

## Publishable Executive Summary

Every year, more than 40.000 people are killed in the EU 15 as a result of road accidents. Another 1.5 million are injured, often being severely injured. The fact that so many of our citizens die violently or suffer horrible injuries while simply going about their daily business, should, at the very least, create cause for concern. The Advanced Passive Safety Network was established to take up this challenge.

For many, the high number of road fatalities is one of the most severe problems facing Europe today and a great threat to public safety. In any other context, the loss of so many lives would constitute a major disaster, demanding immediate and drastic action. But getting the safety message across, largely a problem of communication is not as easy as it sounds. APSN has been established to promote passive safety research and, equally importantly, to help in the dissemination of information and results, all with a view to reducing the number of casualties on European roads.

APSN followed in the footsteps of two previous EU thematic networks on vehicle passive safety: PSN and EVPSN2. In contrast with its predecessor this Network of Excellence (NoE) specifically aimed at establishing a durable integrated European vehicle passive safety research and implementation program and the creation of a Virtual Centre of Excellence (VCE). This was to be realised by the creation of a permanent form of organisation in order to continue the activities among the partners started under the umbrella of the EU funded Network of Excellence and moreover do this in a self-sustainable way (see figure 1)



**Figure 1 Development of APSN**

The overall aim of APSN was to mobilise the European scientific & business expertise in Vehicle Passive Safety to accelerate improvements in road safety in order to reduce the annual road victims for the European Union. The joint technical and scientific objective of this Network of Excellence was to enhance the level of road safety at affordable costs for the individual user as well as for the European society.

Specific objectives of the Advanced Passive Safety Network were:

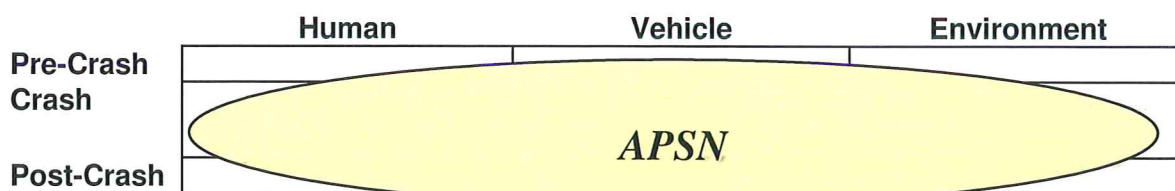
- To integrate research activities in the field of secondary safety at European, national and regional level to overcome duplication of research efforts. An example of this integration is the Integrated Project APROSYS initiated within EVPSN2.
- To facilitate technology transfer and accelerate dissemination of on-going research activities, including EC funded R&D projects
- To establish links with initiatives in neighbouring fields of interests like active vehicle safety, road infrastructure safety, railway safety and aircraft safety
- To identify 'white spots' and initiate new R&D projects in the areas of, among others, restraint systems, materials, biomechanics and computer simulation
- To accelerate the dissemination of results of passive safety research as well as the implementation and harmonisation of new and proven passive safety measures throughout Europe
- To investigate and implement new ways for interactive working between research teams, i.e. enhanced electronic information & communication networks, new research platforms, sharing research facilities, etc.

## APSN: the Results

### Durable Integration of Research Activities

In order to realise its objectives, APSN started as a network consisting of 55 members, with expertise varying from vehicle and restraint system manufacturers, computer modelling and software companies to international, research and educational organisations like universities and crash test and biomechanical research institutes.

The activities of APSN focused on vehicle passive safety, but had a strong link with pre-crash and post-crash issues, the integration with active safety and a link with road infrastructures. Standardisation, harmonisation and legislation issues were also included. Safer road transport can only be accomplished through a joint European effort in the areas of research & development, testing, harmonisation of regulations and dissemination and transfer of knowledge. A roadmap for future research in the field of passive safety was created, including activities in the pre-crash and post-crash phase as indicated in the figure below:



The research integration activities of APSN included:

- Formulation of future strategies and priority areas in the APSN Roadmap and the update of this roadmap in the Secondary Safety Research Action Plan in order to promote an integrated and coherent approach within passive safety research. Input to these policy documents were given by the APSN working groups and user groups and resulted in a permanent structure in which this document will be regularly updated by the members of the Integrated Safety Network (ISN: the name adopted by the permanent organisation and further referred to as ISN)



- The identification and maintenance of links with running projects and other networks, at EU and national level, involving activities related to passive safety. Extensive collaboration with European road users associations was established in work package 5 (user and applications groups)
- The sharing and dissemination of results was achieved through a high level of integration reached in the different fields of the working groups within work package 4 on research integration
- Relevant research results and new insights were derived from the working groups in work package 4 and the user groups in work package 5 and were transformed into user specific information packages, training modules and workshops

#### Dissemination of on-going research activities

The objective of dissemination of research activities was reached by the organisation of 21 workshops on a range of topics like pedestrian and cyclist safety, motorcycle safety, materials, heavy truck safety, post crash issues etc ... In general these workshops generated a large interest from the research community, white spots were identified and research priorities formulated. Furthermore, each year a conference was organised bringing together the passive safety research community, with participants not only from Europe, but also Japan, the United States and Australia. The annual conference was once organised in cooperation with the Integrated Project APROSYS and once jointly with the International Research Council on Biomechanics of Injury (IRCOBI). In addition, 2 training courses were organised, one on computer modelling in passive safety and one on post crash activities. APSN was especially active in creating interaction with and among young researchers in the safety field by organising a young APSN conference yearly and issuing a young APSN award.

