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# A One-Stop Approach to Mobility: he Challenge of Integration

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## A One-Stop Approach to Mobility: The Challenge of Integration

#### Dear Colleague,

Integration is a trendy word that is used in a great many situations where its meaning is not always clear. So why is achieving a system allowing seamless mobility so important?

The public transport market is changing drastically. More and more markets have now been opened up to competition and new regulations have been set, leading to globalisation of the market. Public transport is clearly in a transition phase. As a result, cooperation between the various actors is no longer guaranteed and this could be a problem where competitors operate in the same area.

On the other hand, on the demand side, people are travelling further and more frequently, and the journeys they make are becoming increasingly complex, covering a wide range of diverse travel patterns. People are also demanding a wide, flexible range of transport services to choose from and expect high quality across the board.

To meet this challenge, public transport operators must provide multiple door-to-door solutions that are efficient enough to compete with the private transport alternative. In other words they have to offer an extensive range of "mobility" services that zero in on the individual needs of each traveller as far as possible. The bottom line is that the effectiveness and efficiency of any public transport network depends on how easy it is



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In this handbook we have pinpointed 8 problems, thus covering as much as possible the issue of integration in public transport. We start on the demand-side with customer's needs and look at the potential implications of integration for the operational aspects of public transport. For every problem

identified, a solution is presented along with some "good practices". Rather than awarding the best cases in the world, the selection of good practices in this brochure intends to show a diversity of solutions that could be transferable to our own networks.

We hope you will find this handbook useful and informative and wish you enjoyable reading.

Peter Kellermann & Jean-Claude Degand Chairmen of the UITP working group on Integration & Seamless Travel



### PROBLEM 1: RAPIDLY CHANGING MOBILITY PATTERNS

### SOLUTION 1: GETTING TO KNOW OUR CUSTOMERS

PROBLEM 2: Inadequate planning	PROBLEM 3: Different players, different systems	PROBLEM 4: Journey breaks at transfers	PROBLEM 5: Complex ticketing	PROBLEM 6: Fragmented travel information	PROBLEM 7: The feeling of wasted time
SOLUTION 2: Adopting a long-term integrated approach	SOLUTION 3: Interconnecting networks and modes	SOLUTION 4: Enhancing interchange points	SOLUTION 5: Making ticketing user- friendly	SOLUTION 6: Providing the full picture	SOLUTION 7: Turning travel time into an asset

### PROBLEM 8: CHOOSING THE CHAMPION FOR INTEGRATION

SOLUTION 8: BUILDING SOLID AND FAIR PARTNERSHIPS

## PROBLEM 1: RAPIDLY CHANGING MOBILITY PATTERNS

Today, public transport is facing a number of major challenges throughout the world. In recent decades, urban and suburban travel has undergone major quantitative and qualitative changes. There are several reasons for this, including:

- Land use planning: Urban sprawl has led to a sharp increase in the number of trips from the outskirts into city suburbs, from the outskirts to city centres, etc. The density of settlements has decreased. Furthermore, the building of road systems to respond to the dispersion caused by town planning, which is less suited to the radial structure of heavy public transport networks, has encouraged private car use;
- Economy: The economy has shifted towards service-oriented activities, inducing an increasingly flexible travel demand. More and more people are working part-time and no longer only during office hours. The growth of household purchasing power and the democratisation of the private car have resulted in rapidly rising car ownership levels;
- Lifestyle: Changing lifestyles have prompted a rise in travel for leisure and shopping purposes, involving trips which do not lend themselves that well to public transport. In addition there is a growing group of active retired people. On the other hand, there are more and more user-friendly technologies and applications to which people are becoming increasingly adept at using.



Mobility requirements are not merely growing and diversifying, above all they are becoming increasingly complex. What is more, some customers who are less familiar with public transport are no longer prepared to invest the time required in learning how to use it properly.

### SOLUTION 1: GETTING TO KNOW OUR CUSTOMERS

Today's increasingly service-oriented economy has driven people's needs for a broad, flexible spread of transport services to choose from. To verify that the product mix of public transport is in tune with changing demands, customers' requirements should be checked on a regular basis. It is the condition to make public transport customer-oriented:

#### Identify people's (changing) needs

- The first step is to identify the target group and then determine what information it needs;
- Then it needs to be ascertained whether the required information is already available from other sources. Sources like national household surveys can provide relevant information on current travellers' trips and also help to identify trends;
- Further surveys can be organised to pinpoint travellers' needs and check their evaluation of the services currently provided. Such information can be gathered via customer satisfaction surveys, local community meetings, customer panels, user associations, and so on;
- Electronic ticketing systems can provide useful real-time information on customers' use of public transport;
- The information gathered at complaint desks can cast light on customers' changing needs and highlight what they do not like about the current service;





• Experiments can become new opportunities.

#### Market according to the needs of the respective target group

An analysis can be made of the mobility flows of different groups of travellers (various age groups, mobility-impaired passengers, varying purposes, etc.). This approach provides a further basis on which to target future qualitative improvements and organise a service that is better attuned to users' needs.

It must be clear:

- Who the (potential) customers are (regular/irregular users, age group, gender, availability/unavailability of an alternative transport mode, purpose of the trip, able/disabled in anyway, etc);
- What these (potential) customers expect from public transport and what public transport could offer them, even beyond their expectations (special services, more extensive transport services (in time and space), etc).

## **GOOD PRACTICES 1**



#### France: Household mobility survey

Since 1976, 65 surveys on household mobility (enquêtes ménages déplacements) have been performed in France in line with the so-called "CERTU standard". The advantage of using this clearly defined methodology is that the various findings can be easily compared between the different locations through time. This also allows detection of general trends in citizens' mobility-related behaviour and demands.

The survey sample is selected according to a clear method. The interviews themselves also follow specific rules. A standard questionnaire is used containing sections on "households", "persons", "movements" and "opinions". The respondents can be asked additional questions depending on the local needs of the survey.

The CERTU (Centre d'Études sur les Réseaux, les Transports, l'Urbanisme et les Constructions Publiques) is a technical department of the French ministry of transport.

http://www.certu.fr/transport

#### Bern: Mobility among women

In Switzerland, research on women's mobility was conducted in order to gear services more closely to their needs. One finding was that mobility among women is much more



complex (i.e. it involves multi-stop trips) than men's travel habits. Since women are over-represented among public transport customers it is even more important to make sure that their special requirements are taken into consideration and that they are offered an extremely flexible system, in terms of both time and space.

Another finding was that women have a higher subjective sense of insecurity, especially at night. For that reason, about 41% of female passengers switch to another transport mode at night and 29% of women change their personal behaviour and go home earlier. In an effort to keep women as customers, Regionalverkehr Bern-Solothurn (RBS) launched a project designed to improve women's subjective sense of security. The objective sense of security is also being strengthened.

http://www.zvb.ch/autor/data/dokus/referat\_095124.pdf

#### London: Users Committee

The London Transport Users Committee (LTUC) is the official watchdog body for transport users in and around London (UK) and covers the Underground, the national rail network, London buses, the Docklands Light Railway, the Croydon Tramlink, river taxis, London cabs and the Greater London road network. The Committee investigates



suggestions and complaints from users who are dissatisfied with the response they have received from their service provider. In addition, it conducts independent research and publishes reports on issues affecting transport users. It maintains a regular dialogue with transport operators on their policies and performance, and with relevant local and national government agencies.

http://www.ltuc.org.uk

#### Stockton: Commuter Express Experiment

The local authority in Stockton (USA) was convinced of the need for a commuter service linking Stockton with San Jose, despite its car-minded population. A full service was duly developed:

- Agreements were concluded with other transport companies, (e.g. on shuttles) to organise the travel of the commuters to their final destination;
- An emergency service during the day (e.g. for parents who have to return home because their child fell ill during the day) was established;
- Travellers were encouraged to take their bicycles on the train.

