



Proposals for Safety Countermeasures

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WP6: *Transversal analysis and guidelines (KFV, M1-M36)*

- **Activity 6.1. Issues of interest for guidelines and recommendations**
Leader: NTUA
M1-M4
- **Activity 6.2. Dedicated Summaries of behavioural studies**
Leader: ICCS
M27-M34
- **Activity 6.3. Guidelines for observation of PTW rider behaviour**
Leader: INRETS
M27-M33
- **Activity 6.4. Guidelines, policy recommendations and further research priorities**
Leader: KFV
M33-M35

- Collection and analysis of PTW related measures
 - involving fields like riders, education, infrastructure, law,...
 - including expertise from previous WPs

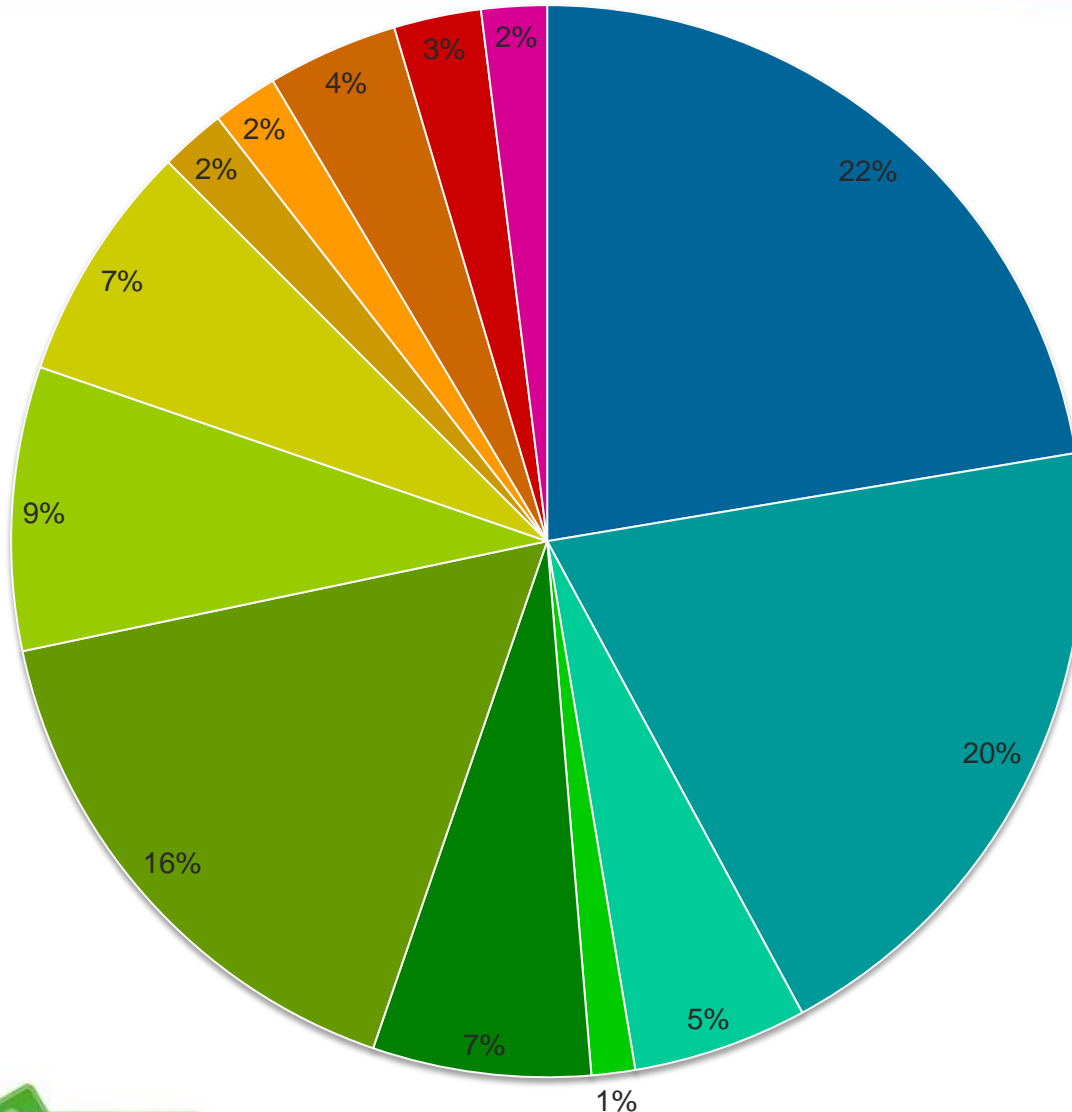
- Assessment of the measures

- Identification of policy recommendations

- Development of new guidelines and measures

- Determination of future research priorities

Collection and Analysis of PTW related Measures



- Road Infrastructure
- Vehicles and Safety Devices
- Conspicuity & Lights
- Environmental Issues
- Protective Equipment
- Driver Education, Licensing and Testing
- Traffic Law and Enforcement
- Road Safety Education and Campaigns
- Rehabilitation and Diagnostics
- Post Accident Care
- Road Safety Data and Data Collection
- Measures involving other Vehicles
- Other Measures

$\Sigma = 152$ measures

Collection of PTW related Measures



Task A6.1

- initially due in month 4
- extended to beginning of task 6.2
- All partners involved
- using template
- very broadly considering the term „measure“
 - guidelines
 - (technical) standards
 - applied measures
 - research activities

Workshops for Young Moped Riders

Although young riders fulfil the physical requirements for riding a moped in traffic, immaturity, showy behaviour and the adolescent identification process on the road present fatal risk factors. Especially adolescents tend to misjudge critical situations. Their attitude can be positively influenced by rider training, first-aid skills and theoretical know-how.

KFV and its partners offered experimental workshops for 15-16 year old active and potential moped riders. Beside technical rider training the adolescents were instructed how to avoid critical situations and how to prevent accidents. Also first-aid education and information about the legal situation concerning tuning were offered. An evaluation of these workshops showed that the adolescents could be influenced positively.

<http://www.kfv.at/kuratorium-fuer-verkehrssicherheit/landesstellen/steiermark/aktionen/erlebnisworkshop-sicher-auf-zwei-raedern/>

