafetygb.org.uk/downloads/STD-LEAFLET.pdf</a> <a href="http://www.local-transport-projects.co.uk/files/BP1%20042%20Good%20Kit%20Bad%20Kit%20v2.pdf">http://www.local-transport-projects.co.uk/files/BP1%20042%20Good%20Kit%20Bad%20Kit%20v2.pdf</a>
<b>Others</b>	

#### 4.- Motorcyclist Equipment (Protection).

##### 4.3.- Others.

##### 4.3.2.- Homologation.

**Problem 4.3.2.1**    How to know the correct homologation of the products.

<b>Epigraph</b>	<i>4.- Motorcyclist Equipment (Protection).</i>
<b>Subject</b>	<i>4.3.2.- Others: Homologation.</i>
<b>Problem to solve and justification</b>	<p><i>Nowadays several devices (equipment) are sold in the market without being assured that this equipment will help the motorcyclists to minimize the injuries in case of accident.</i></p> <p><i>It is necessary motorcyclists know how to choose correctly all the equipment based on safety parameters.</i></p>
<b>Objective of the Group of Good Practices</b>	<i>The objective of these good practices is to give information to motorcyclists about how to identify any product are under homologation process.</i>
<b>Code of the Group of Good Practices</b>	4.3.2.1.
<b>Good Practices</b>	<b><i>Effective Good Practices (Group A)</i></b>
	<b><i>Other possible Solutions (Group B)</i></b>
	<p><i>Good practice 4.3.2.1.B.1:</i></p> <p><i>Information campaigns about how to identify if a product (equipment) passes the respective homologation process.</i></p>
<b>Comments</b>	<ul style="list-style-type: none"> <li>- <i>"The technical clothing for motorcyclists should not be sold if it's not standardized/homologated".</i></li> <li>- <i>"The products should have a label describing their characteristics. As there is a sign of energy efficiency for appliances, another one should exist for safety specifying the safety level".</i></li> </ul>

<b>Good Practice 4.3.2.1.B.1.</b>	<b>Information campaigns about how to identify if a product (equipment) passes the respective homologation process.</b>
<b>Description</b>	<p><i>It is necessary to know when equipment has passed the respective homologation process.</i></p> <p><i>This good practice consists on the dissemination of how to identify these equipments, which will help to avoid injuries. The European Personal Protective Equipment (PPE) Directive, 1989 requires that any clothing or personal equipment sold as providing protection from injury must comply with the relevant European Standard.</i></p> <p><i>Proof of compliance requires the gear to be independently tested and certified. The manufacturer is then issued with a CE (Conformite Europeen) label which indicates that the item conforms to the relevant European standard. The item must carry a permanently attached CE label with the number of the Standard. For example boots should be labelled CE EN 13634, where as jackets, pants and suits must be labelled CE EN 13595 and impact protectors are CE EN 1621. The relevant (European) standards are:</i></p> <ul style="list-style-type: none"> <li>- <i>EN 13634:2002 Protective footwear for professional motorcycle riders. Requirements and test methods.</i></li> <li>- <i>EN 13594:2002 Protective gloves for professional motorcycle riders. Requirements and test methods.</i></li> <li>- <i>EN 1621-1:1998 Motorcyclists' protective clothing against mechanical impact. Requirements and test methods for impact protectors. It covers the effectiveness of mechanical impact protection. To meet the standard, clothing has to include protection to this standard at key vulnerable locations of the garment.</i></li> <li>- <i>EN 1621-2:2003 Motorcyclists' protective clothing against mechanical impact. Motorcyclists back protectors. Requirements and test methods.</i></li> <li>- <i>EN 1938:1999 Personal eye protection. Goggles for motorcycle and moped users.</i></li> <li>- <i>EN 13595-1:2002 Protective clothing for professional motorcycle riders. Jackets, trousers and one piece or divided suits. General requirements. This standard covers the protective qualities of the garment, including construction techniques and potential to resist the abrasion.</i></li> <li>- <i>EN 13595-2:2002 Protective clothing for professional motorcycle riders. Jackets, trousers and one piece or divided suits. Test method for determination of impact abrasion resistance.</i></li> <li>- <i>EN 13595-3:2002 Protective clothing for professional motorcycle riders. Jackets, trousers and one piece or divided suits. Test method for determination of burst strength.</i></li> <li>- <i>EN 13595-4:2002 Protective clothing for professional motorcycle riders. Jackets, trousers and one piece or divided suits. Test methods for the determination of impact cut resistance.</i></li> <li>- <i>ECE 22.05 motorcycle helmet safety standard.</i></li> </ul> <p><i>For instance, in the case of helmets, a letter "E" (Europe) must appear in the label if the helmet is sold in Europe. Together this letter, a number will appear identifying the homologation country. In some European countries, there can apply two standards: E-22-04 and E-22-05 (more restrictive).</i></p>
<b>Results</b>	<i>No results are available about this type of campaigns.</i>
<b>Conclusions</b>	<i>The best way of knowing which type of clothing and helmet is showing them to the own riders, based on the homologation process the equipment must pass and after that must be identified.</i>
<b>Geographic location of this specific good practice</b>	<i>European Union.</i>
<b>Specific Good Practice to be applied by:</b>	<p><i>+ European administrations:</i>  <i>In those cases in which there are not standards for some devices, it should be identified/defined the respective standard.</i></p>