The customers who were driving 96 miles a day on average are now using public transport. In 2001 fare revenues nearly doubled again. The experiment clearly proved successful.

http://www.acerail.com



#### **Essex: Travel Diary and Attitude to Transport Survey:**

The Essex County Council conducted a Travel Diary and Attitude to Transport Survey to establish the views and opinions of people in Essex regarding mobility and their travel habits. The study covered the entire county. The results of this study were subsequently fed into a variety of transport projects and strategies to form the basis of some of the

targets set within the local plan. Comparing these results with widely known statistics showed the local authority where public transport is performing well and where improvements still need to be made.

http://www.essexcc.gov.uk





Implementing integration costs money. A public transport service is often optimised at line level. Making general changes to improve integration may have less than optimal consequences at line level.

In general, public transport needs extensive, long-term investments (rolling stock, rightof-way, interchange stations). But very often the construction of public transport infrastructure can take a long time and its planning is not very flexible.

Meanwhile, travellers' demands can evolve very quickly, for example through the closure or relocation of a production plant, shopping centre or business park, making the public transport services on offer out of touch from one day to another. Transport flows may also decrease or switch to another part of the city, with travellers may opting for new patterns of travel that are incompatible with public transport, and so forth.



## ADOPTING A LONG-TERM INTEGRATED APPROACH

**SOLUTION 2:** 

#### Integrating land use and mobility planning

Even though individuals' behaviour can change rapidly, there is a very strong relationship between land use and mobility. This ought to lead to better integration of urban planning. Indeed, land use affects people's job and residence locations and therefore their demand for travel. On the other hand, transport also impacts on land use, helping to develop an area. Good planning and the anticipation of potential future changes will go a long way towards heading off possible future mismatches between supply and demand:

- Land use should take account of transport policy and vice-versa;
- When developing public transport, planning authorities should encourage density and mixed-use activities around the network through zoning;
- Retail and employment should be developed around stations;
- Transport models need to take account of patterns in land use.

Cooperation between the actors (transport authorities, planners, private developers and so on) is also crucial at local and regional levels if an integrated, coherent policy is to result. The existence of a coordinating central agency helps to improve dialogue and boost cooperation.

## Evaluating the benefits of public transport in the same terms as the associated investment

A clear financial strategy is required when planning urban development and transport infrastructure. At first sight, investments in public transport (infrastructure) often seem huge, especially where rail transport is concerned. On the other hand, a financial evaluation has to take account of all the following aspects:

- Long-term benefits: Public transport often requires long-term investment, but the benefits are of course long term too. Investments must be written off at the same time as they will produce benefits;
- External benefits: Public transport has a great many external benefits compared to private modes of transport and these should also be quantified (less pollution, social benefits, a better urban environment, fewer deaths by accidents per passenger kilometre, less (working) time wasted in traffic jams, etc.). If an objective figure is to be obtained, all these factors must be taken into account;
- Indirect financial benefits: It should be borne in mind who stands to benefit from the investment. Very often, indirect but very real and extensive benefits can arise from the development of areas in the immediate vicinity of new stations, stops and lines (e.g. land use value capture and increased attractiveness of shopping centres);
- Choosing the right public transport solution: A public transport service can be provided by all kinds of transport modes and involve a wide variety of solutions (from metros to demand responsive transport). Together with other elements, such as the existing infrastructure, long-term expectations, political choices, and so on, the financial assessment will determine the optimal solution;
- Increasing ridership: Integration may cost money at line level, but in the long run the investment will result in a better overall public transport service, and a better service will increase ridership on the network.

## **GOOD PRACTICES 2**



#### France: Urban Mobility Plans

The PDUs (*Plans de Déplacements Urbains*) were introduced by law in 1982, and since 1996 they have been compulsory for all cities with more than 100,000 inhabitants.

The PDU must set out the main thrust of the mobility policy of the city in question and its surrounding area with a view of guaranteeing a long-term balance between the mobility requirements and environmental considerations.

The law in question sets out 6 objectives for the PDU:

- To decrease car traffic;
- To develop transport modes that offer an alternative to private car use, such as public transport, bicycles, walking, and so on;
- To organise and make use of the main axes of the road network to make its utilisation more efficient;
- To apply a policy on parking;
- To organise freight transport and the delivery of goods;
- To encourage private and public companies to favour the use of public transport modes.

http://www.gart.org/divers\_docs/pdu.htm



#### Copenhagen: Building a metro and a new neighbourhood

The state-owned and municipal company "*Orestad Development Corporation*" was set up to develop an area on the southern edge of the city centre, in the new Oresund region, between the airport and the city centre. The objective was also to set up high-quality public transport.

It was estimated that 60% of the costs should be covered by value capturing (50% land sales, 10% property taxes); 30% would be covered by the operating profits generated by the new metro line, and the remaining 10% would be contributed by the two participating regional authorities which did not provide any land to be developed. The budget forecasts that the company will be free of debt by 2030.

http://www.orestad.cc/orestad\_eng.html



## Hong Kong: Integrated development of public transport and properties

In Hong Kong, MTR Corporation Limited, a listed company that builds and operates railways, is given the right to develop properties above railway stations and depots subject to payment of the full market price for the land. The property developments realised to date include office buildings, high-rise hotels, residential blocks, shopping arcades and transport interchanges for different modes. All these developments are conveniently connected to a railway station. They do not merely generate sales as a significant contribution toward funding railway construction, but also encourage a high level of

demand for all kinds of transport services.

Together with interchanges, railway stations have become transport hubs catering for huge volumes of passenger flows, thereby enhancing the commercial value of the associated property developments. This fully integrated approach of property and transport developments results in a win-win situation for all stakeholders.

http://www.mtrcorp.com



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Brisbane CBD

South Eas

Busway

### Portland: Land use planning and mobility policy

In the early 1970's, the US state of Oregon implemented a comprehensive plan to develop the Portland Metropolitan Area. The plan included:

- Control of areas up for development, thus regulating urban sprawl;
- Control of real estate through stringent zoning;
- Development of green areas;
- Construction of a light rail transit system to support the need for mobility.

As a result, Portland built a Light Rail Transit system to serve its metropolitan area, and started with a high frequency service. Consequently, local citizens found the system an attractive alternative to their cars right from the outset. The service is now attracting an increasing ridership, bucking the trend in most American cities of a similar size. Today, 75% of Portland's population are car owners but the majority chooses to make certain trips by public transport.

http://www.ci.portland.or.us

#### London: Introduction of congestion charging

Since mid-February 2003 a flat fee of £5.00 (€7) has been charged for all vehicles using the road space (either moving or parking) in the small CBD area of the City of London. The scheme cost £200 million (€300 million) to set up, but the estimated net benefit is £130 million, and at least £100 million has been earmarked for funding transport and traffic improvements throughout the city, including a 40% increase in bus services, the introduction of 200 new buses and the creation of new routes with a 24-hour service on some lines. This measure should reduce road traffic by 10-15% and cut traffic delays by 20 to 30%. Support for the scheme was strongest from the business community, which was losing £2 million in revenue and £4 million in lost working time each week due to the previously existing levels of congestion.

#### https://www.cclondon.com

#### Helsinki: Public transport and urban development

All new neighbourhoods in Helsinki are fully planned in close cooperation between the different departments of the city. Public transport is integrated into each new development right from the planning stage. One of the first phases of work launched when going ahead with a development is the construction of public transport infrastructure. Then other urban facilities (schools, cultural centres, and so on) are built, as well as other key buildings and finally, housing. By proceeding in this way, even the very first people moving into such areas do not have to rely on private transport.

http://www.hel.fi/ksv/English/projects/vuosaari\_engl/vousaari.html

#### Brisbane: Value of public transport investments

Property values along Brisbane's South East Bus lane have soared by as much as 20% as buyers take advantage of traffic-free travel into the city. Research has also showed that approximately 375,000 private vehicle trips shifted to public transport along the bus line. The 15.6-km-long line was opened in April 2001 and is part of a 75 km plan. The bus lane includes 2 kilometres of elevated road and 1.6 kilometres of tunnel, enabling an operating speed of 80 km/h to be attained.

http://www.brisbane.gld.au/getting\_around/buses/south\_east\_busway.html









Customers wish to make their journey from door to door in the most convenient way. Trips vary tremendously in terms of both the time they take and the distance covered. Private transport has the advantage that one vehicle can seamlessly transport its occupants from A to B. There are several reasons why this is not the case for public transport:

- For historical, technical (different infrastructures) and legal reasons (in certain cases underground vehicles may not always use heavy rail tracks), the public transport network consists of several subsystems that are seldom fully integrated at operational level;
- Several different operators (and respective authorities) are involved in moving people from one place to another;
- Public transport needs to consolidate its demand into a certain volume of patronage to remain profitable.