Beneficiaries:

Sensitisation for correct behaviour in traffic and practical training are constitutional for reducing road accidents.



Figure 57: Workshop for young riders⁶⁵

Task A6.2

- Structured description of measures
- Dedicated summaries of WPs and tasks
 - addressing results
 - isolated proposals for measures
 - not necessarily in line with the integrated proposals

Tasks:

- Distribute measures
- Describe them
- Edit paper

Assessment of Measures



Approaches:

1. One structured description per measure (A6.2)

↳ Comprehensive, individual assessment
References, pictures

2. Expert assessment via online survey (A6.4)

↳ Multiple expert ratings per measure

1) Structured description

- Short Description of the measure
- Clear definition of the problem
- Size of the problem
- Background
- Implementation
- Expected Impact(s)
- Expected Impact(s)
- Acceptance
- Sustainability
- Transferability
- Costs and benefits
- Priority

+ Riders' Perspective

Assessment of Measures

1) Structured Description

Airbag Jackets

Expert Assessment			
Overall		★★★★★	
Size	★★★★★	Transferability	★★★★★
Total impact	★★★★★	Implementation	★★★★★
Safety impact	★★★★★	Acceptance	★★★★★
Efficiency	★★★★★	Sustainability	★★★★★

Upon detection of a crash situation, the airbag jacket is automatically deployed to minimize the injury to the rider. Although airbag jackets involve the same principles as vehicle-mounted airbags, there is a difference concerning the time of activation: Rather than trying to prevent the motorcyclist from being thrown from the vehicle, airbag jackets come into effect once this has happened. The jacket is connected to the vehicle via a cable, and when this connection is interrupted the airbag inflates. The rider will still hit the ground with the same force, but he will be protected with a cushion of air surrounding his upper body.

Example:

There are a number of commercially available airbag jackets (e.g. Hit-Air, MotoAir, Dainese). But so far, there is no existing independent evaluation concerning their effectiveness.

Beneficiaries:

Airbag jackets are passive systems which serve to reduce injury severity. In addition to front-impact crashes, airbag jackets could be effective in a range of loss of control or multiple vehicle crash where the rider is thrown from the vehicle.



Figure 55: Airbag jacket⁶¹

Clear definition of the problem

Airbag devices can be life-saving in situations where riders are not able to protect themselves anymore e.g. accidents occur in a very short time and riders are not able to react in time.