	<p><i>+ Manufactures: Identifying their products with the respective labels obeying the respective homologation processes.</i></p> <p><i>+ PTW Users: Buying those equipments that have passed the respective homologation processes to assure their safety.</i></p>
<b>Link</b>	<p><a href="http://www.elfmoto.es/lub/lubespagne.nsf/V5_SWIPSA/C125717D0040850DC1257172005AF66C?OpenDocument&amp;UNI=15BC49B03B577C00C12571950035B932&amp;">http://www.elfmoto.es/lub/lubespagne.nsf/V5_SWIPSA/C125717D0040850DC1257172005AF66C?OpenDocument&amp;UNI=15BC49B03B577C00C12571950035B932&amp;</a></p> <p><a href="http://www.elcierre.com/sitios/motos/cascos_homologados_2011_bueno.pdf">http://www.elcierre.com/sitios/motos/cascos_homologados_2011_bueno.pdf</a></p>
<b>Others</b>	<p><i>Information for Military Motorcycle riders and riders that will be riding on a U.S. Military Installation: <a href="http://www.motorcycleppe.com/">http://www.motorcycleppe.com/</a></i></p>

**Problem 4.3.2.2** Lack of homologation procedures for all the clothing sold related to riders.

<b>Epigraph</b>	<i>4.- Motorcyclist Equipment (Protection).</i>
<b>Subject</b>	<i>4.3.2.- Others: Homologation.</i>
<b>Problem to solve and justification</b>	<p><i>Many products sold in the market as protective equipment for riders either do not meet with the respective standards or simply do not meet with any standard because there are not anyone.</i></p> <p><i>Having demonstrated the efficiency of the use of protective equipment (Aprosys - AP-SP41-0004), it is necessary to assure all the devices (equipment) used by the riders meet with a standard with the aim of avoiding injuries due to impacts and the use of unsuitable equipment (from a safety point of view). For instance, it has been concluded that motorcycle clothing is significantly effective in preventing or reducing at least 43% of injuries to the skin and soft tissue with a 63% reduction in deep and extensive injuries. More recently Otte et al (2002), has found that riders wearing protective clothing had significantly fewer leg injuries in crashes at the same relative speed (eg 40% vs 29% injury free at speeds between 31-50 km/ph). He also identified a significant benefit in reduction of foot injuries for riders wearing high boots. Overall he also reported that riders without protective clothing sustained injuries in collisions at lower speeds (80% at &lt; 50 km/h compared to 80% &lt;60 km/h for riders with protective clothing).</i></p> <p><i>Effective of correct protective clothing appears to provide a measurable reduction in severity of some common types of injury, for example an observed reduction of 63% in deep and extensive injury to skin and soft tissue, Schuller et al. (1986).</i></p>
<b>Objective of the Group of Good Practices</b>	<i>The objective of this good practice is to aware about the lack of homologation process in some protective equipment related to PTW riders.</i>
<b>Code of the Group of Good Practices</b>	<i>4.3.2.2.</i>
<b>Good Practices</b>	<b><i>Effective Good Practices (Group A)</i></b>
	<b><i>Other possible Solutions (Group B)</i></b>
	<i>Good practice 4.3.2.2.B.1: To homologate in Europe any type of equipment to be used by motorcyclists.</i>
<b>Comments</b>	<i>- "The equipment must be standardized. Last year, a lot of clothing for motorcyclists was rejected in Poland because it was not standardized".</i>