As a result, public transport loses a lot of attractiveness by imposing transfers (and waiting-time) at interchanges.





### SOLUTION 3: INTERCONNECTING NETWORKS AND MODES

#### Network optimisation (in the short term)

To limit the impact of a fragmented journey, it is crucial to adopt a network approach to make sure that the differently run services allow a smooth journey. Therefore, the following elements should be taken into account:

- Reducing the number of unnecessary transfers between different modes and lines: A transfer is always perceived as a break in the journey and a potential source of problems. However, certain transfers cannot and should not be avoided if they are smooth and do not increase travellers' uncertainty (this is what integration is all about of course);
- Integrating timetables and tuning different services to reduce waiting times: Time spent waiting when transferring from one service to another, significantly increases the subjectively perceived duration of a trip more than the actual travelling time does. Consequently it is important to reduce this waiting time at interchanges to a minimum by coordinating arrival and departure times. Waiting times can be drastically decreased by increasing the frequency of just one of the connecting lines for example;
- Filling in any missing links in the infrastructure: Historically, public transport had a rather straightforward network providing direct links from one city center to another. However, over the past decades, most transport investment was spent on orbital roads for cars and trucks. This was only very rarely done for public transport. Additional orbital roads however, allow a much more flexible mobility within the network;
- Providing public transport on demand where needed: For a full service certain links have to be provided. In some cases demand responsive transport is a cheaper solution than an infrequent public transport service;
- Taking account of other public and private transport services (including ferries, carsharing, bicycles, pedestrians), not forgetting that public transport usually does not stop at someone's door or at a starting point in general.

#### Interoperability planning (in the long term)

Interoperability entails technical harmonisation and operation, enabling vehicles of one mode or type to be used on the infrastructure of another network.

Interoperability can make public transport flexible enough to adapt to changing demand by altering the rolling stock or fixed infrastructure. Interoperability might be expensive where there is a need to adapt an existing infrastructure, but it is much cheaper when building a (partially) new infrastructure. The main advantage is that the quality of the public transport can be drastically improved. Interoperability can be attained in different ways and it should be an objective that extends beyond one's own services:

- Attaining interoperability on the level of the vehicles used;
- Standardising infrastructure;
- Investigating possibilities for track-sharing between different modes;
- Investigating potential for track-sharing between urban, local and regional operators.





#### **Bologna: Demand responsive bus lines**

In 1995 a first bus line with a "service on demand" was introduced in Bologna, Italy. The latest version of the service, the PRONTOBUS (pronto is Italian for hello), takes bookings by phone. If there are no calls requesting the service, no bus will be run the full service but certain parts of it. This scheme has effectively doubled the operator's potential service without necessitating any considerable investments:

- Actual theoretical offer: 1,170,000 km
- Actual effective offer: 810,000 km
- Former offer: 610,000 km

The service is part of the overall public transport network, which means that the only extra cost for customers is the telephone call or text message. For the transport operator, the cost of providing this service is only half that of a traditional scheduled bus service. The service is outsourced and the private operator is paid a fixed rate for being available, plus a variable amount for the distance actually driven.

http://www.atc.bo.it/varie/prontobus/prontobus.asp

#### Madrid: Orbital metro lines

Historically most transportation networks in cities were radial networks, with the town centre forming their central point. These kinds of networks have disadvantages for users and operators alike. Customers wishing to travel from one part of the city to another



always have to pass through the centre, which in many cases constitutes a serious detour. For this reason, in the 20th century orbital roads were constructed in most cities. The majority of public transport networks still have no orbital routes, since this usually requires huge investment. However there is a clear need for public transport to serve such areas if it is to provide a flexible service to its customers. Doing so would also give operators much greater flexibility in the event of an incident.

Metro line 6 in Madrid is an orbital metro line around the city centre finalised in 1995.The line is to be used in integration with other public transport services. Line 6 connects with all metro lines, 4 commuter railway stations, 107 urban bus lines, 50 metropolitan bus lines, 4 long-distance bus terminals and the airport metro link. Due to its excellent connectivity, the line has drastically improved the network as a whole, causing the number of customers to increase.

http://www.metromadrid.es



#### Switzerland: Integration of public transport and car sharing

RailLink, a company owned by the Swiss railways (SBB CFF FFS), Mobility CarSharing (a national car-sharing company) and DaimlerChrysler, have around 120 Smart cars available at 55 of the most important train stations in Switzerland. The car can be booked up until half an hour before arriving in the railway station by train. Launched on 1 October 2001, the scheme is on offer to all SBB season ticket holders.

http://www.raillink.ch

### Curitiba: Integrated transportation networks

Curitiba is a burgeoning city in the Brazilian state of Parana. The city has a long history of deliberate, environmentally "progressive" (transport) planning. As early as 1960 the municipal authorities adopted a pedestrian-friendly master plan for transport that was integrated with its plans for land use. At the time buses were the chosen mode since they were better adapted to the layout of the city and, above all, constituted a cheaper

solution than rail-based modes for what was, after all, a developing country. In 1974 the first express buses were introduced in the urban area. This was followed in 1980 by an integrated transport network linking 7 bus systems. In 1990 so-called "speedy buses" were introduced. Today Curitiba has special high-floor bus stations, high-capacity articulated and bi-articulated buses and dedicated bus lines capable of carrying up to 20,000 people per hour on one line. The cost of the transport system is of course many times less expensive than a light rail network, and it has been calculated that the well-developed public transport system has prevented 27 million trips being made by car. Curitiba is said to consume up to 30% less fuel than 8 other cities of comparable size in Brazil.

#### http://www.curitiba.pr.gov.br

#### Karlsruhe: Tram-train track sharing

Karlsruhe (Germany) has a main railway station that is not located in the city centre. Its urban trams can run on the same railway lines as those used for regional train services, linking the city centre with the outlying region. Passengers benefit from a fast rail journey and can continue right into the city centre without changing modes. The overwhelming success in Karlsruhe has led other European cities, such as Saarbrücken, to adopt the same principle, and has proven that the problem of compatibility between heavy and light rail can be overcome. Ridership has increased by a factor of 8 over the last 10 years.

http://www.verkehrsbetriebe-karlsruhe.de

#### The Netherlands: An integrated service for companies

Mounting congestion and parking problems are important constraints for Dutch business travellers. Mobility Mixx provides an answer by combining the best mobility products available. At this stage the service is only offered to companies with more than 500 employees. Mobility mixx takes over the management of staff's business trips from the employer. The most costefficient solutions are provided for individual employees for both their

regular journeys and special trips. A single journey can combine transport modes as diverse as a lease car, public transport and a taxi. A smart card is used to charge all the costs, irrespective of the transport mode used, to the employer on a monthly basis. This service constitutes a genuine - and more efficient - alternative to a regular lease car.

http://www.mobilitymixx.nl







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The time spent at an interchange is perceived as time lost and is felt to be twice as long as an equivalent period spent on board a vehicle. Transfers are experienced as real breaks within the journey due to the uncertainty passengers experience, fearing that something could go wrong when they try to make their connecting journey.

On the other hand, virtually every journey entails an interchange, if we include the walk from the customer's home to and from their nearest public transport stop. A very high percentage of passengers pass through several transport interchange points every day. The quality of such hubs is decisive elements in determining people's transport-related choices.



