MODSafe

Issue 1

Modular Urban Transport Safety and Security Analysis

About MODSafe

The European Urban Guided Transport sector (Lightrails, Metros, but also Tramways and Regional Commuter trains) is still characterized by a highly diversified landscape of Safety Requirements, Safety Models, Responsibilities and Roles and Safety Approval, Acceptance and Certification Schemes.

While a certain convergence in architectures and systems can be observed (e.g. through MODURBAN but also through larger procurements like OURAGAN in Paris or PPP-Refurbishments in London) the safety life cycle still differs from country to country and sometimes even within one country.
A new project called MODSafe funded under the 7th Framework Programme has started in the beginning of 2009 after successful negotiations with the European Commission. The MODSAFE consortium includes a representative number of transport research institutions, railway supply industry enterprises and urban rail transport operators, as well as UITP and UNIFE.
The purpose of the MODSAFE project is to undertake research of major steps of the Safety Life Cycle of urban guided transport systems in Europe. Even if the rail safety landscape in urban guided transport is highly diversified, the sector will benefit from some kind of harmonization.

Description of project work

MODSafe is subdivided into the following work packages (WP)

WP1 Description of the State of the Art
WP1 will provide an overview of safety approaches to urban transport, which will integrate and address safety requirements needed for coping with the new technical, administrative, regulation and certification arrangements. This WP1 work will review the state of the art in safety and will identify how the safety approaches are used in a large number of European Member States and compare among themselves and with those used in other safety critical industries. This work will evaluate and analyse existing approaches and available material concerning safety aspects in urban guided transport systems.

WP 2 MODSafe Hazard and Risk Analysis
Compilation of an agreed and harmonized Urban Guided Transport Hazards and Risk Analysis.

WP 3 Hazard Control and Safety Response Analysis

The derived Preliminary Hazard Analysis from WP2 will help to identify safety measures to be taken to mitigate the resulting consequences. These safety measures/functions will be in WP4 object to a Safety Requirement Allocation process and represent therefore one base of future cross acceptance schemes for generic architectures. Therefore the harmonized hazard analysis from WP 2 will be taken and all identified hazards will be covered by safety measures. These safety measures include safety functions, procedures and also system inherent safety. As it is expected to get a complete list of hazards where protection measures have to be taken as output from WP 2, also the derived safety measures should be complete. Nevertheless the list of safety measures will be checked against different realisations of urban transport systems currently on the market.

WP4 Common Safety Requirements

This work package will focus on the definition of common safety requirements for hazard control and safety response measures (WP3). While the main input will be a consolidated list of generic hazard control and safety measures, the main objective of this work package is to provide a list of common safety requirements definitions. These common definitions will help each operator to define safety requirements for new parts/elements of his systems and thus limiting the efforts for an own safety analysis.

Please check the call for safety experts at the end of this document.

WP5 Functional and Object oriented Safety Model

The main purpose of the Functional and Object Oriented Safety Model is to combine for the first time beyond state-of-the-art not only potential Hazards, Safety Requirements and functions but link these elements to a generic functional and object structure of a Guided Transport System. It will build on previous EU projects (MODURBAN, MODTRAIN) and develop in UML notation all generic Objects and Functions of a guided transport system.

WP6 Safety Life Cycle Responsibilities

The objective of WP 6 is to identify common practices and/or similarities for the safety approval of guided urban transport systems in particular ATC-Systems by safety authorities and other involved parties, throughout the different countries of European Union. On this basis a potential common procedure for building, assessing and approving the different safety files will be developed and proposed bearing in mind the different responsibilities along the safety life cycle and the roles and authorizations of the different actors.

WP7 Acceptance, Approval, Certification

The Acceptance, Approval and Certification (AAC) procedures are characterized by high diversity in different European countries. Diverse actors are involved and different procedures and different roles are applied along the AAC-course in the field of urban systems, which are non-interoperable with other rail systems and very scarcely need for interconnectivity with another rail system (e.g. tram-train). The main objective of this work package is to develop a typical optimized frame for the AAC procedure based on elementary activity modules and on an analysis of current AAC procedures over Europe. Such typical optimized frame would offer relevant authorities a common reference over Europe and therefore facilitate the creation of new urban rail systems.

WP8 Level of sophistication and relevant technology of security surveillance systems

Identification, categorization and assessment of relevant technologies for security surveillance and prevention and for integration into an overall safety/security model.

WP9 Global approach for integrated security needs

To build up an integrated security model for guided transport in urban areas in the form of guiding principles, in a way comparable to the safety model. The work in this WP will stream on Security Risk Assessment and Security Planning.

WP10 System approach / Consolidation

To liaise and ensure appropriate co-operation between other work packages. To put in place the consensus building process along the global MODSAFE project at the methodological and technical levels. To ensure the coherence of the entire project.

Network of Operators and Suppliers

UITP is organising a Network of Operators in order to give an opportunity to operators who are not consortium members, to endorse and utilise results of this project. Two workshops per year are planned to be held in order to update operators on the progress of the project, and to validate its results. Travel and working time of the participants will be partly borne by the project budget. Furthermore a network of Rail Industry representatives will be organised in a similar framework.

Interested metro, tram and light rail operators, as well as industry representatives (SMEs), are invited to contact Mr Sebastian Emig (sebastian.emig@uitp.org).

The MODSafe team

For more information please visit the project website:
www.modsafe.eu

or send an email to:
modsafe@de.tuv.com

Call for national Urban Guided Transport Safety Experts to participate in MODSAFE

The purpose of the MODSAFE project is to undertake research of major steps of the Safety Life Cycle of urban guided transport systems in Europe. Even if the rail safety landscape in urban guided transport is highly diversified, the sector may benefit from some kind of harmonization.

One of the important steps in the MODSAFE project is the identification of safety requirements for each of the functions and/or objects (in WP4; see above). Transport Operators face today quite often some difficulties in defining safety requirements (for example as "Safety Integrity Levels" [SIL] according CENELEC standards). However some countries have particular or traditional ways of defining the safety requirements and some standards have been produced on how to define these requirements.

The MODSAFE WP4 shall be developed under the management of the UITP and with the support from other consortium members, and especially TelSys. The MODSAFE consortium intends to take advantage of the expertise of highly skilled individuals to review in particular the aspects of safety requirement analysis and allocations. These safety experts may come from Transport Operators (e.g. Safety Managers, Signalling Experts) and from Authorities (e.g. Approving Authorities, Safety Authorities, Supervisory Authorities).

Interested national expert individuals will be provided with work achievements and intentions of the project and will be invited or visited (as available) from time to time (half year periods) to share progress of the project and comment or input. Travel to the meetings in Brussels or other locations of the project shall be reimbursed upon request.

First methods of how to define safety requirements for continuously active safety functions (e.g. overspeed protection) are available from TelSys GmbH.

If you would agree to participate in the works, please contact for further details the TelSys' MODSafe Project Manager Mr. Sven Scholz (sven.scholz@telsys-gmbh.de).

In any case, **please acknowledge receipt of this call until 31st May 2009**, indicating whether:

- Your organization is interested to participate (please indicate the contact reference)
- Your organization is not interested to participate
- Safety Expert Individuals of our organization can not participate