<b>Good Practice 4.3.2.2.B.1.</b>	<b>To homologate in Europe any type of equipment to be used by motorcyclists.</b>
<b>Description</b>	<p><i>During the workshops with road safety experts held in ROSA project, it was detected that a good practice for the safety of motorcyclists should be the homologation/standardization of all the protective equipment to be used by the riders: from the helmet (already existing) to the gloves, considering aspects as "resistance to impact" or "visibility for a better conspicuity".</i></p> <p><i>In Europe motorcycle clothing can only be designated "protective" if It is capable of providing protection from injury. The Personal Protective Equipment Directive (PPE, 89/686/EEC) requires that any clothing or equipment sold or provided as a source of protection from injury must be categorised as protective (PPE) and comply with the relevant European Standard. Apart of standards detailed in "Good practice 4.3.2.1.B.1" to be applied to specific equipments (and identifies with the CE standard mark), motorcycle clothing that is only intended to provide protection from, for instance, weather conditions is not included as PPE.</i></p> <p><i>On the other hand, as important as defining new standards for those protective clothing whose requirements are not under a standard, it is also important to review current standards based on new accident analysis and biomechanical aspects with the aim of improving these standards.</i></p>
<b>Results</b>	<i>No results are available about the possible efficiency of this good practice.</i>
<b>Conclusions</b>	<p><i>Research into the 'theoretical' protection provided by CE equipment during standards testing and the studies of the effects on casualties clearly confirms the value of protective clothing of appropriate quality in reducing the severity of collision injury.</i></p> <p><i>Definition of new standards for those protective clothing whose requirements are not under a standard, and the review of current standards based on new accident analysis and biomechanical aspects with the aim of improving these standards, will increase the level of safety for all the possible protective equipment to be used by the PTW riders.</i></p>
<b>Geographic location of this specific good practice</b>	<i>European Union.</i>
<b>Specific Good Practice to be applied by:</b>	<p><i>+ European administrations: To define new standards for those protective clothing whose requirements are not under a standard.</i></p> <p><i>To review the current standards based on new accident analysis and biomechanical aspects with the aim of improving these standards.</i></p>
<b>Link</b>	<i>No link associated to this good practice.</i>
<b>Others</b>	

## 4.- Motorcyclist Equipment (Protection).

### 4.3.- Others.

#### 4.3.3.- Conspicuity.

<b>Problem 4.3.3.1</b>	Lack of conspicuity.
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<b>Epigraph</b>	<i>4.- Motorcyclist Equipment (Protection).</i>
<b>Subject</b>	<i>4.3.3.- Others: Conspicuity.</i>
<b>Problem to solve and justification</b>	<p><i>PTW conspicuity as an important item in the PTW safety debate and is fully committed to further improve the ability of other road users to correctly detect the PTWs (ACEM, "A plan for action" 2008).</i></p> <p><i>In some accidents, the visual background can decrease the rider conspicuity (for instance, MAIDS project 2004 shows that in 15% of the PTW accidents there were a problem of rider conspicuity by the other drivers, which is over tow times greater than the number reported for the other road users (passenger cars, trucks,...)).</i></p>
<b>Objective of the Group of Good Practices</b>	<i>The objective of these good practice is to increase the level of safety for riders concerning conspicuity problems.</i>
<b>Code of the Group of Good Practices</b>	4.3.3.1.
<b>Good Practices</b>	<b><i>Effective Good Practices (Group A)</i></b>
	<p><i>Good practice 4.3.3.1.A.1: Use of reflective and brightly colour clothing to be better seen on the road.</i></p> <p><i>Good Practice 4.3.3.1.A.2: Motorcycle rider conspicuity (more details in Good practice 3.5.1.A.1.).</i></p> <p><i>Good Practice 4.3.3.1.A.3: Attention and search conspicuity of motorcycles as a function of their visual context (more details in Good practice 3.5.1.A.2.).</i></p>
	<b><i>Other possible Solutions (Group B)</i></b>
	<p><i>Good practice 4.3.3.1.B.1: Helmet Brake Light System.</i></p> <p><i>Good practice 4.3.3.1.B.2: Advices about how to be seen in urban areas (more details in "Good Practice 3.5.1.B.15.").</i></p> <p><i>Good Practice 4.3.3.1.B.3: The top 10 High-Viz Tip (more details in "Good practice 3.5.1.B.6.").</i></p> <p><i>Good Practice 4.3.3.1.B.4: "Go High-Viz" Campaign (2008-2010) (more details in "Good practice 3.5.1.B.7.").</i></p>
<b>Comments</b>	<ul style="list-style-type: none"> <li><i>- "In Bogotá, it was compulsory to wear a reflective vest with the registration number. It reduced 50% the rate of accidents because the rider was visible".</i></li> <li><i>- "The reflective vest's standardization, does not consider that it loses its effectiveness after six washing".</i></li> <li><i>- "The glasses are important for riding. When the sight testing is wrong, it causes an incredible loss of reflexes and sensitivity, which are necessary to overtake properly".</i></li> </ul>

