MARKET IMPACT EVALUATION
ERRAC was set up in 2001 and is the single European body with the competence and capability to help revitalise the European rail sector:
- To make it more competitive
- To foster increased innovation
- To guide research efforts at the European level

ERRAC Project Evaluation Working Group (EWG)
Objectives:
- Determine the market impact of previous rail research to improve use of research funding
- Ensure a strategic approach to the prioritisation of rail research

Project Evaluation
- Individual projects are evaluated after they have been completed to ensure successful dissemination of project results
- To ensure that the results of previous rail research can be taken into account for future projects
- To avoid weak market uptake of results by learning the lessons of previous research
- The EWG will provide intelligence based on the project evaluations for input into future European Framework Programmes
ERRAC Project Evaluation Group

UGTMS

EVALUATION FROM MARCH 2006

Project acronym: UGTMS
FP: 5
Programme acronym: GROWTH: Competitive and sustainable growth
Project Reference: GRD2 – 2000 - 30090
Call identifier: FP5-GROWTH-KA2
Total Cost: € 1,477,166
EU Contribution: € 1,477,166
Timescale: March 2002- March 2004
Project Coordinator: Guy Bourgeois (RATP)
Web references: http://www.transport-research.info/web/projects/project_details.cfm?id=8175&page=contact

- Presented by: Dan Otteborn
- Date evaluation: 09.03.06
- Market uptake: Weak
- Follow up projects: MODURBAN (signalling parts); MODSAFE
- Other related Projects: ERTMS, MARIE, LiberTin
ERRAC Project Evaluation Group

UGTMS

Urban Guided Transport Management System

CORDIS FP5 Projects.url
UGTMS Objectives

UGTMS is a complete command, control and management system able to equip main tracks, turnback tracks, sidings and depots. The equipping of sidings and depots is an option depending on operator’s choice. In any case movements in depots, which are “driving on sight” with depots specific rules are excluded.

• UGTMS performs all the needed management functions regarding:
  — Passengers and staff safety and security in the trains and on station platforms,
  — System protection against intrusions and other undesired events.

• UGTMS manages
  — bi-directional driving [normal and reverse (O) running on each track] with continuous speed control with or without trackside signalling,
  — automatic driving between stations (in case of driver mode) or full automatic driving, with or without driver,
  — manual or automatic turnback,
  — fixed or moving block,
  — a maximum speed of X km/h for the line and/or line sections and Y km/h for each type of train.
UGTMS Background

Details
- FP 5
- Total Cost: 1 477 166 €
- EU Contribution: 1 477 166 €
- Start and duration: 2002-03-09 – 2004-03-08 – 24 months
- Scientific Coordinator: Régie Autonome des Transports Parisiens (RATP), Guy Bourgeois
UGTMS Background

Partners

• University College London (United Kingdom)
• Siemens AG (Germany)
• Technische Universität Dresden (Germany)
• Metropolitano de Lisboa, E.P (Portugal)
• Alstom Transport (France)
• Siemens Transportation Systems, STS (France)
• Alcatel Transport (France)
• European Commission Joint Research Centre (Italy)
• London Underground Limited (United Kingdom)
• Dimetronic S.A. - representing Invensys Rail Systems (Spain)
• Institut National de Recherche sur les Transport et leur Sécurité, IRETS (France)
• Berliner Verkehrs Betriebe, BVG (Germany)
• CSEE Transport S.A. (France)
• Bombardier Transportation (Signal) Germany
• Metro de Madrid S.A (Spain)
• Université de Valenciennes et du Hainaut Cambrésis (France)
Knowing that: during the last thirty years, automatic train supervision (ATS), automatic train protection (ATP), automatic train operation (ATO), driver and or man-less operation (ATC) systems have been implemented individually on urban railways, suppliers have developed proprietary, country based systems.

- analyze transfer of ERTMS ATP requirements (directive 96/48 on high speed rail)
- define the relevant functional and system requirement specifications for all types of urban transport management systems in order to improve interoperability and intermodality,
- define open system standards, to allow gradual change towards harmonized systems, to foster the European market and to reduce Life Cycle Costs (LCC).
- propose a common approach for safety and conformity assessment in order to improve the consistency of existing regulations taking in account IT systems.
- initiate the premises of a "centre d’excellence" by a Network of Universities for safety.
# UGTMS Background

## Tasks:

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10.1 Related Projects

- The main technical basis of the UGTMS project are the results of two projects: ERTMS for functional and system specifications of European interoperable signalling system and MORANE for telecommunications aspects (GSM-R). For the management layer a co-ordination will be done with OPTIRAILS.

- The proposed research activities will take up board, when available, the results of "CROSSRAIL" for the link of local and regional rail (subway rail systems), including cross border aspects and a co-ordination will be set up.

- For safety, the results of FP 4 projects ACRA/DA and CASCADE will be of major utility; for assessment of conformity of tele software a co-ordination will be set up with the new MAISSE project (formal proof B method applied to railway).

- FP 5 TRIDENT project will provide standardised exchange of multimodal passengers real-time data.

