

# BASt topics

Information from the Federal Highway Research Institute

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## FERSI: European road safety institutes enhance cooperation in policy formulation



*Dr. Horst Schulze (1st row, right) and Raschid Urmeew (2nd row, left) with members of DRUID Steering Committee and representatives of the European Commission*

Since September 2011 Horst Schulze, Head of Department „Behaviour and Safety“ at BASt is the President of the Forum of European Road Safety Research Institutes (FERSI). Raschid Urmeew (BASt) carries out tasks of FERSI General Secretary. FERSI is a non-for-profit association governed by Belgian Law.

Road safety research institutes from 22 European countries unite their capacities and expertise in FERSI. The objective of the Association is to contribute to road safety research and enhance road safety. FERSI ensures that the relevant problems are researched by the best available expertise and that solutions recommended by researchers are implemented in the most effective and appropriate way. The Association

realizes its objectives as a network of road safety research institutions in close cooperation with other European surface transport research organizations.

The main mission of the Association is to promote and coordinate high quality research on road safety issues, give consultation concerning the implementation of research results and evaluate implementation results scientifically. In April 2014 FERSI approved its position paper “Towards Safer Roads in Europe: Nine Key Challenges for Road Safety Research for the Next Decade” (available at [www.fersi.org](http://www.fersi.org)).

Based on the consensus among FERSI members the paper formulates main research directions following an

analysis of the existing and looming challenges and the demand for corresponding policy solutions. The nine key road safety research challenges according to FERSI are:

- Ageing society
- Vulnerable road users
- Cultural diversity
- Vehicle automation and ITS
- The burden of injuries
- Safe road design
- Educating & training road users
- Behavioural change
- Road safety management

The document determines the position of FERSI towards designing European and national research programmes and actions.

On November 27th-28th, 2014 FERSI, in collaboration with ECTRI, ETRA, EuroNCAP, FEHRL and HUMANIST held the European convention “Ageing and Safe Mobility” addressing issues of elderly road users. The conference embraced all fields of safety assurance: human factors, infrastructure, vehicle engineering and traffic management. The conference took place at BASt, in Bergisch-Gladbach. For detailed information visit [www.bast.de/ageingconference](http://www.bast.de/ageingconference).



## BASt engaged in civil security research for European critical road infrastructures

Since 2008 the Federal Highway Research Institute initiated several research projects in the field of civil security of critical road infrastructures. The topic security of infrastructures has been put on the agenda by the National Security Research Programme ([www.sifo.de](http://www.sifo.de)) of the Federal Ministry for Education and Research (BMBF) being influenced by international events linked to attacks on the transport system worldwide in the last decade.



*“In the last years, many approaches and technologies have been developed for protecting critical road and transport infrastructure in Germany and Europe. What is still missing is a wide implementation into practice by owners and operators who need to use the results for individual risk decreasing strategies. In addition, the implementation into future guidelines, legislations and norms for building standards (national codes and Eurocodes) needs to progress substantively in order to make the road transport system de facto more robust with respect to future challenges and threats.”*

*Samuel Rothenpieler, Project Manager, Section „Tunnel and Foundation Engineering, Tunnel Operation and Civil Security“*



Scenario-oriented research: Fire under a bridge

The research projects SKRIBT (2008-2011) and SKRIBT<sup>Plus</sup> (2012-2014) (Protection of critical bridges and tunnels) were the first research projects of their size in Germany adopting an encompassing approach for the protection of Germany's most critical highway bridges and tunnels. Several research organizations and universities as well as major industrial companies participated in the project to identify risks to infrastructure, detect object vulnerabilities as well as network criticalities of tunnels and bridges. Both projects developed new measures such as real-time detection of hazardous goods transport or vehicle “hot spot” detection in order to prevent or mitigate threats arising from terrorism or criminal acts, natural hazards or major accidents. Especially, large and extreme scenarios were taken into account involving major explosions or fires in tunnels, on or under bridges as well as major accidents involving hazardous goods release ([www.skribt.org](http://www.skribt.org)).