### SOLUTION 4: ENHANCING INTERCHANGE POINTS

It is vital that interchange and transfer points between modes be optimised by making them maximally functional and pleasant. In fact, interchanges can be viewed as focal points in their urban environment. Accordingly, each interchange point must be regarded as a unique case that takes account of local opportunities and constraints and requires thorough groundwork and planning. This asks for cooperation between several transport operators and service providers and entails building many partnerships, particularly financial ones, which determine the quality of the service ultimately offered to travellers.

#### Location

Basically, two types of interchange locations can be considered, with different elements determining the location in both cases:

- Interchanges between two public transport trips: The location will be determined by the nature and properties of the network. An (integrated) public transport network will need interchanges at certain points in the network. In order to integrate the interchange as optimally as possible into the existing network, transport flows that take account of all modes need to be considered;
- Interchanges at the beginning and end of the journey by public transport: Here the determining factor is the immediate environment of the interchange. The surroundings of an interchange will genuinely affect the way that travellers perceive it. The location of these interchanges must be optimal with respect to the starting point and destination of the travellers' journey (e.g. close to centres of activity).



#### **Functionality**

Transfers between two public transport services should be as smooth as possible. From the design viewpoint, the following elements should be taken into account:

- Reliable information must be provided, and there must be clear signage and easy access. Accurate directions and an information strategy can very often avoid huge investments in infrastructure;
- Travellers' transfer distances between all arriving and departing modes (including private transport, e.g. park & ride facilities, bicycle parking facilities, major footpaths, etc.) must be short;
- A single platform should be allocated to one and the same line, as this prevents regular passengers from losing time looking for the right platform;
- Most regular transfers should merely require passengers to cross the platform, rather than having to climb or descend stairs;
- The specific requirements of the elderly, children, the disabled, tourists and foreigners need to be taken into account;
- Interchanges must be easily accessible for the public transport vehicles, so that no time is lost getting in or out at the interchange.

#### Quality

The mobility context and the smoothness of a transfer are not the only important factors; more subjective aspects to do with the environment and infrastructure can also play an important role. Passengers should be as much at ease as possible while waiting for their connection, thanks to consideration of the following aspects, among others:

- The interchange should be designed to be pleasant (warm in winter, offering protection against rain or snow);
- The waiting areas and furnishings should be comfortable and attractive;
- Safety and security must be guaranteed via appropriate lighting, the presence of staff and even general cleanliness;
- A range of not directly transport-related services could be on offer (shops and public facilities);
- Facilities should be provided or staff should be on hand to assist stranded passengers.





Assaults and thefts per million passengers

#### Turin: Safety strategy at bus stops

The Azienda Torinese Mobilita (ATM) in Italy has implemented a strategy for increasing the subjective sense of safety felt by customers, staff and the public. Especially at interchanges, customers have to feel safe while waiting for services. Bus stops and ATM's vehicles had to become subjectively safe areas for the company's customers and members of the general public. ATM's strategy included the following features, amongst others:

- On-board video surveillance;
- Video surveillance at bus stops, including an audio connection;
- The deployment of specially trained staff;
- A staff presence at hot spots;
- Well-lit bus stops equipped with a public telephone.
- ...



http://www.comune.torino.it/atm

#### Baden: Shopping centres in small railway stations



Baden is a small city in Switzerland with fewer than 20,000 inhabitants. Nevertheless, a successful shopping centre was built at the railway station, proving that additional services in stations need not be limited to major interchanges if they are well designed. The creation of shopping centres at railway stations is part of a general strategy. The new "brand" of larger shopping malls in Swiss railway stations is known as "Rail-City".

http://www.railcity.ch



#### Budapest: Small, renovated transport interchange

A tram line originating in Budapest (Hungary) ends at the Hüvösvölgy stop. The terminus has been renovated and optimised to facilitate and speed up transfers to connecting buses. The interchange station also has a guarded park-and-ride facility, which was built along with a facility complex. The objective of this project was not only to meet people's transport needs, but also to preserve the site and add new dimensions to it, resulting in a harmonious blend of old architecture and modern technology and a symbiosis of a natural and an artificial human environment.

http://www.bkv.hu

#### Madrid: A large interchange

Madrid (Spain) and it's surrounding area is served by 288 lines run by 33 private operators. The policy of the regional authority focused on the location of the interchange and the integration of the bus network with the metro system. Naturally, attention was also paid to the design of the interchange itself.

The Avenida de América interchange is a huge new interchange station that was opened 3 years ago. Previously, most transfers had taken place at road level, but the construction of underground tunnels exclusively for use by buses has resulted in a saving of 7 minutes per incoming bus during rush hour. The interchange station was

given a complete facelift, with the new layout designed to make sure that travellers could make as easy and comfortable a transfer as possible. The volume of passengers passing through the interchange increased by 30% in the first year after the new station was opened.

http://www.comadrid.es/metro



Interchanges are especially difficult for mobility-impaired people. Even a few stairs or an unclear indicated corridor can present insurmountable hurdles.

For this reason, Berlin's public transport operator, Berliner Verkehrsbetriebe (BVG), in cooperation with the German capital's disabled association, produced a brochure and a map providing an overview of accessibility throughout the entire public transport network in Berlin. This exercise also helped the company identify critical points within its network as regards accessibility.

http://www.bvg.de

#### The Netherlands: An integrated strategy for interchanges

The Dutch railways (NS) applied an integration strategy at all its railway stations because it believed that:

- The lack of good transport to and from railway stations is the most important reason why people do not use public transport;
- Waiting time is perceived as being twice the waste of time compared with travelling time.

The company's strategy includes providing bicycle repair facilities, bicycle hire, design rules for bus and railway stations to minimise walking distances, shops, waiting areas, and so on.

http://www.ns.nl









In many cases, if a journey consists of several trips, different tickets have to be bought, which makes life complicated and messy for all concerned. For the customer, having to buy several successive tickets to make a single journey has a dissuasive effect. Buying tickets can be very time-consuming due to queuing and the completion of the transaction itself. Passengers and operators alike lose a great deal of time handling tickets. In addition, repeated payments make travellers much more aware of their travel costs than is the case with private transport modes. This gives them the subjective feeling that public transport is much more expensive. It also makes public transport more difficult to use and understand.



### SOLUTION 5: MAKING TICKETING USER-FRIENDLY

Harmonising and integrating fares and ticketing facilitates the use of public transport. One of the reasons why people do not use public transport seems to be that they do not know how to buy tickets. Everyone should know how to use public transport and how to gain access to it. Clearly, to be successful, such access must be as easy as possible.

#### Ticketing

Efficient ticketing has a major impact on customers. Once integrated, it potentially saves a great deal of time and makes public transport easy to access. Possible options are:

- Integrated ticketing between neighbouring operators and networks;
- Integrated ticketing between public transport networks, other transport modes and even other services (e.g. toll roads, electronic purses, hotels, theatres, events, etc.);
- Making ticketing nearly virtual (as it is for private transport modes), using new and faster (electronic) ticketing and innovative fare systems, especially for regular users (e.g. season tickets, making withdrawals from bank accounts, purchasing on the Internet, use of smart cards or mobile phones, and so forth).

#### Fares

A step further than the integration of ticketing is fare integration. Fare integration provides an incentive to travel and presents public transport as a one-stop-solution. Establishing integrated fares in relation with ticketing systems for all public transport networks within the same area, rather than by mode or operator, can make public transport much easier to use and more accessible for travellers.

The spectacular advances made in computer and telecom technology are playing a vital role in solving the problems of fare collection and allocation. Allocation is mainly a problem in open systems, so the right solutions have to be identified and a decision then has to be made as to whether or not they are worth the investment. Fare integration does not necessarily require technical enhancement, but the integration of new technologies can be a great help.







