



# MODUrban integrated project

## The role of UITP

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*170 light rail transit networks and 36 metro networks currently exist in Western Europe<sup>1</sup>. The number of new light rail transit systems is expected to expand by more than 50% over the next 20 years. For 55% of existing metro networks, line extensions or development of new lines are planned. Most of the existing metro systems will have their rolling and signalling equipment replaced over the next 20 years and/or transformed from driver to driverless operation.*

### MODURBAN

- **Project name:** Modular Urban-Guided Rail Systems (MODUrban)
- **Project type:** Integrated Project (IP)
- **Financing:** European Commission (50% of costs) under 6th Framework Programme  
The remainder is financed by participants as contribution in kind
- **Total budget:** nearly EUR 20 million (EC contribution: EUR 10.4 million)
- **Duration:** 48 months
- **Number of partners:** 39 (10 operators, 6 system manufacturers, 10 sub-system suppliers, 2 industry associations, 8 academic partners, and 3 small and medium-sized enterprises)
- **Project management:** UNIFE and ALMA
- **Number of UITP users' group members:** 10 (in addition to consortium partners)
- **UITP users' group budget:** EUR 250,000 (50% EC financing)
- **UITP budget (without user groups):** EUR 156,000 (65% EC financing)
- **www.modurban.org**

#### Consortium member operators

RATP - Paris, BVG - Berlin, RheinBahn – Düsseldorf, Metro de Madrid, TMB - Barcelona, ATAC - Rome, LUL – London Underground, Metropolitano de Lisboa, MW - Warsaw Metro, DP Prague

In line with these changes, it is of utmost importance to develop reliable, affordable, attractive and even more energy efficient urban rail systems for European cities. This calls for innovative and interchangeable constituents and subsystems with common harmonised interfaces. The growing complexity of new IT based subsystems requires new products to be developed along common interchangeable modular principles for the entire range of urban transit applications. The MODUrban project comes in response to these vital needs.

The major urban railway stakeholders are united in their efforts to proactively produce common proposals and solutions with the goal of reducing the legislative burden of the European institutions. The main European railway system integrators (Ansaldo-Breda, Alstom, Siemens and Bombardier), sub-systems suppliers (Alcatel, CSEE, Knorr Brems, Invensys, Frensisitemi, and others), public transport operators (see box), highly skilled research centres, and professional associations (UNIFE, UITP), have decided to work together within MODUrban to reach this objective.

The main aim of the MODUrban project is to design, develop and test an innovative and open common core system architecture and its key interfaces (this covers command control, energy saving and access subsystems), paving the way for the next generations of urban-guided public transport systems. This approach will be applied to both metro and light rail, for new lines as well as for the renewal and extension of existing lines. In the case of metros, it will encourage cost effective migration from driver to driverless operation. This integrated approach will avoid the risk of new rolling stock and subsystems being built from unproven prototype sub-assemblies. The project will deliver functional and technical prescriptions, safety concepts and procedures, in line with EU rail legislation.

The MODSYSTEM subproject, led by RATP, is central to the whole project. The sub-project allows the consortium partners to reach a consensus on the project proposals and fully endorse the results. The other sub-projects are as follows:

- MODONBOARD - Onboard intelligent interfaces
- MODWAYSIDE - Wayside intelligent interfaces
- MODCOMM - Communication systems
- MODACCESS - Passenger and access related items
- MODENERGY - Energy saving related aspects

#### Users' group and UITP

The European Commission believes that a broader spectrum of the UITP and UNIFE members – also those who are not consortium members – should endorse the results. In this respect, two users' groups have been created, one for the suppliers (led by UNIFE), and one for the operators (led by UITP).

The operator users' group targets are to promote knowledge, stimulate debate and reach Europe wide consensus for the MODUrban prescriptions, safety concepts and procedures developed by the project along the various stages, for the entire

project duration. UITP operators not represented in the MODURBAN consortium should participate in users' group meetings to facilitate this process. Up to four working sessions per year are planned (two for metro and two for light rail, possibly in combination) from 2005 to 2009.

The operator users' group will be run by UITP with the help of two main MODUrban consortium participants; RATP and BVG (who shall nominate a liaison officer with UITP Metro and Light Rail Committees) in order to:

- Obtain a strong and continuous support from UITP members and the relevant UITP committees
- Reach a Europe-wide consensus on functional and technical prescriptions

#### Operator members of the users' group

HTM – Den Haag, Transdev – Frankreich, De Lijn – Belgien, Warschauer Straßenbahn, DSB S-tog – Kopenhagen, Wiener Linien, VAG – Nürnberg, Nexus – Newcastle, SPT – Glasgow, Riga Electro-transport

### Expected benefits

- Reduction of up to 10% in average cost per passenger x km (pkm) (including better energy efficiency), a 30% increase in productivity of new rolling stock and a higher percentage of component reusability - into new series - owing to standard interfacing, practically non-existent at present.
- Reduction in bidding costs for suppliers (estimated up to 25% at the end of the process) due to increased modularisation of system architecture
- Reduction in the number of single parts and increased competition between sub-suppliers
- On top of lower prices offered by suppliers, operators will benefit from better reliability (up by 25%) and a 30% cut in maintenance costs
- Increased capacity of existing infrastructure - headways for metros of 80 seconds (peak-time), and average commercial speeds of minimum 30 km/h
- Increase in the energy efficiency of an already environmental friendly means of transportation by at least 10%
- Light rail and metro vehicles become more attractive to passengers.

