

MEDIA BACKGROUNDER

Buses Today & Tomorrow

Why public transport?

There are more and more people living in urban areas today. These people are travelling further and more frequently, and their trips are becoming increasingly complex. That is why the need for all modes of public transport is stronger than ever.

Public transport offers many advantages over individual transport modes. It:

- costs less to the community,
- needs less urban space,
- is less energy-intensive,
- pollutes less,
- is the safest mode,
- improves accessibility to jobs, and
- offers mobility for all.

The role of buses

Bus systems are the main carriers in Public Transport, no longer as feeders and extensions of rail only. In many systems they are backbone of the transport system.

The bus is a very efficient mode of public transport, which is cheap, flexible and, in many cases, tailored to the needs of end-customers both in terms of capacity and speed. Buses operate most of the time in mixed traffic. They are therefore in the front line in competing with private motorised transport for any travel and displacement of persons within the city.

Buses do not require any infrastructure except a depot and workshop, and are easy to put in service.

From an economic, environmental and social point of view, the bus still remains the most universal solution for a balanced and sustainable urban development.

Indeed, the bus is the only public transport mode in many of the world's cities. It also plays a key supporting role in cities with rail transport modes. Some 80% of all public transport passengers worldwide are carried by buses.

Nevertheless, bus is perceived today as a less attractive mode of public transport, because of its performance in terms of reliability, speed, design, etc.

Space

The capacity of buses is around 80 passengers for a single bus, and around 120 for an articulated bus.

Space is at a premium in urban areas so it needs to be used sensibly. Buses use nearly 20 times less space to transport the same number of people than private cars. To carry 50,000 people per hour per direction it is necessary to have:

- 175 m wide road used only by cars, or
- 35 m wide road used only by buses.

If everybody travelled to work by car, the total space needed for parking cars would be as great as the space needed for business activities. Indeed employees need approximately the same amount of space to work in their offices as they need to park their car (about 20m² per person). In peak hours, it takes 60 cars to carry 75 people, whereas the same number of passengers can be carried by just one bus.

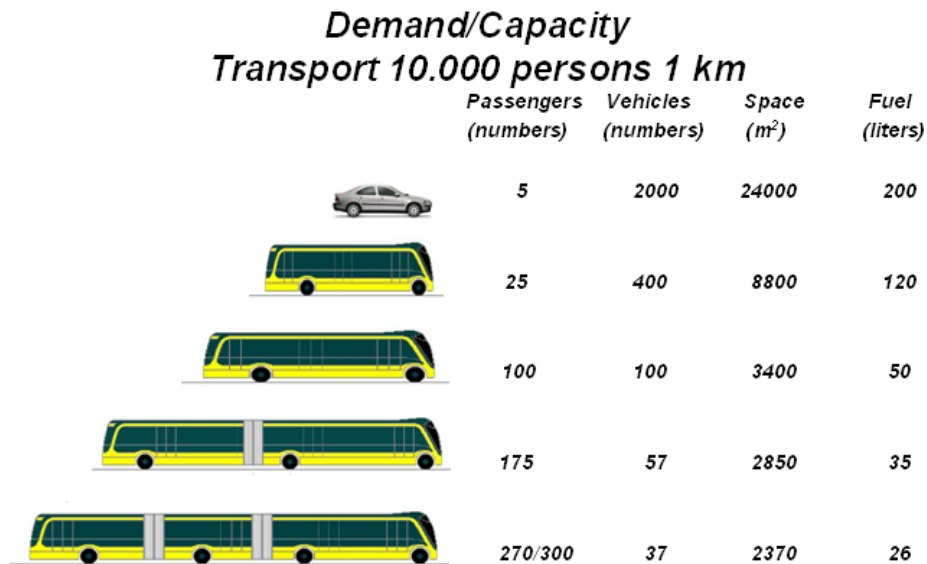


Figure 1-Demand/capacity Transport 10,000 persons 1 km

The transport capacity per vehicle depends on the size of the bus, ranging from mini or midi buses (9 to 11 metres in length) to standard, articulated and double-articulated buses (up to 25.5 metres). It depends on the interior lay-out and the ratio of seats versus standing passengers. As far as the standing passengers are concerned, this depends also on the number of standing passengers per square metre (usually four in Europe, depending on operator's policy).

Emissions and energy

As far as the green house effect is concerned, buses perform much better than cars since the emissions per passenger/km of CO₂ equivalent gases are reduced, as shown in the Figure 2¹.