#### The Netherlands: Nationwide fare integration

On 1st January 1980, a nationwide integrated fare system (Nationale Strippenkaart) was introduced in the Netherlands, including a uniform ticketing system. The major advantage of this paper card is that it can be purchased all over the country (on board public transport, at post offices, and so on). More importantly is the fact that they are valid on all urban and regional public transport throughout the country, as well as some train journeys.

The Netherlands was divided into zones. The number of "strips" on the card to be validated equals the number of zones through which the traveller passes, plus one base strip. The picture shows a trip from A to B passing through 7 zones, therefore requiring the passenger to validate 8 strips.

http://www.strippenkaart.nl



## Bremen: Electronic transport card integrated with electronic purse

Bremen (Germany) has extended the cooperation of public transport and car-sharing by introducing a contactless smart card that can be used for electronic ticketing in public transport and which also provides electronic access to a car-sharing service. The card can also be used as an electronic purse in the city's shops and to pay for parking, among other things.

http://www.cambiocar.de

#### **De Lijn: Combined tickets**

De Lijn, the regional public transport operator in Flanders (Belgium) issues special combi-tickets, integrating public transport and the access to events or other services. Various tickets are available, especially in the coastal region, which attracts a large



number of tourists. For example, single combi-tickets cover De Lijn's coastal light rail as well as entrance fees to a wide range of attractions, ranging from the Paul Delvaux Museum and temporary events like the Sand Sculpture Festival to the Plopsaland amusement park.

http://www.delijn.be

### The Netherlands: Integrated fares of trains and taxis

In the "trein-taxi-service" the Dutch railway offers travellers the possibility of reaching their final destination from the closest railway station by sharing a taxi, paying just a small fee on top of the price of a regular train ticket. The taxi is taken from the station. The driver will wait for 10 more minutes for other possible customers to arrive and share the taxi. The system also applies to departing passengers, who order a taxi that collects them from their home.

http://www.treintaxi.nl

## Hong Kong electronic ticketing for public transport and electronic purse

In Hong Kong, an effective automatic fare collection system, called Octopus, was introduced in 1997. It consists of a contactless smart card valid on all public transport modes (suburban trains, metro, light rail, buses and ferries). Each operator applies its own fare system, but the ticketing is harmonised. Octopus is actually an electronic purse that can be used to pay for several urban services, including public telephones, parking, shopping and so forth. Today, about 80% of Hong Kong's population uses Octopus.

http://www.octopuscards.com/eng/index.jsp

#### **Barcelona: Integrated Fare System**

The fares of all public transport modes in the Barcelona region (Spain), comprising more than 40 different operators, have been integrated. The new fare system went together with an overall strategy of communication under the brand MOU-TE, a new ticketing system and a revenue distribution structure covering all the actors. Since the new fare system was introduced, the proportion of multimodal trips has leapt from 8.5% to 30%.

http://www.atm-transmet.es











Often there are different possibilities for getting from A to B by public transport. Each of these possibilities involves different modes, operators and authorities. Very often, to find information on a multimodal journey, the traveller has to consult different sources of information. Since in that case it is virtually impossible to compare alternatives, it is extremely difficult to select the most suitable journey, especially taking account of the customers' preferences, like the quality of transfer points, reliability and the availability of back-up services.

There is no use setting up an efficient transport system if passengers do not know how to use it because they lack the necessary information. Various research has shown that passengers shrink back from making a large number of trips simply because they lack complete, reliable information.





### SOLUTION 6: PROVIDING THE FULL PICTURE

First of all, people should know how to use public transport. They should understand what the product on offer consists of and also know how to read timetables and - last, but not least - where to find such information. Information is an integral and essential part of any public transport service and should cover all aspects of it. Information is a prerequisite for the use of public transport.

Informing customers of their existing public transport options, thereby allowing them to define and plan their journeys, is an important stage in the promotion of public transport. Since the success of public transport can only be guaranteed by providing potential customers with a one-stop-solution, it is absolutely vital to offer integrated public transport information, taking account of the various service providers. Information on public transport must be readily available, complete, clear and presented in a uniform manner. Consequently, information should be presented in an utterly consistent way throughout the network.

Thanks to the advent of the latest technologies, tremendous headway has already been made offering the possibility of high-quality, user-friendly information. Technology can also help improve the quality of the traditional communication tools that remain extremely important. On the other hand the latest evolutions in new technologies may not let us forget that extensive passenger information can already be provided using cheap, traditional means of communication. An overall travel information strategy must include the elements set out below taking account of the available budgets and possibilities.

#### Branding

Before receiving any other information, travellers need to be convinced that public transport is an alternative solution and may even be a better option than the private alternatives. A positive attitude towards public transport has to be communicated. The different solutions or products that public transport provides have to be branded, and their advantages need to be clearly highlighted.

In the first place, public transport has to be branded clearly as a whole. The aim is to present a coordinated visual picture of public transport and prevent any confusion in the mind of the customer. To avoid competition, the authorities and operators need to develop a strong partnership in keeping with their respective missions within the framework of a branding partnership or co-branding. The best solution would be to let an institution or association integrating all public transport actors deal with this issue. Any additional services could be communicated separately. Another option would involve branding a specific service provider. However, it must be borne in mind that this could endanger the clear communication of public transport as a one-stop alternative to private transport modes.

#### **Pre-trip information**

Potential travellers should have access to all the information they require to plan their trip from its starting point to the final destination in a clear and easy way. Therefore, a multimodal and area-wide integrated information system has to be provided using different communication media, both remotely and at major access points to the public transport network, as well as other high frequented locations like major public institutions, such as libraries, museums, and so on.

The information provided should cover:

- The journey itself: Ideally travellers should be offered all the information in a personalised manner, covering the full journey, i.e. the timetable, connections, transfer points and various options, and so forth. Full information from start to finish must be clearly presented, ideally provided over different communication modes such as the Internet, call centres, information desks at kiosks by bus stops or at interchanges, and so on );
- Fares: Transparent, readily understandable information on prices should be provided. Passengers must be able to make a well-informed choice between the different transport solutions available to them;
- Additional information: Information should be provided about additional services that could influence the traveller's choice (e.g. the weather, road congestion) or information on the various possibilities at the end destination (e.g. tourist information).

### Information during the trip

Passengers feel uncertain during a trip, since it is not they who are controlling the vehicle that is conveying them from A to B. To reduce this uncertainty it is extremely important to provide them with information on the progress of the journey, using both audio and visual communication media. This is especially important when not everything is running to schedule.

Information should be provided about imminent stops and possible connections and, when services are disrupted, about possible delays that could jeopardise travellers' connections (real-time information) and possible alternatives for connecting trips.

Here again, the information should be integrated. Information on connections with other lines and operators is extremely important since for travellers these connections are part of the services offered by public transport as a whole, and very often represent the only possibility for completing their journey.

### Information at bus stops or interchanges

The feeling of insecurity is even more acute at interchanges than on a vehicle, since there are various options and travellers have to make choices and take decisions.

At interchanges the following information should be available:

- Pre-trip information: Stranded passengers should be able to re-plan their trip all the way through to their destination, so all the information they need should be available;
- Clear directions on how to make a smooth transfer within the interchange station: A strategy at the level of the interchange station is needed. For every distinct possible transfer, the directions provided must ensure that the traveller does not get lost in the station.

### **Post-trip information**

Even after completing their journey, travellers may have some questions, complaints or other feedback. If these are not properly dealt with, the customers may not come back. Therefore the telephone number of a call centre and an address to which complaints can be sent (electronically or otherwise), should be clearly indicated at the exit points of the public transport network.

When travellers leave the public transport network, they are rarely at their final destination. Clearly they need to know where and how to leave the network and how to proceed to their final destination. A map for their orientation, including information on the surrounding area, must be available at all stops.

Additional information about tourist attractions, local information and so on, may also be provided.





