

UNIFE contribution to the European Parliament's own initiative
Report on Sustainable Urban Mobility

Introduction

Urbanisation has been a major trend of the past decades which is expected to continue. As a result, urban transport now accounts for 40% of CO₂ emissions and 70% of emissions of other pollutants arising from road transport; in addition it is the main source of congestion, which costs nearly EUR 100 billion, or 1% of the EU's GDP, annually. Hence, urban transport must meet the challenge of an increased demand for mobility and safety while reducing pollutant emissions.

UNIFE considers that modal shift from private vehicles to public transport is the most effective way to reach the goal of a more sustainable urban mobility in European cities, and thus contribute to meet the 2011 Transport White Paper CO₂ emission reduction targets of 60% by 2050 compared to 1990. Therefore, sustainable means of transport, such as light rail, metros and commuter trains, as well as the upgrading and renewal of rail control and signalling solutions should be further encouraged by urban policies and planning and be focussed on customers' needs in order to make it more attractive.

UNIFE key messages

In the context of the ongoing discussions on sustainable urban mobility, UNIFE would like to highlight the following key points:

- The main rationale for a comprehensive EU strategy on urban mobility is the need **to align plans and initiatives developed at urban level with the current EU agenda and objectives**. Possible examples include modal shift from road to rail transport advocated in the EU Transport White Paper of 2011 and the EU climate objectives as well as the need to address sustainable mobility, congestion and connections between different transport modes in urban areas.
- Transport in Europe is 94% dependent on oil, 84% of it being imported, with a bill up to EUR 1 billion per day, and increasing costs to the environment. In this context, UNIFE welcomes the ongoing efforts of the European Institutions to further promote electric mobility, especially in urban environment. UNIFE would like to point out that **rail is by far the largest provider of electric mobility** for both urban and interurban transport, providing high transport capacities with the best modal energy efficiency. As a consequence, rail-bound solutions should be the starting point of any future EU policies aimed at promoting electric mobility. In addition to the undoubtable environmental benefits of electric mobility light rail, metros and commuter trains contribute to ease congestion, with positive impacts in terms of quality of life, productivity and on Europe's energy security.

- Ensuring a level playing field for all modes of transport is essential in order to promote sustainable transport also at urban level. In this respect, UNIFE would like the positive impact of market-based instruments, such as **urban charging schemes**, that can ensure a high level mobility while reducing congestion and pollution. The EU should therefore provide guidance through an appropriate legal framework for urban charging, including earmarking of revenues to finance clean urban transport infrastructure, in particular rail-bound urban transport.
- Between 2000 and 2013, the EU invested EUR 10,7 billion in public urban transport projects¹, with funds primarily allocated from the Cohesion and Regional Development Funds (ERDF). In the current economic context, UNIFE acknowledges that the effectiveness of EU-funded public urban transport projects should be a top priority at EU level and calls on the Commission to **increase or at least maintain the current level of public investments in sustainable urban transport**. In particular, UNIFE agrees with the Court of Auditors' conclusion that *"urban transport projects should be included in a sound mobility policy"*.
- The 2014 edition of the UNIFE World Rail Market Study published by Roland Berger shows that whilst in Western Europe, significant investment in light rail, metro vehicles and automated systems are ongoing and forecast for the coming years, the level of investment remains worryingly very low in Eastern Europe. Therefore UNIFE urges the European Commission to address the ongoing **urban rail transport divide** between Eastern and Western Europe by promoting additional investments and encouraging the use of existing EU funds in Eastern European countries.
- In the current economic context, UNIFE would like to stress the need to **explore alternative sources of financing for rail-bound urban projects**. In this respect, projects like the refinancing of Tram di Firenze PPP in Italy or the concession for the Nottingham Light Rail Transit could be used as models to be followed in order to attract private financing in sustainable urban transport projects.
- Shift2rail is the first European rail initiative to seek focused research and innovation and market-driven solutions by accelerating the integration of new and advanced technologies into innovative rail product solutions. System Platform Demonstrations will be developed on urban and suburban lines in the Shift2rail initiative under the Horizon2020 programme. Shift2rail is indeed expected to increase capacity and reliability and reduce life-cycle costs in all segments of the rail market, including urban and suburban passenger traffic. In order to keep the momentum and further boost the development of urban rail systems, UNIFE would like to highlight the need to **secure sufficient EU funds for future R&D activities in urban rail**.

¹ Court of Auditors report: Effectiveness of EU-supported public urban transport projects (2014):
http://www.eca.europa.eu/Lists/ECADocuments/SR14_01/QJAB14001ENC.pdf

- While UNIFE acknowledges that urban mobility is to a large extent subject to the subsidiarity principle, a comprehensive EU urban agenda could be useful to promote the **exchange of best practices** (for example on urban charging schemes or intermodal connections). However, an urban agenda can only be effective if adequately backed by financial support from the European Commission.

Conclusions

The European rail supply industry provides solutions for urban transport with low, or even zero emissions of CO₂ and other pollutant gases. Light rail, metros and commuter trains are the least polluting public transport means in urban areas. Moreover, the rail supply industry is committed to improving the energy-efficiency of its products through different technologies and methods, such as hybrid technologies, weight reduction, regenerative braking, energy storage, new traction technologies, optimised operational parameters or alternative green power supply solutions.

Therefore, **rail should play a central role in future EU policies on sustainable urban mobility as it is a key part of the solution to current issues, such as pollution, GHG emissions and congestion.** In order to boost this process towards sustainable mobility, adequate financing, at both EU and national level, should be ensured for rail-bound projects in light of their high economic, environmental and social impacts. In addition to public funding, alternative sources of financing coming from the private sector should be explored as well.