¹ Source VDV

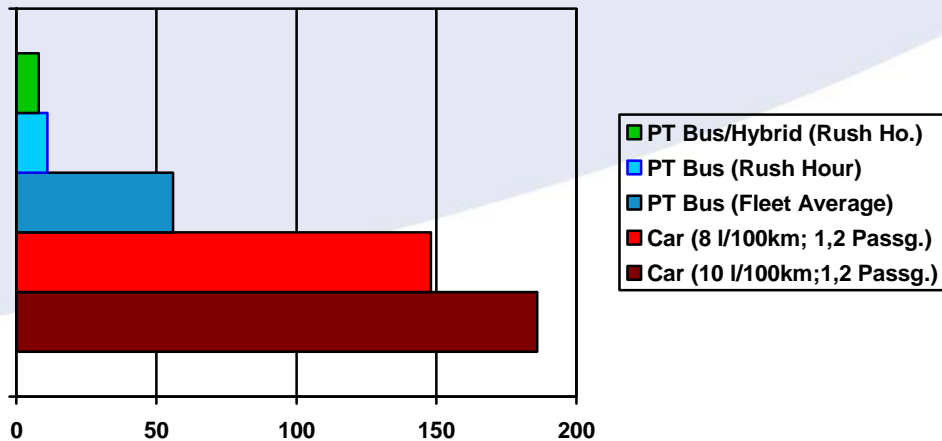


Figure 2- Emissions per passenger-km of CO₂ equivalent gases

A favourable balance for CO₂ emissions for buses in peak hours, but also for bus transport on average, as compared to individual motorised transport.

In addition, the energy consumption of the bus per passenger/km is one-third of that of a car.

Bus market: facts and figures

I. A fragmented market

- 12,000 public transport city buses produced in Europe every year
- Market volume of the 50 biggest networks: 4,500 buses yearly
- D, F, I, UK, ES : **73%**
- GR, SV, NL, AT, BE : 18% } 91%
- CH, NO, PO, DK, IR : 8%

II. Market shares

France:	Irisbus 55% Evobus 16% Van Hool 7%
Germany:	Evobus 58% MAN 30% Volvo 2.2% Irisbus 1.3%
Italy:	Irisbus 43% Evobus 27% Scania 8% MAN 7%
Spain:	Irisbus 28% Evobus 20% Scania 20% MAN 19% Volvo 13%

United Kingdom: Alexander-Dennis 25%
 Volvo 30%
 Scania 13%
 Evobus 7%
 MAN 5%

III. Current market situation

OPERATORS	MANUFACTURERS
<p>The 50 largest networks have: 54,700 buses</p> <p>They purchase (renewals): 4,500 buses / year</p>	<p>The 'big five': Evobus MAN Iveco Irisbus Volvo Scania</p> <p>They produce 73% of the buses manufactured in Europe: 8,500 buses / year</p>

IV. Other players than the 'big five':

- VDL Bus & Coach
- Alexander-Dennis
- Van Hool
- Solaris Bus & Coach
- Bredamenarinibus
- Carrosserie Hess
- NABI/Optare, Temsa, Marcopolo, Wrightbus,....

V. Automotive Market

Individual passenger cars: 14.6 million units

Commercial vehicles: 640,000 units
 Trucks 360,000 units (+ 6 T)
 Trucks 280,000 units (+16 T)

Buses: 25,000-27,000 units
 Public transport buses 11,000-12,000
 Coaches/Autocars 14,000-15,000

Commercial speed: a key challenge

One of the main influential factors orientating an individual's choice of transport mode is commercial speed/travel time. In this regard, the higher the speed of public transport, the greater its market share.

Over the past decades, increased road space consumption by private individual motorised transport has contributed to tremendous congestion. This has a direct impact on the

operation speed of buses, and hence their service quality, reliability, energy consumption, economy and overall profitability.