#### Leipzig: Mobile service people

It was identified in Leipzig (Germany) that insufficient information was one of the major reasons why people do not use public transport. The Leipziger Verkehrsbetriebe started therefore 3 years ago with the development of an "information network". This network provides a high density of travel and service information using different information

channels. One of these channels is the 25 "mobile service people" who provide information at main interchanges and can be moved flexibly in case of emergencies. It is known that in spite of good and high technological information devices, especially irregular travellers still prefer and trust more information they get through face-to-face contacts, be it with professional staff or other travellers.

http://www.lvb.de

## Vienna: Internet travel information planner for combined mobility

The Internet journey planner for Vienna (Austria) is providing real door-to-door travel information. Information is given on the complete intermodal journey, including directions for walking and information about transfers from one transport mode to another. Depending on the preferences towards transport modes, the passenger will be able to choose between different options to get from A to B. Finally a map which shows an authentic and realistic depiction of the routes from a given departure point to the final destinations via footpaths, public transport and/or private road traffic network can be printed.

http://www.vor.at





#### **Oslo: Integrated mobility service**

Trafikanten is responsible for all travel information in the Oslo-area by phone, internet, WAP and SMS, on behalf of the PT companies in the area. Trafikanten also sells tickets and travel passes at its servicentre and through internet.

There are approximately 1 million inhabitants in the Oslo-area and Trafikanten serves approx. 4 million customers per annum. Surveys show that 14-17% of the users of the telephone number 177 or Internet, would have chosen taxi or private car if they had not received travel assistance from Trafikanten. The ratio between Trafikanten's operating costs and increased ticket revenue for the owners is 1:4, which means that for every Euro the PT companies put into Trafikanten they receive 4 in return!



www.trafikanten.no









## The Netherlands: Nationwide public transport travel information

The OVR (*Openbaar Vervoer Reisinformatie*) system was set up in 1992, in collaboration with the Dutch Ministry of Transport and all public transport companies in the Netherlands. The aim was to collect data from all operators and integrate it into a public transport journey planner.

To guarantee that OVR (or a similar company in the future) would always be provided with full data from all the public transport companies, a law was passed obliging all public transport operators to hand over such data. The business model of OVR was based on annual contributions from the Ministry of Transport (only up until 1999) and shareholders (transport operators), and on a share of the profits made from telephone calls and on business-to-business consultancy.

OVR is active in the consumer market under the brand name OVR "9292" (20,000 telephone calls and 60,000 Internet requests per day). They also play an active part in the distribution of public transport journey planners for different mobile devices PDAs.

Since 2003, OVR has focused its call centre activities on providing personalised, 'helpdesk'-level, tailor-made travel advice. Standard tips and advice are provided on the website or via the (cheaper) automatic telephone service. A recent observation is the increasing demand for on the spot information (25% of current customers are using their mobile phone) when the public transport service is disrupted. OVR is planning to provide this service in the near future.



#### http://www.9292ov.nl

## Gothenburg: A real-time information system

The GOTIC project in Sweden is considered to be the first system in the world to provide real-time information on the Internet on departures of light rail and bus services from all stops. This real-time information system is also used for planning public transport services, influencing the flow of traffic, informing passengers and drivers by

feeding them real-time information such as any disruptions, and also enables a follow-up by producing statistics on the quality of the system. Consumers have been closely involved in the ongoing development of the system, and all modes of transport are covered.

http://www.vasttrafiken.com



## Umeå: Travel information for visually impaired people helps all travellers

In Umeå (Sweden) enlarged travel information devices were introduced throughout the network for mobility-impaired people, secure in the knowledge that such an initiative would also make things easier for other travellers.

http://www.umea.se/net/Bolagen/Ultra

#### Helsinki: Mobile journey planner

The new public transport journey planner for the Helsinki region can be used to search for the best travel options between selected points. The system is based on the public transport register covering the whole region, which includes all services and stops. The register covers all forms of public transport: buses, trams, metros and local trains. The system, which was introduced in autumn 2001, is available both on the Internet and as a mobile phone application (text messages and WAP). Helsinki is probably also the first city to have sold tickets for public transport services on a large scale by mobile phone.

http://pathfinder3.meridian.fi/ytv/eng

#### Yogjakarta: Low-cost travel information solution

Without making any major investments in travel information, the city of Yogjakarta (Indonesia) succeeded in providing an easy-to-use, readily understandable public

transport service. The public transport network there consists of 10 radial and 2 very basic orbital lines. Thanks to the very simple design of the network and extremely high frequency of the services, travellers easily find their way. All buses have different wooden boards on their exterior, displaying the number of the line and listing the main stops.

#### West Yorkshire: An integrated brand

The West Yorkshire Passenger Transport Executive (WYPTE) in the UK has successfully branded the organisation's new role and position in the context of the UK's liberalised market, under the name "METRO". Upon liberalisation, WYPTE switched from being both an operator and coordinator of public transport within its area to an agency that still coordinated public transport but bore no responsibility for its commercial operation. WYPTE decided to improve its customer focus by branding the organisation as an agency facilitating and supporting high standards in a public transport system provided by a multitude of actors. Its branding strategy was embedded in a comprehensive marketing approach aimed at encouraging the use of public transport by emphasising its role as an environmentally friendly alternative to the car. With this objective in mind, Metro decided to use its new logo of a white M on a red circle to create a strong presence promoting sustainable integrated transport. This branding approach, implemented throughout bus stations, at stops and travel centres, in telephone information services and printed information services, helped the authority to successfully build a strong image of Metro as a point of entry to public transport eliciting a high spontaneous recognition rate of 86%.

http://www.wymetro.com



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METRO









## PROBLEM 7: THE FEELING OF WASTED TIME

Surveys have shown that the time spent in transit on board public transport is subjectively perceived as time lost compared to the time spent under way using a private mode of transport. This may have to do with the fact that car drivers are kept busy while driving and that cars can accommodate and be customized to everyone's individual preferences using a wide variety of features (music, air-conditioning, and so on). Even if a journey by public transport took the same amount of time, was just as expensive and seamless as a journey using a private mode of transport, most travellers would still prefer the private mode.



### SOLUTION 7: TURNING TRAVEL TIME INTO AN ASSET

Travellers often spend a lot of time under way with public transport, yet this can be turned into an asset. To boost the competitiveness and attractiveness of public transport, the time thus spent in contact with travellers can be used to provide extra and/or individualised services. Integrating such services into the public transport experience makes travellers at ease during their journey and maybe even create an extra need for them as consumers. The ultimate aim is to tempt people back to public transport. Since part of the problem has to do with a subjective perception, the success of the campaign - and hence travellers' positive attitude towards public transport - will depend in part on the associated communication.

First and foremost, travellers should feel at ease. This is a basic requirement of any public transport service. A safe, relaxing environment must be provided that is at least on a par with the standards met by private vehicles:

- Heating, fresh air, air-conditioning;
- A quiet, tranquil environment;
- The provision of radio news and music;
- The guarantee of being reachable by phone.

#### The transport service itself should be personalised to people's special needs:

- Quality: Some people will be willing to pay extra for a first-class journey, whereas others won't;
- The type of transport solution: Taking into account different transport modes, various solutions can be provided and created. The optimal solution will differ from traveller to traveller. For example, some customers will prefer a direct bus line that passes close to their home, while others will prefer a rail journey and won't bother with first using a private transport mode;
- The public transport solution can also easily be adapted to the special needs of mobility-impaired people, such as parents with baby buggies, the blind, the elderly and physically disabled.

#### The advantages of public transport must be promoted

The following extra facilities can personalise the transport service even further. The time spent on the public transport network can be used to provide services that are not (easily) accessible for users of private transport modes. The time spent in and around the public transport network will then no longer be perceived as time lost in transit. Some potential advantages of transport are:

- The ability to work (a power supply for computers and a desk for writing) and reading;
- The provision of TV and radio news;
- The chance to have a relaxed chat with friends;
- The availability of readily accessible services at interchanges (shops, day-care centres, public services, and so on);
- The opportunity to take a nap;
- The chance to dine in the restaurant car of a train.