#### Links with initiatives in neighbouring fields of interests

Within work package 5 User Groups one of the user groups was specifically dedicated to non-road safety. Several workshops were organised together with the working group 4, especially the group dealing with materials and crashworthiness. A preliminary roadmap was delivered in the field of railway passive safety and contacts established with railway organisations that deal with passive safety and aerospace organisations. With respect to integrated safety a working group was active within work package 4, leading to the definition of an evaluation concept for establishing a distributed European infrastructure for special targeted or integrated projects.

#### Identify 'white spots' and initiate and cluster new R&D projects

Since the start of the passive safety network activities a large number of R&D projects have been initiated within the 5th and 6th framework programs (a total of 19 projects) involving industrial, research and university partners from the network. During the APSN 4-year period the following projects were initiated in the 6<sup>th</sup> framework in which APSN partners were involved:

- Towards Integrated Safety for Powered Two-wheelers (MYMOSA, Marie Curie Training Network)
- Powered Two-Wheeler Integrated Safety (PISa)

For the 7<sup>th</sup> framework a number of proposals were submitted of which 4 were accepted after the 1<sup>st</sup> call: THORAX, THOMO both in the field of biomechanics (thoracic injuries), INVITER in the field of virtual testing and CASPER in the field of child safety.

#### Interactive working between research teams & sharing of facilities

In order to stimulate interactive working between the research teams an intranet was established. This website only accessible to partners was intensively used for the communication within the different working groups and later on within the objectives. A structure was developed to act as a



portal connecting all the communication channels of the network (external website, internal website, and databases), to be easily transferred later to the ISN.

With respect to the sharing of facilities, a high degree of integration was established, ultimately demonstrated by a pilot case carried out together with the Integrated Project APROSYS. This approach and the framework developed are highly promising for carrying out tests of integrated safety systems in the future.

#### A permanent organisation (virtual centre of excellence) in the field of passive safety

The ultimate goal of the network was to establish a permanent self-sustainable form of organisation after the EU funded network would end. During the existence of APSN a business plan containing a realistic approach towards this self-sustainability was formulated and used as the basis for the permanent organisation. Several organisational forms were examined, leading to a choice to establish an association. A considerable amount of members was active in laying the foundations of the association and took part in the discussions on the scope and content of the organisation. Ultimately, the by-laws of the association were finalised and registered under French law at Lyon, where the secretariat and headquarters of the association will be established. In the future an office will be opened in Brussels as well, in order to affirm the European character of the association.

The association has adopted the name **Integrated Safety Network (ISN)** in order to show the link with APSN and to stress its future focus on integrated safety. The association is established with 11 partners initially joining and at least 5 more strongly interested to join in the near future (among which also industrial partners). The first General Assembly of the association will be held in June 2008 in Brussels.

According to the draft by-laws the main objective of ISN is to act as a network between its Members and to provide a platform for the establishment of further research networks and notably:

- promote co-operation in research;
- promote the setting up of the next generation of researchers;
- promote dissemination of research results through training; and
- stimulate the participation of its Members in international, European and national research and development projects in the field of passive safety.

The relating ISN activities are structured as follows:

- "Basic Activities" will consist first in writing, and updating the strategic agenda. Other basic activities include the maintenance of the web portal, the maintenance of the databases, and the production of a newsletter. The lobbying activity of institutional stakeholders responsible for the definition of road safety performance objectives and also definition and funding of research priorities is also part of these basic activities

- "Optional activities" are paying activities accessible to members, in exchange of an additional fee, and to non members also (for a higher rate). These activities are for instance, the annual conference or specialised thematic workshops organised by the association

- "Corporate Services activities" are corporate or commercial activities performed by members in conjunction with external partners with which agreements will be signed. These activities such as training, grid computing could generate extra revenues for the association.

## 1. APSN Objectives

The Commission advocates a cost-benefit approach in the formulation of future road safety policy: there is an economic justification for taking measures costing up to one million Euros in order to save a single life. The recent “White paper” calls for a reduction in the numbers of deaths on the road by half in the current decade<sup>1</sup>. The “White paper” specifies the responsibility of the European Union and the role of new technologies to achieve this ambitious goal as follows: “Though responsibility for taking measures to halve the number of road deaths by 2010 will fall chiefly to the national and local authorities, the European Union too needs to contribute to this objective, not just through the exchange of good practice, but also through action at two levels:

- harmonisation of penalties, and
- promotion of new technologies to improve road safety”.

The aim of this Network was to mobilise the European scientific & business expertise in Vehicle Passive Safety to accelerate improvements in road safety in order to reduce the annual road victims for the European Union. The joint technical and scientific objective of this Network of Excellence was to enhance the level of road safety at affordable costs for the individual user as well as for the European society. Specific objectives of this Network were:

- To create a permanent organisation (virtual centre of excellence) in the field of passive safety including the link with pre-crash and post-crash issues for road transport at European level;
- To further integrate research activities at European, national and regional level to overcome duplication of research efforts and system (over)complexity, in the form of a virtual institute also investigating new ways for interactive working between research teams, i.e. enhanced electronic information & communication networks, new research platforms, sharing research facilities, etc.
- To facilitate technology transfer to accelerate dissemination of on-going research activities, including Community funded RTD projects;
- To provide a platform for “knowledge brokering” where users and providers are brought together for knowledge transfer;
- To cluster Community funded and national funded projects in the field of passive safety in which its members are involved;
- To establish links with initiatives in neighbouring fields of interests like active vehicle safety, road infrastructure, railway safety and aircraft safety;
- To identify ‘white spots’ and initiate new RTD projects in the areas of, among others, restraint systems, materials, biomechanics and computer simulation;
- To provide a platform for promoting the interests of the vehicle passive safety community with policy-makers and (inter)national legislative bodies;
- To accelerate the dissemination of results of passive safety research as well as the implementation and harmonisation of new and proven passive safety measures through-out Europe.

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<sup>1</sup> EC White Paper “European transport policy for 2010: time to decide”.