Size of the problem

Problem concerns crashes where the motorcycle rider is thrown from the vehicle (on the ground or travelling into another vehicle)

Scientific Background

When it comes to motorcycle airbags one has to differentiate between Airbags which are mounted on fuel tanks of the motorcycle (such as the "Honda Goldwing" model provides, which has proven very

Assessment of Measures: Expert Survey



Guidelines on Road Design

Several guidelines containing definitions of major criteria which have to be taken into account by a road designer have been published. These guidelines imply recommendations about both the design and the verification of the roads already constructed. Typical construction guidelines discuss issues like the designing and installation of roadside systems (traffic control, traffic guidance facilities, vehicle restraint systems, etc).

* To which extent do you consider yourself an expert for this measure?

Choose one of the following answers

- 5 – I'm well informed about the issue
- 4
- 3
- 2
- 1
- 0 – I'm no expert at all

* What is the size of the problem that is addressed by this measure?

Choose one of the following answers

- 5 – One of the key safety problems of PTW use
- 4
- 3
- 2
- 1
- 0 – There's no real problem to solve

Expert

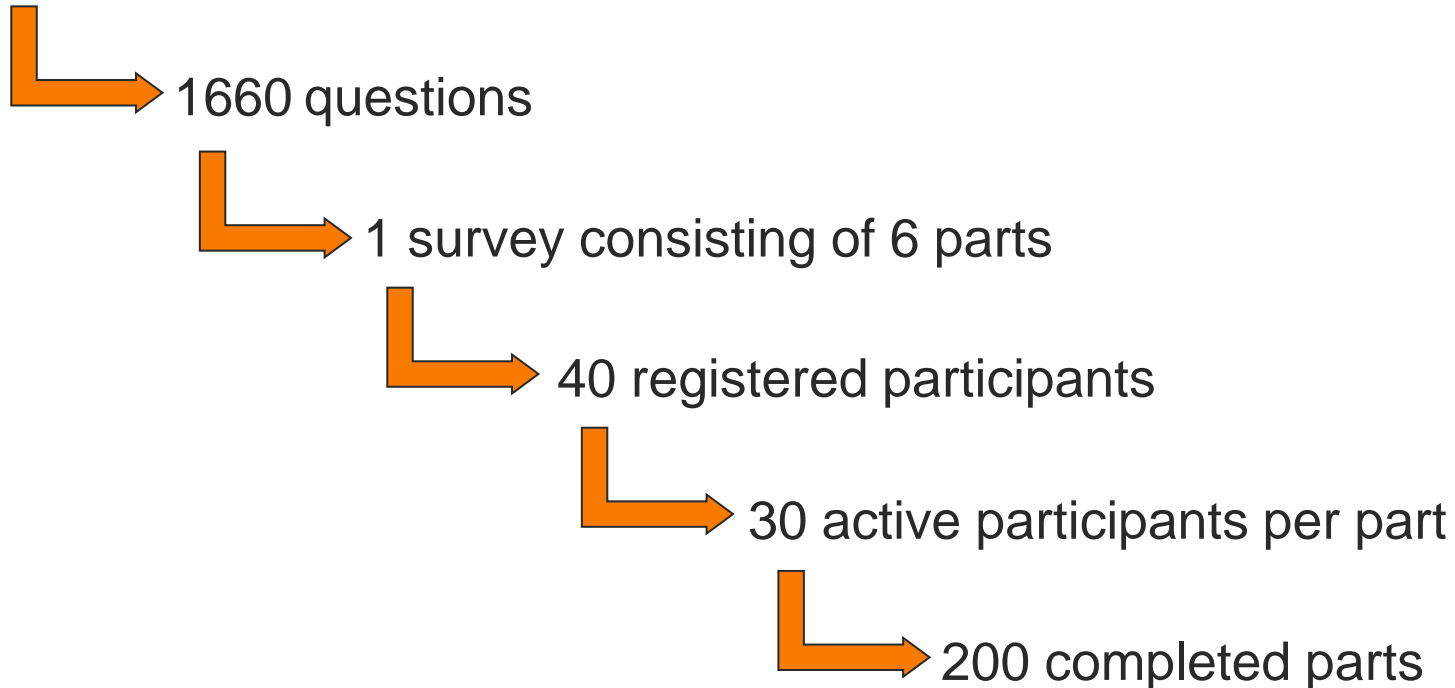
- Experts
 - in the field of road safety
 - not necessarily PTW riders or experts
 - 2 BE SAFE consortium members
 - various disciplines
 - self-assessment required