Reduce number of single parts

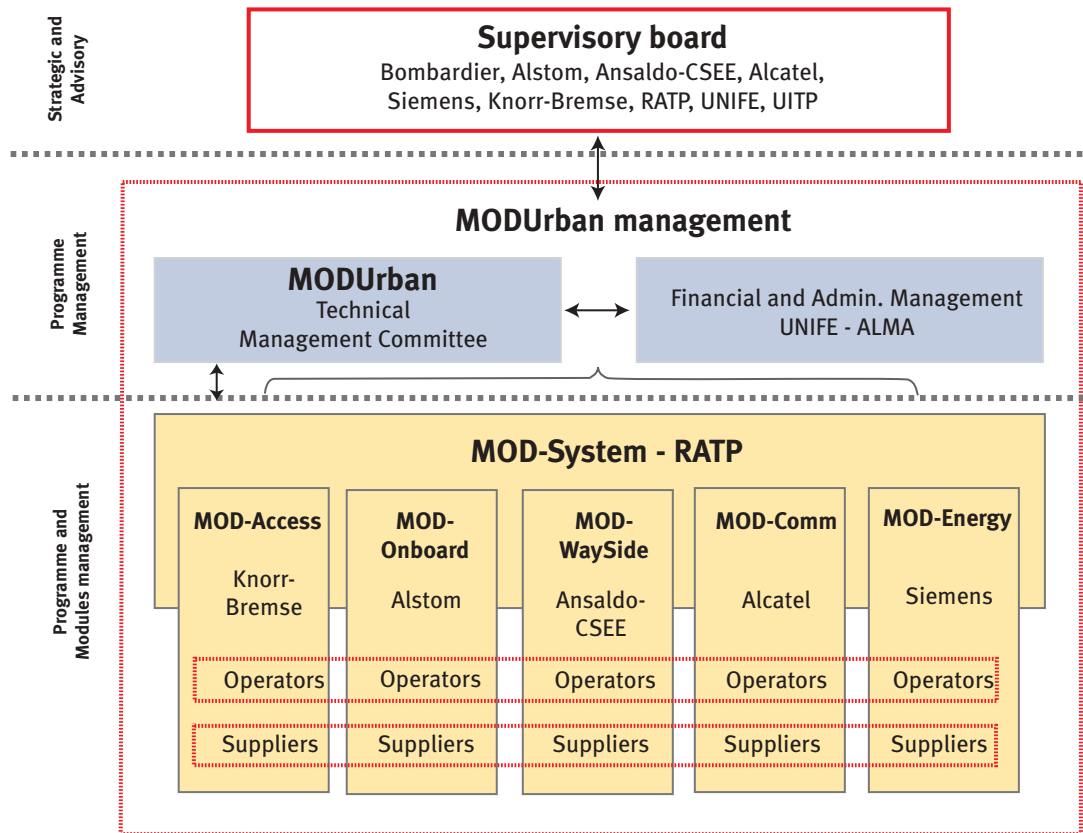
Concentration of sub-assemblies

Separate functions in pre-tested sub-assemblies

Upgrade from manual to automatic driving (driverless vehicles)

Shorten migration duration

# PROJECT



The group of operators established by UITP counts currently 10 members (on top of MODUrban consortium partners), reflecting regional diversity, differences of network size and type of systems implemented (commuter lines, heavy metro, light rail, tram-trains, tramways) and level of automation used (with/without drivers, with/without onboard staff). Particular attention was paid to small or medium size networks and to new EU Member States' networks. **Despite the fact that the project started in January 2005, it is still possible to join the group during the first six months.**

Beside the users' group, Metro de Madrid (a consortium member) will be responsible for a working group aimed at testing the integration of project findings (sub-system prototypes) into the working environment of a metro system.

Questions, comments or suggestions to  
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## The role of UITP

To ensure that the different critical elements of MODUrban can be functionally integrated by both the suppliers and operators networks in the context of a needs-driven approach, UITP will implement and manage a permanent review process of the MODUrban sub-projects results. In this role, UITP will:

- Elaborate consultation documents on the basis of the MODUrban project internal draft deliverables produced by each subproject for MODSYSTEM and accepted by MODUrban partners
- Organise and manage users' group meetings in order to achieve consensus on a number of recommendations
- Send the recommendations to MODSYSTEM leader in order to 'take them on board' in MODUrban, and
- Achieve a final consensus between MODUrban partners and (UITP and UNIFE) users' group members.

- Boost the interest in the development and adoption of common standards and procedures for safety evaluation and system acceptance
- Motivate transport operators to specify their future systems on the bases of the MODUrban results.

<sup>1</sup> ERRAC (European Rail Research Advisory Council) study 'Light Rail and Metro Systems in Europe: Current market, Perspectives and research implications'