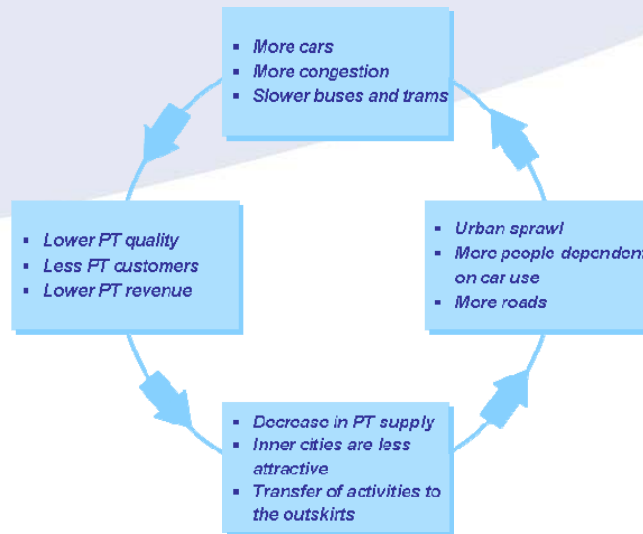


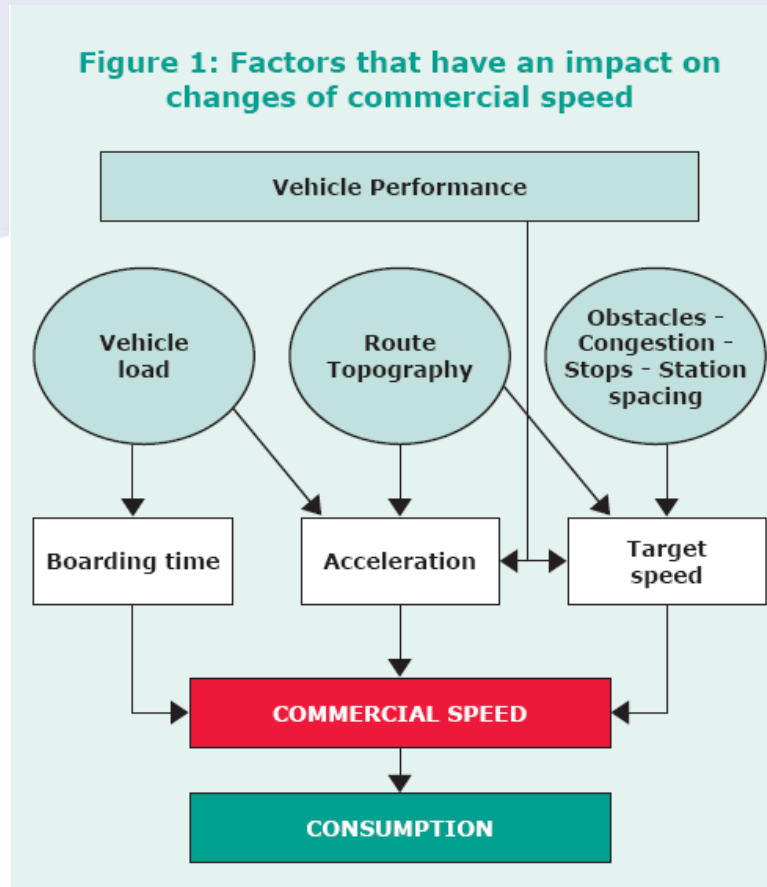
Figure 3 - The Vicious Circle

The quality of public transport can get caught in a negative spiral where congestion in cities slows down the average commercial bus speeds leading to extra costs and having a direct negative impact in terms of the market share of bus trips.

City	Bus speed	Reference area
Athens	16	Attika region
Berlin	19.5	State of Berlin (Land Berlin)
Bern	20.2	Planning Region Bern (24 municipalities)
Budapest	16.2	Municipality of Budapest (Fopolgarmesteri Hivatal Budapest)
Copenhagen	21.6	Greater Copenhagen region
Dublin	14.6	Dublin Region (Dublin City Centre and counties of Fingal, South Dublin and Dún Laoghaire-Rathdown)
Helsinki	26	Yhteistyövaltuuskunta including Helsinki + Espoo + Vantaa + Kauniainen
Lisbon	17.4	Area Metropolitana de Lisboa
London	18	Greater London
Madrid	21	Comunidad de Madrid
Paris	17.1	Ile-de-France Region
Rome	15.4	Commune of Rome
Stockholm	18	Stockholms Lan
Vienna	19	City of Vienna
Warsaw	21.5	City of Warsaw

This data is part of the Mobility in Cities Database © UITP 2006 Please quote the source when using the data. Reference year is 2001. Reference areas are metropolitan areas and comparisons should take into account different configurations of metropolitan areas.

The commercial speed of buses also has a direct relation on their energy consumption.



Schema showing the influential factors determining the average commercial speed and the relation with the fuel consumption of buses. Graph extracted from UITP's project SORT.