<b>Good Practice 4.3.3.1.A.1.</b>	<b><i>Use of reflective and brightly colour clothing to be better seen on the road.</i></b>
<b>Description</b>	<p><i>This good practice consists on the definition of what kind of clothing must be worn by the riders with the aim of being seen.</i></p> <p><i>One of the easiest and most effective ways for a motorcyclist to be seen by other motorists is to wear brightly coloured, upper-torso clothing and/or retro-reflective material (meeting with the parameters defined in the standard EN471, the European standard for high-visibility for any type of clothing, not only for motorcyclists). However, only a minority of motorcyclists choose such brightly colored apparel, whether for fashion or other reasons. Education of motorcyclists to overcome their resistance to employing conspicuity strategies is needed. Protective apparel manufacturers can help by promoting conspicuity in their advertising and in their apparel designs. Efforts that focus on peer acceptance of conspicuous colours are also suggested.)</i></p>
<b>Results</b>	<p><i>A recent study in New Zealand found that riders who wore any reflective or fluorescent clothing (such as a vest) were 37 percent less likely to be involved in a multi-vehicle crash than riders who did not wear a vest. The same study also found that white helmets and brightly colour jackets had similar effects. High-visibility upper body clothing makes a huge difference in how easily other drivers can see you.</i></p> <div data-bbox="673 846 1177 1451" style="text-align: center;"> <p>The top photograph shows a yellow diamond-shaped road sign with a black silhouette of a person riding a motorcycle, positioned on the left side of a road. A motorcyclist is visible in the distance on the road. The bottom photograph shows the same scene from a different angle, where the motorcyclist is wearing highly reflective clothing, making them much more prominent against the background.</p> </div> <p><i>Different viewing effect depending on the type of clothing</i></p>
<b>Conclusions</b>	<p><i>The easiest and most effective ways for a motorcyclist to be seen by other motorists is to wear brightly coloured, upper-torso clothing and/or retro-reflective material.</i></p>
<b>Geographic location of this specific good practice</b>	<p><i>New Zealand.</i></p>
<b>Specific Good Practice to be applied by:</b>	<p><i>+ PTW users: The own users should read and analyse the different good practices mentioned in this dossier with the aim of being seen by the other road users. Therefore, at the moment of buying clothing they will consider these aspects.</i></p> <p><i>+ European administrations: Through the definition of a standard that would make sure that any clothing or helmet can be seen from a specific distance by any user on the road (through the use of brightly colours or specific parameters as retroreflection, meeting with the parameters defined in the standard EN471, the European standard for high-visibility clothing). The standard should consider tests to be carried out by</i></p>

