European R&D in the Field of Secondary (or Passive) Safety

*From Passive to Integrated Safety Network*

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• Overview accomplishments
• Roadmaps and strategic research agenda
• Discussion and conclusions
Road Safety Strategies

Focus Passive Safety Network

Pre-Event

Human

Vehicle

Environment

Event

Post-Event
History Passive Safety Network (PSN)

*Road to co-operation*

2002 – 2004: Thematic network EVPSN2 (5th FWP)
*From co-operation to integration*

*Form integration to business: a virtual institute*
Steps towards a Virtual Institute

Mobilisation of critical R&D mass in the field of vehicle passive safety

Durable integrated European research programme

Creation of permanent, self-sustaining organisation with legal status: The Integrated Safety Network (ISN)
Objectives

- Integrate research activities
- Identify ‘white spots’ and initiate new RTD projects
- Facilitate technology transfer
- Accelerate dissemination, harmonisation and implementation of R&D results
- Contribute to future Vehicle Safety Strategy
Co-operation of > 50 partners
Main accomplishments

- Collaboration OEM’s, suppliers, research organisations, universities, insurance companies and SME’s
- > 19 new joint projects, > 50 workshops, > 40 state-of-the-art reports, 6 conferences, website + Intranet
- Links to stakeholders like EUCAR, EEVC, EARPA…
- Strategy, R&D roadmaps

European projects:
- ADVANCE
- PRISM
- PENDANT
- MYMOSA
- VITES
- HUMOS2
- RISER
- PISa
- FID
- ROLLOVER
- WHIPLASH2
- SIBER
- ECBOS
- VC COMPAT
- CHILD
- APROSYS
Projects

Virt. Testing: ADVANCE, VITES, HUMOS2
Crash dummies/biomechanics: FID, SIBER, WHIPLASH2
Crashworthiness: ECBOS, ROLLOVER, VC COMPAT, RISER
Accident analysis: PENDANT
Child safety: CHILD
Motorcycle safety: MYMOSA, PISa
Intelligent systems: PRISM
General: APROSYS

New KP7: CASPER, THORAX, INVITER, THOMO ……
APROSY Advanced protection Systems (FP6)

- Duration: 5 years: April 2004 – March 2009
- Total Budget: 30 Million Euro (EC funding 18 Million Euro)
- Basis consortium: Passive Safety Network
- Co-ordinated and closely linked with other safety projects initiated by EUCAR
- Main Partners: DaimlerChrysler, Renault, PSA, FIAT, Volkswagen, Toyota, Nissan, PDB, Piaggio, Siemens, TNO, CIDAUT, TRL, TUG, INRETS, FhG, Mecalog ………
European Integrated Safety Program

- Passive safety
- Active safety
- Cooperative safety
- Cooperative efficiency
- Applications
- DRIVER
- Communication channels
- Service facilitator
- Vehicle - infrastructure
- Vehicle - vehicle
- Autonomous

TRACE

Accident causation

EU CAR

EASIS

Safestop

CVIS

PR eVelent

APROSYS

eCALL

AC cident causation

minutes seconds milliseconds minutes

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Integrated Approach

- Car Accidents
- Heavy Vehicles Accidents
- Pedestrians / Cyclists Accidents
- Motorcycle Accidents

- Biomechanics
- Intelligent Safety Systems
- Virtual Testing
- Accident Analysis
Milestone plan APROSYS


WorldSID 5 female
Generic Car Models & Virtual Testing Tools
Heavy Vehicle Aggressivity Index
Truck design strategies
Motorcyclists protection
Improved human models
Human models & Virtual Testing Demonstrators

Accidentology
Advanced Side Impact Sij
Advanced European Side Impact pro
Road barrier test method
Show cases for improved safety
Advanced Safety System Assessment Methods
Impr
See: www.passivesafety.com
PSN Roadmap themes
Some of the links with APROSYS

- Common structural interaction area adopted for all traffic participants
- Introduction of compatibility test
- Test methodology for HGV rear and side under-run protection systems
- In depth passive safety data available for cars & pedestrians
- Harmonised methodology for cost benefit analyses
- European Road Safety Observatory
- In depth accident data available for cars & pedestrians
- Harmonised methodology for cost benefit analyses
- European Road Safety Observatory
- New Generation of advanced dummies introduced
- Virtual testing accepted as assessment method in regulations
- First use of human models in regulations
- Full range of human models available
- Injury Criteria for children & the elderly
- Accepted and validated Impairment Scale
- Family of next generation general purpose dummies

Part of APROSYS examples
Priority items in Secondary Safety Research Action Plan (SSRAP)

The Human

1. Impact biomechanics

Vehicle technology

2. Compatibility
3. Restraint systems
4. Vehicle structures and materials
5. Integrated safety

Safety assessment

6. Accidentology
7. Test methods and tools

Road user groups

8. Motorcycles/mopeds
9. Pedestrians/cyclists
Priority items in Secondary Safety Research Action Plan (SSRAP)

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Integrated Safety in PSN roadmap and SSRAP

- Is recognized as probably the most important area for future R&D
- Will benefit all accident scenario’s
- Allows for optimised injury mitigation in all crash modes and all road users and occupant sizes
- Concerns vehicle structure as well as restraint systems
- Sensor fusion and system dependability are major issues
Discussion and Conclusions

- Important road casualty savings through new vehicle safety technologies
- Large potential integrated safety but also in more traditional passive safety measures
- Significant research is required to develop the technologies to deliver the savings (Roadmaps/SSRAP)
- Important area in secondary safety a.o. new test methods, virtual testing in regulation, vulnerable road users, compatibility, harmonized accidentology research, new injury criteria etc…
The Passive Safety Network will continue as an association but with a wider scope than secondary safety only:

**The Integrated Safety Network (ISN)**

- Industrial involvement is important
- Expand co-operation with other stakeholders like EUCAR, EARPA etc…
Thank you for your attention!

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