Already with the set up of the 7th Framework Programme of the European Union under the security theme the demand for similar approaches on a European level increased. Responding to the Council Directive 2008/114/EC on

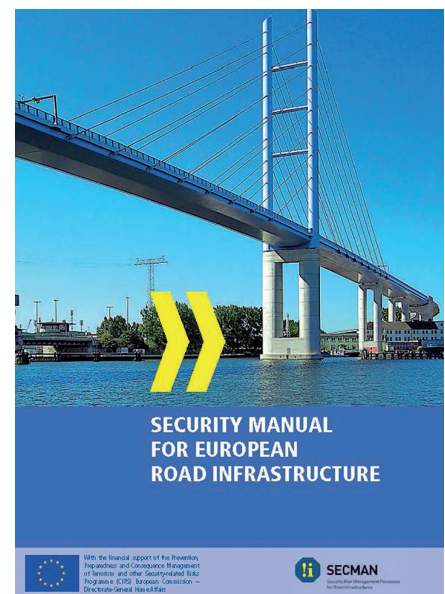
the identification and designation of European critical infrastructures and the assessment of the need to improve their protection the SeRoN project (Security of Road Transport Networks) (2009-2012) was initiated within the FP7 Programme to develop a methodology for identifying critical infrastructure for the road sector. SeRoN used the results of the SKRIBT project while having a particular focus on European roads and important corridors of the TEN-T network. SeRoN ended successfully in 2012 describing a comprehensive methodology for the identification of critical road infrastructure in Europe, as well as providing methodological guidance on prevention and mitigation measure and cost-benefit assessment ([www.seron-project.eu](http://www.seron-project.eu)).

Within the CIPS-Programme (Prevention, Preparedness and Consequence Management of Terrorism and other security-related risks) of the European Commission DG Home several other research projects were initiated aiming at bringing the research results gained in the former mentioned research projects into practice. The core challenge thereby was on having the results applied and used by owners and operators in order to improve the overall security of European critical road infrastructure as well as foster knowledge on risks and risk-decreasing measures in Europe. Accordingly, in 2011 the project SecMan (Security Risk Management Processes for Critical Road Infrastructure) (2011-2013) started in providing an easy to implement and ready for practice methodology for owners and operators. The results were compiled in a comprehensive

Security Manual for European Road Infrastructure.

The results of this research were validated with owners and operators and are available in printed or electronic form via the project website [www.secman-project.eu](http://www.secman-project.eu) in four languages (German, English, Spanish, French) containing ready-to-implement knowledge on how to identify critical road stretches as well as vulnerable road infrastructure, and how to select effective prevention and mitigation measures in order to decrease vulnerabilities in the road system against man-made intentional hazards.

In 2013 a second research project in the same programme started under the acronym AllTrain (All-Hazard Guide for Transport Infrastructure) (2013-2015) where the approach taken in SecMan was extended to also incorporate natural threats arising from geohazards or extreme weather and, in addition to this, included the assessment of rail transport





infrastructure as well. AllTrain faces the challenge of taking into account all threats to transport infrastructure considering the factors of hubs and multi-modal challenges which reflects the reality of the European transport network nowadays. The results will be compiled in an All-Hazard Guide being available in autumn 2015 via the project website [www.alltrain-project.eu](http://www.alltrain-project.eu).

In 2014 the third project within the CIPS-programme started called

RAIN-Ex (Risk-Based design of land transport infrastructure under extreme rainfall). RAIN-Ex focuses on the very specific threat of extreme rainfall-induced flooding events that present one of the most important threats to the availability of transport infrastructure not only since the major flooding in Central and Eastern Europe in 2013.

For the future it is expected that threats to the road transport system

will rather increase than decrease. The extraordinary challenges of climate-change induced and more frequent extreme weather scenarios as well as international developments of political extremism and terrorism shows the demand for more research on tackling new threats such as cyber attacks, more effective prevention and mitigation measures and methodological procedures to implement them.

## FEHRL's Flagship Programme and Vision: FOR and FORx4



In November 2014, FEHRL has celebrated its 25th anniversary. BAST was one of the 13 founding members of the Forum of European Highway Research Laboratories (FEHRL) in 1989. Main objective of FEHRL is the European cooperation in the field of road infrastructure by facilitating networking of researchers.

Since autumn 2013, BAST's president Stefan Strick is the current FEHRL president. Besides, BAST is represented in all FEHRL bodies: Lutz Pinkofsky, head of the Road Construction Innovations Group, is member of the Executive Committee (FEC), Stefan Höller and Markus Auerbach (both "Smart Road Construction, Renewable Energy, Climate Change") are members of the FOREX team, which has coordinated the development of FEHRL's flagship programme, the Forever Open Road Programme. Ursula Blume (section "Concrete Pavements") represents BAST in the Research Coordinators group since 2010. This group meets regularly twice a year alternately hosted by the FEHRL members to identify project funding opportunities on the European level. At the beginning of September 2014, BAST hosted a meeting of this group for two days. One aim was to identify future possibilities for common projects.