The importance of dedicated spaces

The efficiency, speed and performance of buses depend heavily on dedicated lanes and stops. Various forms of traffic segregation are possible - from a mere painted mark on the road, to various forms of road treatments (elevated lanes, movable barriers, 'bus locks', contra flow lanes etc), to dedicated dual lane infrastructure with 'metro-like stations'. The most advanced of such systems as referred to as 'bus rapid transit' (BRT).

Recent innovations

Some key innovations include:

- 'Bus rapid transit' and 'Bus lines with a High Level of Service'
- Clean engines and alternative fuels
- Low-floor architecture
- Double articulated vehicles: up to 210 passengers
- Guiding devices

A recent trend is also to look beyond vehicle technology alone and to consider the wider system and its components, such as infrastructure and operations and their interplay.

This is commonly known and promoted as the ‘bus system approach’ and as system thinking.

Image and perception: time to act!

Although genuine innovations have taken place in the field of bus manufacturing over recent years, they have mainly focused on technical performance and have not enabled customers or authorities to change their perception of bus transport. It is time to raise the profile and secure the future of the bus by improving its image and perception.

Contrary to the automobile industry that has seen a genuine breakthrough design in car conception and design with the appearance in the nineties of the so called ‘espaces mono coque’ (Espace, Twingo, Scenic), design of regular city buses has not seen yet such a ‘generational leap’.

Thus, it is indispensable to speed up the modernisation or ‘renaissance’ of the bus just like the modern urban tramway or the high-speed train. The aim is to capture the imagination and enthusiasm of politicians and customers.

Looking ahead: European Bus System of the Future



In recognition of the importance of buses running in systems and the challenges ahead the ‘**European Bus System of the Future (EBSF)**’ project was launched in September 2008. It is one of the largest surface transport R&D projects ever started by the European Union, and is funded under the 7th Framework Programme (its total budget is around EUR 26 million).

The project is led by the International Association of Public Transport (UITP), which represents some 3,200 mobility actors from 90 countries.

For the first time, this project brings together the five leading European bus manufactures (Evobus/Mercedes, Irisbus Iveco, MAN, Scania, Volvo) and 42 other partners including transport operators and national transport associations (RATP, ATAC Rome, Veolia, TEC, Bremerhaven Bus, Verona, RATB, BKV, VDV, ASSTRA, UTP, KNV), public transport authorities (Vasttraffik Gothenburg, Nantes Metropole, Consortio Regional de Transportes Madrid), the supply industry (Hübner, Init, Digigroup, Ineo, Pilotfish, Actia, Hogia, Vultron, Tekia) and major research centres, universities and consultancy firms (D’Appolonia, Helmut Berends Consultancy, CERTU, Chalmers, CEIT, Fraunhofer, Transyts, FIT, Newcastle University, PE International, INRETS, University of Rome 3, University of Rome/DITS, TIS, CRF).

The main objectives of EBSF are:

- To conceive and develop an **innovative high quality bus system** which is fully integrated within the urban environment and that will demonstrate the full potential of a new generation of urban bus networks.
- To make a **breakthrough design** of vehicles, infrastructures and operations.

- To maintain or improve the **competitive position** of the European bus manufacturers and operators by promoting a new concept under the brand 'the European Bus System'.

EBSF is conceived as a driver to increase the attractiveness and raise the image of bus systems in urban areas, by means of developing **new technologies for vehicles and infrastructure** in combination with **operational best practices**. The project will build upon state-of-the-art clean vehicular technologies and concentrate on improving the bus system as a whole.

The development of a new generation of urban bus system will stimulate European cities to deploy new bus lines making public transport more attractive.

The project will last four years, during which it will produce many practical, operational and theoretical outputs, including prototypes of bus systems and technological components, but also concepts for operational use, and a strategy plan for implementation.

Trials will be organised in seven European 'showcase cities': Rome, Bremerhaven, Budapest, Gothenburg, Lyon, Madrid and Rouen, to validate and test the developed technologies and practices.



Notes to Editors

UITP is the international network for public transport authorities and operators, policy decision-makers, scientific institutes and the public transport supply and service industry. It is a platform for worldwide co-operation, business development and the sharing of know-how between its 3,200 members from 90 countries. UITP is the global advocate for public transport and sustainable mobility, and the promoter of innovations in the sector. For more information on UITP and public transport, visit www.uitp.org.

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