- assess by using
 - experience from 2 BE SAFE
 - their experience and expertise as road safety and/or PTW experts
 - common sense

Assessment of Measures: Expert Survey



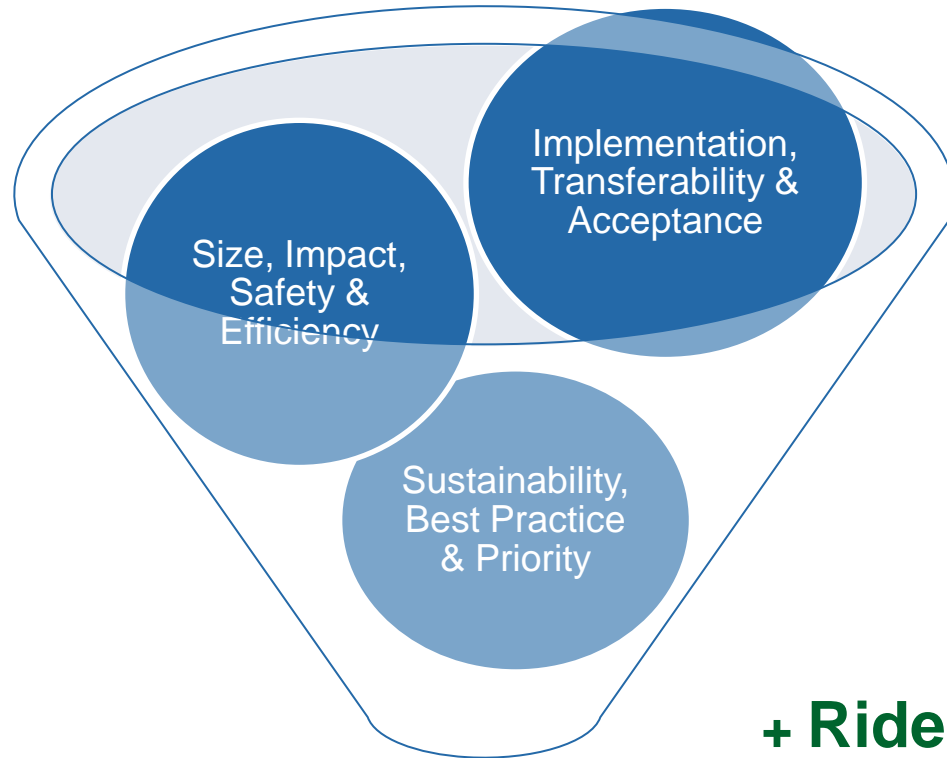
152 measures



Assessment of Measures: Expert Survey



- Size
- Impact
- Safety
- Efficiency
- Implementation
- Transferability
- Acceptance
- Sustainability
- Best Practice
- Priority



Star Rating



+ Rideris' Perspective Rating

Evaluation of Measures



2) Expert survey

Expert Assessment			
Overall		★★★★★	
Size	★★★★★	Transferability	★★★☆☆
Total impact	★★★★☆	Implementation	★★★★★
Safety impact	★★★★★	Acceptance	★★★★★
Efficiency	★★★★★	Sustainability	★★★★☆

