



LIGHT RAIL

What is light rail?

Light rail transit (LRT) is an electric rail-borne form of transport which can be developed in stages from a tramway to a rapid transit system operated partially on its own right-of-way.

The general term 'light rail transit' covers those systems whose role and performance lie between a conventional bus service running on the highway at one extreme and an urban heavy rail or underground metropolitan railway at the other. Light rail systems are thus flexible and expandable.

Light rail in figures

Today, there are some 400 systems in operation worldwide, with constructions in some 60 more and plans in well above 200. Europe is the densest LRT continent with 170 systems in operation and nearly 100 more in construction or planning, but North America (30 in operation, 10 in construction) and Asia are also very active in opening new systems. The next emerging LRT region is the Middle East where the post-oil age is being actively anticipated.

Developments and trends

Trams started in the second half of the 19th century as horse-driven carts. With the advent of electricity, tramways became very popular and virtually every city in the Western world (and some in the colonies) had tram systems. After World War II, trams were removed from many cities, as city planners dreamt of automobile-oriented cities.

Some however, realising that they could not afford a genuine metro system, decided to keep their trams and modernise them. The major element of this strategy was to free the vehicles from congestion. The compromise principle of the founding fathers was 'to get 80% of the performance attributes of metro for 20% of its costs'.

These pioneering cities in countries like Germany and Austria were so successful in improving the quality of service and the image of the system at affordable costs that they triggered an unprecedented wave of interest.

Over the last 20 years, many cities on all continents have (re)-introduced urban rail systems with some level of street running, especially since the advent of low-floor technology in the 90s, allowing easy use without requiring high platforms. France is one such country and could certainly be considered a champion. Since their re-introduction of light rail in Nantes and Grenoble in the 80s, the French have been massively investing throughout the country. Today the level of investment is reaching a plateau. Spain is an example of a more recent champion of modern light rail systems, the construction of which has truly been booming over the last five years. This boom is set to continue for another 10 years or so.

One of the burning issues today is to ensure that long-existing tram systems in Central and Eastern European countries are revitalised. For example, in the former USSR, around 100 systems have to operate in very tough conditions, offering poor service and not a credible image compared to the car. Such countries should learn from the past mistakes of Western countries who removed

their systems in the 50s and 60s, only to realise their errors two to three decades later, when they re-introduced light rail at significantly higher costs.

Why the growing demand for light rail?

Environmental problems and global warming are increasingly hitting the headlines nowadays. Our societies all have to face similar problems, which are growing in severity.

Decision-makers around the globe are therefore faced with the challenge of developing strategies to sustain or improve quality of life, and to generate a reduction in car use and its associated pollution. This can only be achieved if a real, attractive alternative is offered.

Promotion of public transport is a key issue and electrical transport solutions are especially efficient and attractive. LRT is silent, energy efficient, does not produce local emissions and is quite successful at attracting car drivers over to public transport. This ability of LRT to induce modal shift, and thus achieve the ultimate political aim of transport policies, has been demonstrated in many locations and continents.

Flexible

One of light rail's greatest strengths is its 'flexibility': flexibility to fit in to all types of urban environments, even historic centres; flexibility to be operated in different bed tracks - on its own right-of-way, underground, at grade or elevated; and flexibility to be integrated with other transport modes.

Image

Modern light rail systems are also an aesthetically pleasing and highly visible part of the urban landscape, giving a strong positive image to the city.

Ingredients for success

Of course, light rail can only be implemented successfully if it is integrated with all other public transport modes in the city.

A second ingredient for success is that light rail must have the means to develop its full potential for speed and reliability; this means having separate right-of-way wherever possible and priority at traffic lights. It is therefore clearly necessary to create a good partnership between operators and decision-makers.

Cost

Light rail is also approximately four times less expensive than classic metro systems. It is not surprising therefore that since the 1970s when the concept of light rail was proposed and formalised, this transport mode has proven a pertinent solution particularly for medium-sized agglomerations.

Today, however LRT is being challenged on its cost efficiency. With growing complexity and sophistication, investment prices tends to rise quicker than inflation. If care is not taken, LRT may find itself in a similar situation than the one which triggered its invention in the late 60s, when engineers developed the concept of LRT in reaction to high construction costs for metros.

An urban planning issue

During the construction of LRT, it is impossible to avoid major disruption and inconvenience for local residents. However, in many cases, this negative element is used as a valuable opportunity to carry out major urban re-design and regeneration works: new street space organisation, new urban furniture, facelifts for neighbouring buildings, trees planted, creation of new retail outlets, job creation, etc... LRT proves to be of benefit to the city, and not just in terms of its impact on mobility.

And more...