**GOOD PRACTICES 7** 

## Münster: Bicycle storage facility and repair shop at railway station

In 1999 an underground bicycle parking facility inside the railway station in Münster (Germany) was opened. The facility has over 2,900 regular users (holders of monthly or annual season tickets) and between 100 and 400 users with day tickets. The bicycle parking facility offers direct access to the train station and underground access to and from the road. Apart from bicycle storage, the facility also has a bicycle shop, a repair shop, rental facilities, left luggage lockers, tourist information for cyclists and even a 'bike wash'.

http://www.muenster.de/stadt/radstation



#### **Brussels: Free newspaper**

Last decade free newspapers were introduced on several public transport networks throughout the world. In some cases the publication of such a newspaper was a private initiative, totally independent of any public transport operator, but in many cases it was the public transport operator or organising authority that took the initiative.

However, while newspapers are an independent means of communication and mainly aim to provide travellers with regular news, they also offer public transport operators or authorities an opportunity to communicate with their customers on a daily and continuous basis.

http://www.freemetro.be



#### Nidau: Mobility and service centres

Integrated mobility management is offered in mobility centres run by Aare Seeland Mobil (ASM) in Switzerland. Mobility experts offer advice on the most efficient way to get from A to B, time and money-wise, and sell all kind of train tickets, for journeys both within Switzerland and all over Europe. Special arrangements (fixed offers, including hotel accommodation), leisure and tourist information are also available. Moreover, all-inclusive arrangements can be booked for special occasions, such as work outings, weddings or anniversaries. Mobility centres of this kind are an interesting option enabling public transport companies to offer their customers a full service and the possibility of staying in touch with them, even in small towns.

http://www.aare-seeland-mobil.ch

#### Paris: Service packages

These days, travel has become part of people's lives and should therefore be as convenient and efficient as possible. The provision of service packages (bouquets de service) by RATP, the main public transport operator in Paris (France), aims to meet the need of spending time on things other than simply being on the way to a destination. Areas for travellers are created at interchange stations where extra services are provided (e.g. postal services, free Internet for checking e-mail or surfing the Web, and so on). The services provided vary from one station to another, so the 'package' can be different. In addition, Paris is experimenting with neighbourhood offices, local public services and local utilities, even incorporating them in a concept referred to as the 'Service Village', which opens up the space allotted to transport to the city's community and business services. At La Défense in Paris the facilities include, among other things, a cyber café, a space for exhibitions and community activities, a conference room for companies, a youth centre and a tourist information centre.



http://www.ratp.fr

#### Solothurn - Bern: Language courses on board trains

On the train line between Solothurn and Bern (Switzerland), the operator RBS offers its passengers regular language courses, ensuring that passengers have the chance to spend their journey time usefully.

http://www.vhs-so.ch/pdf/spezielles.pdf

#### **Brentwood: Car repairs**

A car service station is located in the car park next to Brentwood (UK) railway station. People travelling by train can leave their car at the service station in the morning when taking the train to go to work. During the day the car will be

repaired, so that owners can than pick up their vehicle in the evening upon returning home.





PROBLEM 8: CHOOSING THE CHAMPION FOR INTEGRATION

Integrating services is essential, but in reality, it is not easy to implement for the following reasons :

- Very often, institutional barriers between the different actors will block attempts to integrate the public transport service. Different actors (authorities, operators) have different concerns and it is clear that any decisions about integration will have a huge impact on the actors cooperating;
- Public transport is very often provided in an imperfect market that has seen the latest evolutions in the sector and is in continuous change. Opening up the market to competition will in most cases only reinforce the existing barriers. This makes integration even more difficult, since it may allow the business to be more profitable overall in the long term, but is most definitely not profitable in the short term for the individual actors;

But even though the aforementioned problems are not easy to solve, the real concern is the nature of the integration leader.



### **BUILDING SOLID AND FAIR PARTNERSHIPS**

An integrated transport system entails the establishment of fair, lasting cooperation between the various participants to meet travellers' needs. There is no single solution to the problem owing to the diversity of public transport around the world. The different actors must start thinking how they can manage to evolve in the direction of an integrated system. However, some factors will ease the process:

#### Strong agreements

Contracts constitute an efficient tool for integration, which enables the parties to express their expertise in their own field of competence. Contracts are essential for supporting successful partnerships by clearly setting out the responsibilities of the respective parties, and determining their mutual commitment and the management of their interface. Contracts are also very flexible tools for organising integrated systems, defining responsibilities in line with the respective local situations and objectives of the parties in question. Integration establishes new relationships between a multitude of public transport actors, including such factors as:

- Allocating funding and revenue;
- Operational aspects, such as timetable planning, connecting services, the management of shared infrastructure as intermodal platforms, and information systems;
- Contact with travellers in terms of information and customised services;
- Liability and responsibilities in the event of accidents;
- Quality management.

#### Investment and operation

Integration costs money. It's difficult to convince private partners to invest in something that will only be profitable in the long term, especially since public services (like public transport) will remain closely dependent on political decisions. The main risk for long-term investments borne by the actors should be in proportion with the influence they have over the longterm evolutions. Private operators cannot be expected to bear the full risk of huge infrastructure investments if a political 'changing of the guard' could wipe out all their efforts.

## Setting rules: A strong institutional framework

The organising authority can play a decisive role in integrating public transport. National and international regulations enlighten discussions on some issues at local level and will motivate or even oblige actors to collaborate. A clear definition of the needs and objectives of the transport policy will establish the framework for successful integration. A well-structured regulatory and organisational framework will help to clearly distinguish everyone's responsibilities as well.

**SOLUTION 8:** 

#### An integrating body

Not only will integration take the shape of a partnership between all the actors involved within a particular area, but it will also involve cooperation between actors across economic, political and geographical barriers, so there is a clear need for a place where all the actors can meet.

Fair competition and success can only be guaranteed if all actors are involved in an integrating body via solid partnerships. Partnerships are based on goodwill and effectively put into practice the willingness of the actors to cooperate towards an integrated system, but they have to be supported by strong agreements. The integrating body will have extensive power in directing the policy and funding of integration. The actors potentially involved are:

- The organising authorities;
- The operators;
- The interchange managers;
- The infrastructure managers;
- The local businesses and public services;
- The consumer associations.





In 1998, the transport authority, local authorities and the bus, train and tram operators in Greater Manchester (UK) signed a 'quality partnership' agreement. All the partners were brought together to set targets that were to be achieved by 2005/2006. Under the guidance of the transport authority, the relevant partners have developed specific joint proposals. The responsibility for vehicles, fares, information, interchanges, bus priority measures, and so forth was assigned to the different parties. A great deal has already been achieved in the project, the improvement of information, for instance. The agreement is the largest and most comprehensive one in the liberalised UK market and was mainly based on the partners' goodwill. The agreed aim of striving to serve customers' needs better has already resulted in an overall increase in patronage, and there are plans to continue the partnership.

http://www.manchester.gov.uk/regen/strategy/section7.htm





#### Copenhagen: An integrated body

In Copenhagen (Denmark), the system of 'controlled' competition has placed the responsibility for integration in the hands of HUR, the Greater Copenhagen Authority. This authority sets out guidelines for the creation of the network and timetable of routes and also cooperates with the national railway company and light railway operators to establish a common transport plan for the Copenhagen Capital Region. HUR was originally only in charge of transport, but is today also dealing with urban planning and development, economy, culture and tourism in the region. A mobility management system has recently been launched. A route-by-route competitive tendering system for buses, featuring an incentive system for boosting quality was set up in 1989. Operators

may transfer know-how on a contractual basis, depending on the scope of their services. This form of cooperation has led to a successfully (physically) integrated network run by several operators. This well-designed public transport system has a uniform system of tariffs applied on all buses and trains.

http://www.hur.dk



#### Bogota: An integrated bus-based transit system

In 2000, Bogota (Columbia) implemented Transmilenio, a bus-based transit system. Previously, public transport in the Colombian capital had been provided by private initiative only and the resulting service was poor, unreliable and chaotic. The opening of Transmilenio was accompanied with a reorganisation of the public transport sector, entailing:

- The creation of a central authority in charge of the planning, management and control of public transport;
- Restructuring of the service with the implementation of a feeder system;
- Contractual agreements with the government, operators and third parties.

http://www.bogota-dc.com



#### Madrid: An integrated public transport organisation

In 1986, a Regional Transport Consortium (Consorcio de transportes de Madrid) was set up which is responsible for public transport in the Madrid (Spain) region and the surrounding municipalities. Its board of directors comprises representatives from different public bodies (regional government, related municipalities and the central

government, as well as the private transport operators, trade unions and passenger and consumer organisations). The Consorcio is responsible for:

- Planning public transport infrastructure;
- Planning transport services and setting parameters for the operating programme for all transport modes;
- Establishing an integrated fare system for the whole public transport network;
- Creating an overall image for the public transport system.