Riders' perspective

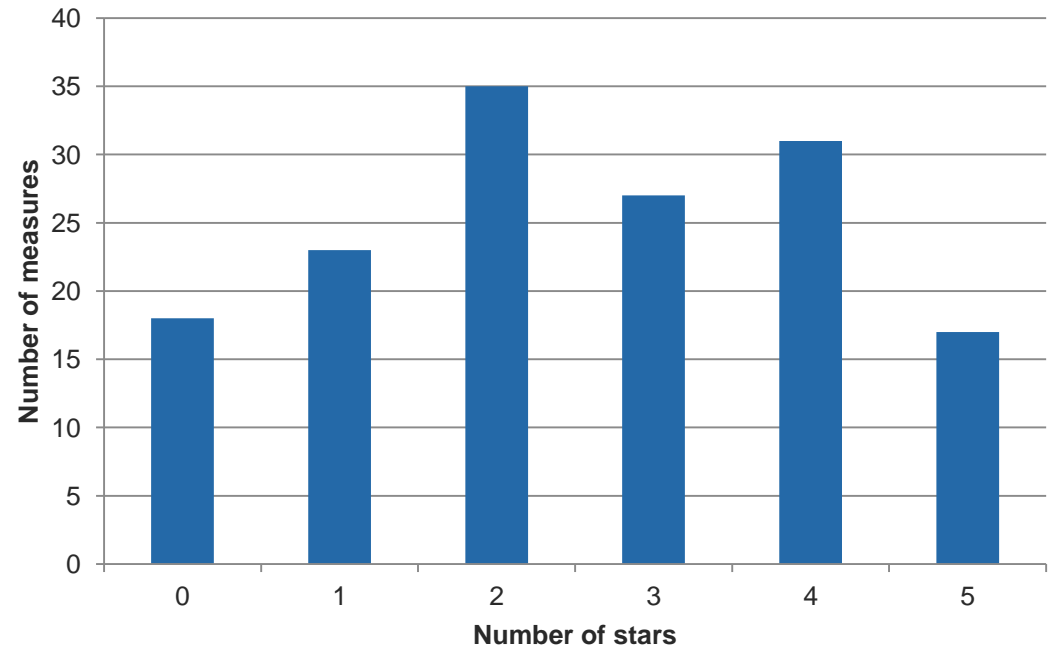
★★★★★

The riders' associations support this measure because training is the best way to increase the safety of young PTW users.

2) Expert survey

■ Quantitative overview:

- ★★☆☆☆: 18 measures
- ★☆☆☆☆: 23 measures
- ★★☆☆☆: 35 measures
- ★★★☆☆: 27 measures
- ★★★★☆: 31 measures
- ★★★★★: 17 measures



★★★★★ Measures

- Mandatory Use of Headlights
- Integrated Road Safety Education Programme
- Guidelines for Improvement of Rider Conspicuity during Night-time Riding
- Road Safety Inspection
- Obligatory Helmet Use for PTW Riders and Passengers
- Improvement of Data Collection
- Identification of Accident Blackspots
- Road Safety Audit

★★★★★ Measures ctd.

- In-Depth Analysis of Motorcycle Accidents
- Other Road Users' Responsibilities to Riders
- ABS and other Advanced Braking Systems
- Workshops for Young Moped Riders
- Elimination of Dangerous Obstacles in Bends
- Automatic Headlamps On (AHO)
- Promotion of Protective Equipment
- Future Braking Systems
- Motorcycle Issues in Emergency and First Aid Trainings

★★★★★ Measures

- Speed Limits for PTWs
- Moving Mopeds from the Cycle Lane on the Carriage Way
- Shared Space
- Definition of a Moped
- Maximum Speed of PTWs
- Measuring Power and Speed
- Obtaining a Full Motorcycle License once in Possession of a Moped License
- Anti-Tampering Measures and Enforcement
- Age Limitations for Pillion Passengers