- For security issues, the results of PRISMATICCA (continuation of CREMOSA) will be of major utility to define the necessary interfaces. A co-ordination will be set up.

- For transmission requirements, the results of ESCORT will provide data on GSM performance in tunnels. The necessary co-ordination will be set up.

- Some of the conclusions of SAFETRAM and SAFETRAM projects like achievable acceleration will be taken into account to define the requirements.

- Some of the results of RIVAUD, integration of computer vision techniques for automatic incident detection, will be taken into account to define the requirements.

- The results of HUSARE, Human Safe Rail in Europe Managing the Human Factor in Multimodal and Multilingual Rail Environments, and HERO, Harmonisation of European Rail Rules for Operating ERTMS will be considered.

- For satellite positioning, the GALILEO projects (GALA & SAGA) will be taken into account.

- The results of H2020 group (Human Machine Systems), "PROFAR", modelling human errors in production systems and "ROHMI" (Robust Human Machine Interfaces) and "Human errors in dynamic systems" (two actions of Human Capital and Mobility European networks) will be considered.

- The ongoing results of the UIC project, EUROINTERLOCKING, ERS specifications defining the interface between interlocking and EBC will be used accordingly.

It is to be noted that some partners are:

- Project Co-ordinator in PRISMATICCA, SILENT FREIGHT, SILENT TRACK, INTELFRET, ICON TRAFF and STABER.

- Partners in ACRA/DA, APOLLO, CASCADE, ERTMS, ENSET, ESCORT, EUSARSET, EUROBIL, EUKABOT, EUROFOSSA, GALA, HERO, HUSARE, EPUSLA, INES, METARAIL, OPTIRAIL, SAFETRAM, SAGA, SAFETRAM, TRIDENT... This should make sense information, exchange and co-ordinations.
UGTMS EVALUATION

Achievements:

• High awareness of problems was created regarding the complexity of the diverging operational requirements cross Europe
• A list of mandatory and optional functional requirements for Metro system to be considered by a UGTMS
• Awareness about the comparison of UGTMS requirements and their coverage by ERTMS
UGTMS EVALUATION

Conclusions:

• UGTMS achieved the objectives of
  — collecting functional requirements for Metro systems
  — showing up the limits of ERTMS for Metro operation
  — Setting up a Network of Excellence between the participating research institutes dealing with safety matters
  — getting a rough overview about the diverging safety approval procedures cross Europe
  — developing the awareness about the problems of assigning safety levels to generic functional requirements

• UGTMS could not achieve
  — the over-ambitious goal of developing a set of functions for CBTC*) that could fit to all requirements of urban rail systems from Tram to Light Rail and remained restricted to Metro systems operated under ATP control
  — Harmonising the basic operational requirements between Operators in order to limit the list of necessary options

*) Communication Based Train Control
UGTMS

Evaluation criteria:

1. Were the results implemented in the design of the new products and services? Were these new products/services put into commercial operation
   - “Products” of UGTMS were not meant as results of this research. Most functions and even CBTC had been used in the past. In parallel IEC TC9 had started a standardisation project under the same title (part 1 ready: 62290-1:2006) by using some of the results

2. Is new legislation and standardization based on findings from this research project
   - MODURBAN (in terms of architecture) and MODSAFE (regarding safety aspects) are dealing with aspects of UGTMS

3. Are the results of the project implemented across Europe or only in a small number of Member States
   - No direct implementation had been intended but in terms of architecture and functions some projects are roughly meeting the requirements

4. Are the results of the project implemented outside Europe before being accepted in Europe
   - In terms of functions some of the aspects have been used in Paris (Line 14) but New York (Canarsie Line) provided the template of interchange ability between equipment of different suppliers before.
5. Did the projects increase competitiveness of the European railway sector abroad with regard to products, services, standards and system design
   — No

6. Did the project increase competitiveness of the railway transportation compared to other transport
   — No

7. Are the results of the project taken into consideration when preparing public tenders
   — Yes, at least one important operator followed up the ideas

8. Does the implementation of the project results help facilitate cross-border operations by problem-solving in the domain of interoperability
   — Interoperability has never been an issue for Urban Rail
UGTMS Evaluation criteria:

• Does the implementation of the project results help facilitate inter-modal operations by problem-solving in the domain of inter-modality
  — Some of the functions are addressing modal changes of passengers in urban areas
• Can benefits be assessed in financial terms
  — No, and even doubtful because of diverging requirements
• Applicability of results to future scenarios
  — Incompatible system architectures of recently developed systems of different competitors are likely hindering attempts of standardisation
• Usefulness of research procedures for future projects (incl. modelling)
  — Research regarding requirements aiming to technical realisation and standardisation should be based upon results on harmonised operational rules and procedures in order to avoid the a too high complexity of various options to be included
UGTMS: Lessons learnt

- The lack of a set of common and essential operational rules resulted in a quite comprehensive list of functions to be considered in future systems that had been marked as being "optional"
- Different safety philosophies across Europe (partly build on different mentalities and behaviour of people) where hindering a common view on generic safety requirements
- UGTMS has been successful in sharpening the awareness about the differences of operational philosophies and the resulting requirements between operators, supplies and research institutes