Urban rail success stories

The benefits of rail as a sustainable mode of urban transport – the Zaragoza tram network



In 2009, a year after the city's successful hosting of Expo 2008, a team of companies was contacted to build a new tramway in the city. The first phase of the system was built using on-board energy accumulation technologies that enable lower energy consumption and head wire-free operation in some sections of the city centre. It opened in 2011.

The newly built tram system respects and contributes to the improvement of the surroundings as it **reduces** the number of vehicles and, therefore, **pollution in the city**. It offers its users a high quality service, given that the integration of various means of transport provides the city with better links and allows movement from one area to another in less time. It has also generated wealth for Zaragoza, as its implementation has led to the **creation of jobs**.

One of the great technological advances for Line 1 of the tram is the dynamic traffic light priority system which allows the trams to run without the need to stop at junctions, thus contributing to gains in terms of speed and reliability.

Innovation for an ever greener and energy-efficient urban rail

The OSIRIS project

Funded by the European Union under the FP7 Programme – and coordinated by UNIFE –, the “OSIRIS” European R&D project has tested a number of Technical Demonstrators in order to achieve a consistent reduction in the **energy consumption in urban rail systems**, making investment in urban rail always more sustainable and appealing to the urban operators.

An onboard energy storage system was tested on a tram in **Vitoria-Gasteiz**. The aim was to **capture and store energy during braking**, in order to reduce overall energy consumption and cut the power losses from the catenary and substations. The results showed an energy saving at substation equal to 13.7%, energy saved by trams of 14.6% and a potential payback time close to 27 months.



In **Milano**, a new type of auxiliary converter was installed on an ATM metro train, combining lower weight with higher efficiency. This allowed **reducing the power consumption of onboard systems**, including heating, air-conditioning, lighting and the battery charger. The results showed a direct gain in terms of kWh equal to 271 291.

A **novel cooling system** for equipment rooms using underground water was developed and deployed at **Roma’s Barberini metro station**. This was designed to address the thermal behavior of fixed installations and the cost of maintaining correct temperatures to ensure the proper operation of signaling and communications equipment. The results show an energy saving improvement of 73% compared to a traditional chiller and an Energy Efficiency Ratio (EER) four times better to traditional chiller (12-14 against 3-4).



Another example of green innovation - the EcoTram



EcoTram was launched in 2009 and funded by the Austrian Research Promotion Agency (FFG) through its New Energies 2020 programme. The Industry partners together with the local operator company were conducting a research consortium in order to **reduce the energy consumption of the Heating, Ventilation and Air Conditioning System (HVAC) of light rail vehicle by at least 25%**.

The vehicle was fitted with three new HVAC units with heat pumps, a variable-frequency compressor, and CO₂ sensors. Intelligent control units determine when and where heating or cooling will be required according to the ambient temperature.

The vehicle was used on Line 62 between Kärntner Ring and Opera House in Vienna with testing focussing on load-dependent effects on the performance of heating and cooling systems in real operating and environmental conditions. The total energy saving over the duration of the trial was 4,200kWh, or more than 10% of total power consumption. This is roughly equivalent to the total annual energy consumption of an average household in Austria.

Boosting investment in urban rail, including through innovative funding



European Funds for the extension of the Bucharest metro

In June 2014, the European Commission approved an investment of EUR 409.5 million (out of a total investment of EUR 481.7 million) from the **European Regional Development Fund (ERDF)** for the extension of the metro line 5 in Bucharest. This project involves the construction of 6.7 km of a new metro line with 10 stations and 1 depot between Drumul Taberei and the existing Eroilor metro station. The main beneficiaries for this project are the 335 000 inhabitants of the Drumul Taberei area who will be able to switch from private road to public clean transport. 3000 jobs are expected to be created during the works and 246 jobs when the project will be finished.

Whilst Structural Funds were essential for the financing of the Bucharest metro, the role played by the **European Investment Bank (EIB)** for the construction and upgrade of tram and metro systems in other European cities should not be underestimated. EIB loans have been used to finance tram lines in cities like **Krakow, Montpellier** and **Budapest** as well as for the extension of the metro system and upgrading of existing fleet in **Thessaloniki** and **Warsaw**.



The Reims tramway PPP

A **tram manufacturer**, which holds shares in MARS – the company that operates the Reims tramway under a **public/private partnership** deal –, supplied a turnkey solution in May 2011 covering the design and production of the tramway's rolling stock, infrastructure and electromechanical systems (tracks, signalling, electricity supply, catenary power and ticketing).

One year after the start of its commercial service, a survey conducted by IFOP revealed that 74% of the city's inhabitants were satisfied with this new mode of transport.

The survey also revealed that the tramway was thought to be environmentally-friendly (91%), comfortable (85%), modern (77%) and more practical than other modes of transport (76%) by the residents of Reims, the capital of the Champagne region.

The encouraging feedback from the survey was boosted by the equally positive news that the Reims tramway transports some 42500 passengers a day, 40% more than the saturated bus route it replaced.

For further questions, please contact

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About UNIFE

UNIFE represents the European Rail Industry in Brussels since 1992. The Association gathers around 80 of Europe's leading large and medium-sized rail supply companies active in the design, manufacture, maintenance and refurbishment of rail transport systems, subsystems and related equipment. UNIFE also brings together 15 national rail industry associations from European countries. UNIFE members have an 84% market share in Europe and supply nearly 46% of the worldwide production of rail equipment and services.

UNIFE represents its members' interests at the level of both European and international institutions. On the technical side, UNIFE works on the setting of interoperability standards and coordinates EU-funded research projects that aim at the technical harmonisation of railway systems. The association is one of the supporting bodies of the European Railway Agency.

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