	<p><i>different users and after passing these tests, these clothes would obtain a certificate assuring the clothes would help the riders to be seen.</i></p> <p><i>+ National administrations in charge of traffic aspects: Once a standard is defined, National administration should force riders to use these type of clothing.</i></p> <p><i>+ Manufacturer: To build helmets and clothing consider conspicuity aspects. Once a standard is defined, manufacturers should pass this standard.</i></p>
<b>Link</b>	<p><i><a href="http://www.motorcyclesafety.state.mn.us/latest/MMSCHomeSecondary.asp?cid=5&amp;mid=281">http://www.motorcyclesafety.state.mn.us/latest/MMSCHomeSecondary.asp?cid=5&amp;mid=281</a></i></p>
<b>Others</b>	<p><i>+ Motorcycle Factors: <a href="http://www.nhtsa.dot.gov/people/injury/pedbimot/motorcycle/00-NHT-212-motorcycle/motorcycle49-50.html">http://www.nhtsa.dot.gov/people/injury/pedbimot/motorcycle/00-NHT-212-motorcycle/motorcycle49-50.html</a></i></p>

<b>Good Practice</b> 4.3.3.1.B.1.	<b>Helmet Brake Light System.</b>
<b>Description</b>	<p>The <i>Helmet Brake Light System</i> is a new add-on product especially designed for two-wheeled vehicles. The <i>Helmet Brake Light</i> is an additional rear brake light, versatile enough to be installed on a helmet, baggage, top case or even on the rider's back support belt. It has a cordless connection to the bike's own brake light, and operates with it simultaneously whenever the brakes are applied.</p> <div data-bbox="847 483 1003 607" data-label="Image"> </div> <p>There are many articles and lots of information regarding various types of lighting solutions, but much of the interest involves increasing the light emitted by brake lights. Power, wattage, brightness, surface area, location - you name it, and motorcyclists want it -. There are various theories, too. Some say that there should be a large area of brake light concentrated around a single location on the back of the bike. Others think that spreading the brake lights around the back of the bike is a better idea. Then there are those who want blinking, twirling or flashing brake lights in one or more locations.</p>
<b>Results</b>	<p>Field tests have shown that the existing brake lights alone are not sufficient. In some cases, i.e. dust, mud, or even with certain baggage, the usual motorcycle brake lights do not give other vehicles enough warning of the cyclist's intentions. In addition, unlike cars which have two or even three brake lights, motorcycles depend on only one single rear brake light. If it burns out no other signal is visible. The <i>Helmet Brake Light</i> would compensate these cases and could dramatically reduce the risk of front/rear collisions.</p> <p>Nevertheless, one of the problems is that there has not been much research that has studied the effectiveness of various brake light schemes on the awareness and reaction times of drivers and other traffic. It is also necessary to define the certain colours, brightness, surface area or location of the brake lights on the back part of riders. In fact, there are some studies which analyze the possible problems of this device for the rest of users ("Luz de freno incorporada al casco de proteccion para motociclistas" AMM idf 4710 – 2010). Only after making simulations and real test with a high number of volunteers in different situations, the effectiveness of this device.</p>
<b>Conclusions</b>	<p>In recognition of this fact, additional brake lights are fast becoming standard in the USA, Europe and Israel. The CE, FCC, and Israeli Ministry of Transportation have given their approval of this product.</p>
<b>Geographic location of this specific good practice</b>	<p>United States of America, European Union and Israel.</p>
<b>Specific Good Practice to be applied by:</b>	<p>+ <i>European administration:</i> To define a standard in which several aspects should be defined: certain colours, brightness, surface area or location of the brake lights on the helmet.</p> <p>+ <i>Manufacturer:</i> Once the standard is approved, all the manufacturers should be built these helmets considering these aspects.</p> <p>+ <i>PTW users:</i> The users should consider all the good practices related to the conspicuity and should buy this type of helmets for a safer riding.</p>
<b>Link</b>	<p><a href="http://www.safedriving.com/Helmetbrakelight.htm">http://www.safedriving.com/Helmetbrakelight.htm</a></p>
<b>Others</b>	<p><a href="http://www.webbikeworld.com/r2/riderlight/">http://www.webbikeworld.com/r2/riderlight/</a></p>

	<p><i>(“Luz de freno incorporada al casco de proteccion para motociclistas” AMM idf 4710 – 2010):</i> <a href="http://www.mtuamotera.org/gn/web/documentos/contenidos/idf_4710_luz_fre_no_casco_v_02.pdf">http://www.mtuamotera.org/gn/web/documentos/contenidos/idf_4710_luz_fre_no_casco_v_02.pdf</a></p>
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