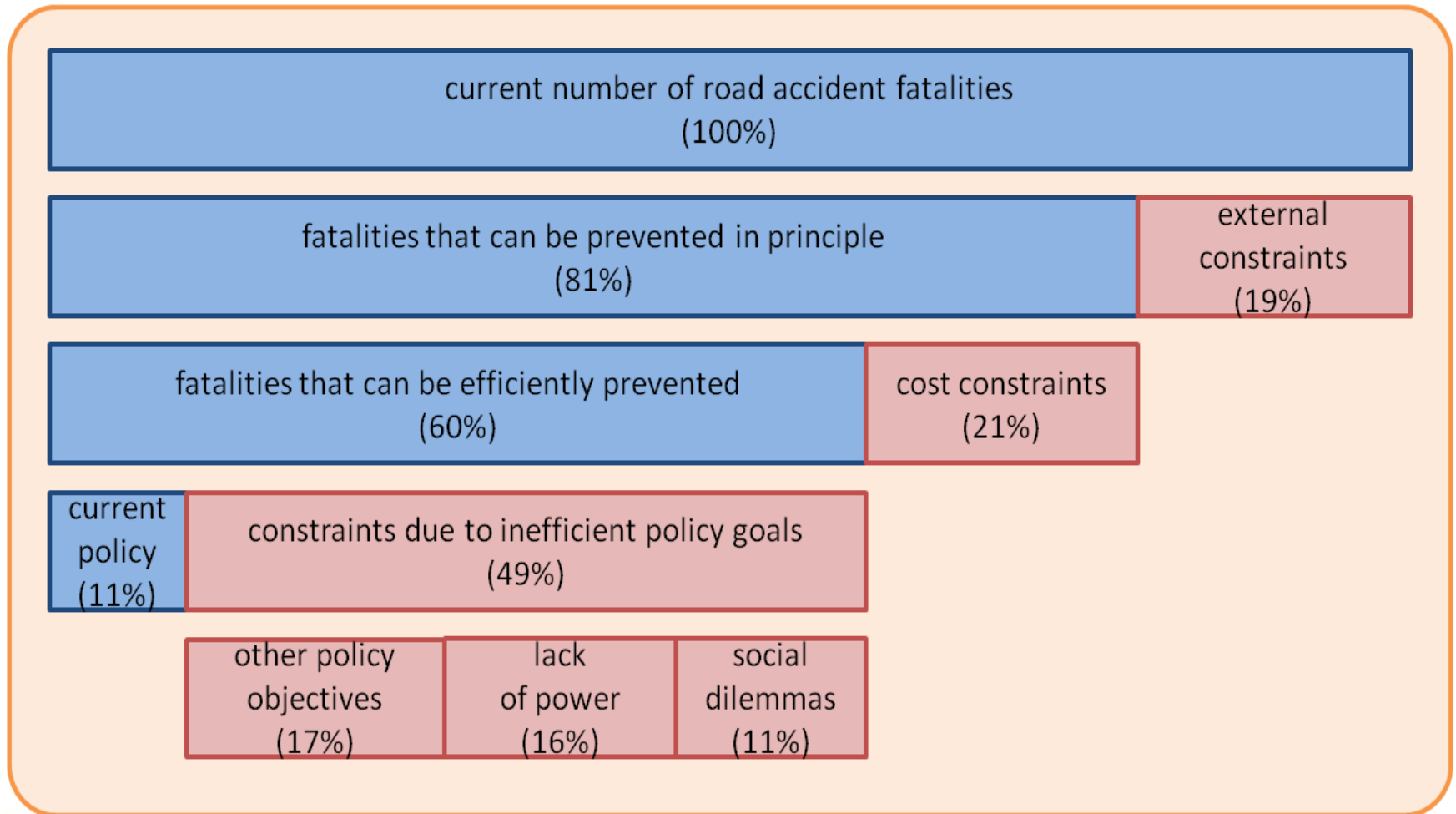
★★★★★ Measures ctd.

- Specific Marking for Different Vehicle Groups
- Riding Without Pillion Passengers
- Riding Bans for Novice Motorcyclists
- Rear Registration Plate
- Measurement of Road Energy Performance of Thermal Electric Hybrid Vehicles
- Safety Belts
- Intelligent Speed Adaption
- Ignition Interlock Devices for PTWs
- Adaptive Cruise Control

Recommendations for New Measures



Barriers to Road Safety Action (Elvik, 2004, Norway)



- Focus of a measure
 - @ PTW
 - Accident type
 - Road user
 - @ all
 - Accident location
 - Vehicle
 - Preventive impact
- Size of the road safety problem
 - Kind of problem
 - extent of problem
 - range of problem (users, vehicles, roads)

- Expected impacts
 - Kind of impact (crashes, severity, environment, mobility, operation, etc)
 - Extent of impact
 - Range of impact (users, vehicles, roads)
- Costs and benefits
 - investments
 - maintenance costs
 - enforcement costs
 - reward systems
 - administration costs
- Acceptance
 - target group
 - other

Recommendations for New Measures



- Sustainability
 - Fading
 - internal
 - external
 - Compensation
- Transferability
 - relevant?
 - no patchwork!
- Institutional context
 - Road Safety Vision
 - Road Safety Program
- Post-implementation
 - Campaigning, evaluation, quality assurance

Activity 6.3

- Addressing research methodologies applied in 2 BE SAFE
 - Simulator
 - Survey questionnaires
 - Focus groups and interviews
 - Observation of rider behaviour in naturalistic situations
 - On site observations
 - Experiments on PTWs' Visual Conspicuity
 - Cognitive Work Analysis
- lesson learned



Proposals for Safety Countermeasures

Thanks for listening! Questions?

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