Projects that have been created and are driven by FEHRL members are labeled as "FEHRL projects". Mostly, these projects also match with the portfolio of the Forever Open Road Programme (FOR), FEHRL's vision how roads will be built and maintained in the 21st century to achieve an advanced and affordable transport infrastructure as the key to creating the economic opportunities of tomorrow. FEHRL has initiated this flagship programme in order to enhance the synergy among its members through developing cross-border cooperation on common road research topics and projects. The FOR Programme provides a demand driven framework with consensual roadmaps for the three key properties of the new generation of roads, i.e. they have to be adaptable, automated and climate resilient. It has been initiated to enable the development of the next generation of roads being capable to meet society's future challenges and the expectations on reliability, availability, maintainability, safety, low impact on environment and health and low-cost of road operations. The FOR Programme is closely linked with the German Federal Programme "Road in the 21st century" and further national programmes.

But it is not just the road infrastructure that is facing enormous challenges. In the future, the whole transport system in Europe will need to carry bigger volumes of people and goods across larger distances and to more destinations. Traveling across the transport network will need to be faster and organized more efficiently. Journey information will need to be more accurate and managed effectively. Payments for transport and services will need to be simple and the costs of providing these payment services should be reduced.

As a consequence, FEHRL has started to develop three "sister programmes" to complement the FOR programme: the FORx4 Programme will enlarge the Forever Open Road idea with the programmes for Forever Open Railway, Forever Open River and Forever Open Runway paving the way for the development of dedicated infrastructure for railways, rivers and runways. Currently, FEHRL is creating a detailed research plan with the support of the stakeholders from all four transport modes in order to work out the required intermodal research themes, topics and demonstrators for the next decades ([www.foreveropenroad.eu](http://www.foreveropenroad.eu)).

*"Groundbreaking developments can only be achieved through a critical mass of researchers. The resources of FEHRL institutes complement each other by including a variety of research areas and their related infrastructure as well as representing the various needs caused by different economical, sociological and geographical facts.*

*But international cooperation is only possible on the basis of mutual trust. Hence, it is necessary to have personal contacts to create this basis. The regularly scheduled meetings of the RCs are an important tool for the exchange of ideas and the creation of new common projects. I am proud to make my contribution to further developing this idea."*



Ursula Blume, FEHRL Research Coordinator of BAST

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## 7. German-Russian traffic safety conference in St. Petersburg

The 7th German-Russian road safety conference was held in St. Petersburg from 6th to 8th of June, 2014. This year the conference focused on the topics "Accident Prevention" and "Effective Traffic Safety Management", including aspects like security strategies and concepts for accident prevention, traffic and emergency management as well as security infrastructure for bridges and tunnels. The German delegation was composed by experts

from the Federal Highway Research Institute, German Road Safety Council, German Aerospace Center and the Universities of Dresden, Weimar and Darmstadt.

The Russian experts included participants of the universities MADI, Moscow, St. Petersburg State Institute of Architecture and Construction and Civil Engineering Volgograd State University.



7. German-Russian traffic safety conference in St. Petersburg

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## Visiting scientist from Kosovo

As part of another TAIEX project five scientists from the Council for Road Traffic Safety in Kosovo visited the Federal Highway Research Institute in April 2014. They were informed about the classification of traffic safety and accident data collection in Germany as well as the accident analysis in Germany and Europe, both at regional, national and international level.

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## Experts from Moldova

From 31st March to 3th April, 2014 three experts from the Ministry of Interior Moldova (police department) visited the Federal Highway Research Institute, to learn about video surveillance systems in Germany. The visit was part of the EU TAIEX project. In addition to the discussions with experts from the Federal Highway Research Institute the Traffic Centre NRW and the tunnel control center in Duisburg have been visited. An excursion to the police headquarters in Cologne and the highway patrol Frechen focusing on different traffic monitoring systems rounded off the visit. The Moldovan colleagues explained that this study visit was valuable for their further decisions in setting up a traffic control center and implementing video surveillance.

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## Israeli partners NETIVEI at the Federal Highway Research Institute



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A German-Israeli conference on road markings and protective equipment was held on June 16th and 17th, 2014 with our partners from NETIVEI. Shimon Nesichi, Chief Scientist, led the delegation from Israel. The experts discussed the European standards in the field of road marking and the protective equipment, testing, quality assurance and application of different materials on different road types.



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