

The metro: at the cutting edge of public transport systems

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Originally designed to all eviate the congested streets of large cities, metro politan railway systems no longer are limited to a role of transport infrastructure, but are also an urban structural facility around which mobility policy is developed. Besides being an essential factor to assuring a better quality of life.

The birth of the metro, i.e. the electric train running on its own dedicated circuit in an urban setting, dates back to the year 1890, when the first underground line was inaugurated in London. Since then, some 120 cities have joined the metro club, the latest addition being Copenhagen, which opened its first line last October. In 2001 metro lines throughout the world transported approximately 150 million passengers every day, 34 times the average number of people travelling by air transport. This figure alone is indicative of the economic and social implications of the development, organisation and use of metro systems, which over the last century have evolved into a veritable show case of innovation, as much in industrial and technological standards as in operation and the concept of customer service. The following are a few examples.

New technologies: for the underground of yesterday and today

The technological developments witnessed in metro systems are many and varied, but the one that immediately springs to mind in terms of its implications for production and service is train automatisisation and driverless operation. The improvements achieved in productivity, safety standards and service reliability mean that personnel can now concentrate on ways of better meeting customer expectations. But the newest lines are not the only ones benefiting from the latest technology; even those constructed decades ago can be given a total makeover to take advantage of technological innovations in information and communication systems, affording increasingly higher standards of interoperability.

The metro: leader in integration

Above and beyond the higher performance standards afforded, technological innovation also favours integration that benefits above all the

passenger. Within this context, metro networks were amongst the first to develop the smartcard (contact-less) system, a multimodal means of payment. The smartcard is indeed becoming a veritable electronic "purse" that allows the integration of transport with a number of other city services. By such an approach, passenger information services are dynamic, multimodal and constantly accessible (before and during travel), thus making public transport even easier to use.

The integration of ticketing systems and passenger information services is only possible through the thorough coordination of operators and transport modes. From this point of view, the metro has a leading role to play. The contribution made by metro systems to improve integration involves the design of stations that are welcoming, convivial and safe, fully participating in city life, offering social, commercial and cultural activities that allow passengers to make the most of waiting time and that indeed draw the attention of the populace in general.

Innovative financing schemes

Metros are large-scale infrastructure projects that require substantial financing for construction and maintenance works. The main players – whether they be local authorities, operators, industries or financial bodies – set up new partnerships to contain public expenditure. This involves the full development of all real estate and property in the vicinity of metro lines and stations, the placing of shares on stock markets by the operating company, the contribution of employees to corporate capital, or simply the involvement of private partners in investment and operation. By the range of implications at stake, the metro demands the pursuit of approaches totally new to the public transport sector.

Safety standards: a priority for operators as much as city authorities

Given the sheer flow of commuters involved, safety is one of the most sensitive issues raised by metropolitan transport services. Though the metro is the safest mode of transport in the world, the accidents, fires and even attacks that have recently affected certain systems are given broad media coverage, which in turn can have a negative impact on the general public's perceptions. It is precisely for this reason that all players have taken initiatives to combat this sense of insecurity. Operations have initially been based on industrial developments and improvements to ensure higher technical standards. It is however general safety standards that are the main concern of operators, who work closely with public and police authorities to fight against delinquency, violence and the risk of attack. Once again, new technologies play a vital role in risk prevention.

All the above developments clearly indicate that durable mobility in large cities is virtually impossible without an efficient underground system – while also explaining why the number of network extensions and new lines being built has continued to grow over the last fifteen years. And the market is far from saturated: in 2015, the world will count some 560 cities with more than a million inhabitants. The metro has many more years of service ahead.

This article summarises the main conclusions reached during the 1st International Metropolitan Railways Conference organised by UITP in Shanghai (China) between the 17th and 19th November 2002. All speeches made during the conference are available on the UITP electronic library Mbi+.

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