Some of the other key 'selling points' of light rail include:

- Capacity
- Regularity
- Commercial speed
- Comfort
- New technologies, such as low floor technologies

A model to follow

In terms of accessibility and the design of stations and bus stops, much of what has happened with the revamping with light rail is being applied to bus technology, including the image and design of the vehicle itself.

Visit the UITP website for more information on the Light Rail division:

<http://www.uitp.org/Public-Transport/light-rail/index.cfm>

Notes for Editors

UITP's World Congress and Exhibition will be held in Vienna, Austria, 7-11 June 2009. The theme of the event is 'Public transport: Making the right mobility choices'. For more information, visit www.uitp.org/vienna2009/.

See the congress programme: www.uitp.org/vienna2009/Congress/programme-en.cfm

See the Expo Forums programme: www.uitp.org/vienna2009/Congress/Expo-Forums-en.cfm

Get a preview of the exhibition: <http://www.uitp.org/vienna2009/exhibition/index.cfm>

Visit the Vienna Congress and Exhibition Media Room:

www.uitp.org/vienna2009/news/index.cfm

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Light Rail during the 58th UITP World Congress and Exhibition

Wednesday 10 June	09:00-10:30	SESSION 11
Suitability of rail service for various needs and contexts		

Rail is the oldest type of mechanised transport and represents an important legacy for many cities. However, it has never ceased to benefit from innovation and to adapt to new community needs and passenger requirements. This session will feature cases of new developments in greenfield as well as brownfield applications in cities of various sizes and complexity.

Chair: Friedrich Smaxwil, Senior Vice President Mobility, Siemens AG, Erlangen, Germany

- London's Developing Urban Rail Network
Ian Brown, Managing Director, London Rail, London, UK
- m2 in Lausanne: a driverless metro as a PUBLIC TRANSPORT solution for a small city
Michel Joye, CEO, Transports publics de la région lausannoise SA, Renens, Switzerland
- Building and operating metro for a booming mega-city
U.C.D Shreni, CEO, Western Railways, Kolkata, India
- Which place for tram-train between urban and regional transport needs?
Analysis for Lille s greater Area
Marc Perez, Directeur France, TTK, Karlsruhe, Germany

Monday 8 June IT for Rail: the right signal!	14:00-15:30	Expo Forum 2
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- Building ICT capability into trains & stations
ALSTOM, Michel Carnot, Signaling Transit Urbalis Platform Director
- New COPP System: safety critical SIL3 control for platform screen doors
CLEARSY, Thierry Servat, President
- Assessing rail infrastructure investments with Lyfe-Cycle-Cost
Die Ingenieurwerkstatt, Christian Trescher
- Re-signalling options: CBTC or CBTC overlay
THALES, David Dimmer, Seltrac MS Product Manager
- Da Vinci, technology for railways traffic control systems
Indra Sistemas, Antonio Garcia Molina, International Sales Manager

Monday 8 June Better on track with advanced components!	16:00-17:30	Expo Forum 3
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- Simplifying battery maintenance with diagnostics
SMA Railway Technology GmbH, Dirk Wimmer, General Manager
- New Technology for Standardised Automatic Door
Gebr. BODE GmbH & Co. KG, Andreas Schunke, CEO
- Systematic analysis of safety functions with diagnostics
ELIN EBG Traction, Daniel Prostednik, Head of the Group
- Hybrid drives systems for rail vehicles. Solutions for new and refurbished rolling stock
Voith Turbo GmbH & Co KG, Heinz Tengler, Senior Vice President
- Curve squeal noise: A problem that can be solved
Ingralub AG, André Kofmehl, CEO

Tuesday 9 June Innovations in the rail sector	14:00-15:30	Expo Forum 7
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- ECO4 - Solutions for Energy Friendly Products
Bombardier Transportation, Tjark Siefkes, Senior Director Product Management
- Increased availability and safety with Catenary Monitoring System Sicat CMS
Siemens AG, Mr. Gunter Hahn, Senior Specialist
- Caf State-of-the-art Light underground trains
CAF, Aitor Gastañares Etxezarreta, Responsible of Research Projects
- Efficient Connector/Feeder Systems for local Urban Transport
DCC Doppelmayr Cable Car GmbH & Co, Stephan Wabnegger, Chief Executive Officer
- Using advanced technology to speed up metro lines capacity improvement
ALSTOM, Christophe De Meyer, TIS TRANSIT VP

- New mobile energy storage system on trams for energy-efficiency and operation without overhead contact line
Siemens AG, Michael Meinert, Head of Departement
- Evolution of a tram platform concept Focus on operators and passengers needs
Bombardier Transportation, Paulo Santos, Director Sales LRV
- Improved LCC for tracks with the Head Special Hardened Grooved Rails
Voestalpine Schienen GmbH, Norbert Frank, Head of Technical Customer Service