Since the regional transport consortium was established in Madrid 16 years ago, passenger figures have increased by over 58.5% (1996-2001), and use of the system is continuing to increase steadily.

http://www.ctm-madrid.es







#### Hamburg: Verkehrsverbund

Hamburg (Germany) has a long tradition of integrating public transport services. The Hamburger Verkehrsverbund (HVV) was set up in 1965 as an integrating body, having been founded as a subsidiary of the transport operators in the metropolitan region. The role of HVV is to integrate the planning of the public transport services, the fare scheme, ticketing, marketing and information on all public transport services, irrespective of the operator or the competent authority.



Following the reform of national legislation in 1996, HVV switched from being an operator-owned structure to an organising agency owned by the federal states and districts responsible for public transport. A new contractual structure was established to ensure that the level of integration would be fully maintained in spite of the anticipated organisational changes (e.g. the introduction of competitive tendering). All public transport operators in the HVV area are partners of HVV. A cooperation contract safeguards the integration standards, including during the transitional phase.

http://www.hvv.de

Flanders: Controlled competition



De Lijn was set up in 1991 by merging two urban public transport operators (in Antwerp and Ghent) and activities of the former Belgian regional transport operator. By working with public/private partnerships and outsourcing most of its operations, De Lijn introduced a version of controlled competition on the Flemish public transport market.

By merging the different operations into a single integrated network of urban, interurban and regional transport operating different types of rolling stock (ranging from light rail to microbus-on-demand), De Lijn succeeded in increasing its ridership by nearly 50% in 5 years. The changes made also met the expectations of the passengers themselves, since the level of customer satisfaction increased from 78% to 88%.

http://www.delijn.be

## CONCLUSIONS

Based on empirical findings, we know that the patronage in integrated public transport systems is significantly higher than that of uncoordinated services. The reason is clear: the benefit of the integrated public transport system for passengers is much higher than the sum of individual benefits of its components.

Although it may happen in some cases, integration cannot be expected as a voluntary market result, since it requires cooperation between competitors. Whether the legal regime is a public transport organisation based on an authority initiative, a market initiative, or a combination of both, there is a need for an integrating body. The optimal solution could differ seriously depending on the local situation.

However integration won't be easy to achieve, it is worth the efforts for the public interest in general, for the customers' benefit in specific and not at least for the economical efficiency of the system. Integration is not just a trendy word, but will stay one of the most challenging topics for public transport in the coming decades.



## **GOOD PRACTICES**

#### GOOD PRACTICES 1: pp. 6-7

- France: Household mobility survey
- Bern: Mobility among women
- London: Users Committee
- Stockton: Commuter Express Experiment
- Essex: Travel Diary and attitude to transport Survey

#### GOOD PRACTICES 2: pp.10-11

- France : Urban Mobility Plans
- Copenhagen : Building a metro and a new neighbourhood
- Hong Kong: Integrated development of public transport and properties
- Portland: Land Use Planning and Mobility Policy
- London: Introduction of congestion charging
- Helsinki : Public transport and urban development
- Brisbane: Value of public transport investments

#### GOOD PRACTICES 3: pp.14-15

- Bologna: Demand responsive bus lines
- Madrid: Orbital metro lines
- Switzerland: Integration of public transport and car sharing
- Curitiba: Integrated transportation networks
- Karlsruhe: Tram-train track sharing
- The Netherlands: An integrated service for companies

#### GOOD PRACTICES 4: pp.18-19

- Turin: Safety strategy at bus stops
- Baden: Shopping centres in small railway stations
- Budapest: Small renovated transport interchange
- Madrid: A large Interchange
- Berlin: Access maps for mobility impaired people
- The Netherlands: An interchange strategy for interchanges

#### GOOD PRACTICES 5: pp.22-23

- The Netherlands: Nation-wide fare integration
- Bremen: Electronic transport card integrated with electronic purse
- De Lijn: Combined tickets
- The Netherlands: Integration of trains and taxis
- Hong Kong Octopus card: electronic ticketing and electronic purse
- Barcelona: Integrated fare system

#### GOOD PRACTICES 6: pp.27, 28, 29

- Leipzig: Mobile service people
- Vienna: Internet travel information planner for combined mobility
- Oslo: Integrated mobility service
- The Netherlands: Nationwide public transport travel information
- Gothenburg: A real-time information system
- Umea: Travel information for visual impaired people helps all travellers
- Helsinki: Mobile journey planner
- Yogjakarta: Low cost travel information solution
- West Yorkshire: An Integrated Brand

#### GOOD PRACTICES 7: pp.32-33

- Münster: Bicycle storage facility and repair shop at the railway station
- Brussels: Free newspaper
- Nidau: Mobility and service centres
- Paris: Service Packages
- Solothurn-Bern: Language courses on board trains
- Brentwood: Car repair

#### GOOD PRACTICES 8: pp.36-38

- Manchester : Quality Partnerships
- Copenhagen: An integrated body
- Bogota: An integrated bus-based transit system
- Madrid: An integrated public transport organisation
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## SOURCES OF PHOTOS, LOGOS & MAPS

#### COVER:

- Consorcio de transportes de Madrid, Madrid (ES)

#### PAGE 2:

- Sacramento Regional Transit District, Sacramento – CA (US)

#### PAGE 5:

- Marguerite Bruno, Régie Autonome des Transports Parisiens (RATP), Ile-de-France (FR)

#### PAGE 6:

- France (map) : Centre d'Etude et de Recherche en Transports Urbains (CERTU), Lyon (FR)
- Bern (graph) : Melanie Bründler, Zugerland Verkehrsbetriebe AG, Zug (CH)
- London (logo) : London Transport Users Committee (LTUC), London (UK)

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- Stockton : Altamont Commuter Express (ACE), Stockton – CA (US)
- Essex (graph) : Essex County Council, Chelmsford (UK)

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- Map : Stratec S.A., Bruxelles (BE)
- 2 pictures : Tehran Urban and Suburban Railway Company (TUSRC), Tehran (IR)

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- France (PDU) : Collectif Tramway de Montpellier, Montpellier (FR)
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- London : Transport for London, London (UK)
- Helsinki : Helsinki City Planning Department, Helsinki (FI)
- Brisbane : Parsons Brinckerhoff Australia (AU)

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- Picture (with bicycles) : De Lijn (BE)
- Subway map : Toronto Transit Commission (TTC), Toronto (CA)

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- The Netherlands : Mobility Mixx, Hilversum (NL)

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- Large picture (bus and train) : Dürener Kreisbahn GmbH (DKB), Düren (DE)
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- The Netherlands (map) : Nederlandse Spoorwegen Reizigers (NS), Utrecht (NL)

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- Barcelona (graph) : Autoritat del Transport Metropolità (ATM), Barcelona (ES)

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- picture of a bus stop : Trafikkontoret Göteborgs Stad, Göteborg (SE)

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- Peter Warman, Public Transport Consultant, Hertfordshire (UK)

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- Leipzig : Leipziger Verkehrsbetriebe GmbH (LVB), Leipzig (DE)
- Vienna : Verkehrsverbund Ost-Region GmbH (VOR), Wien (AT)
- Oslo : Trafikanten Oslo Og Akershus Trafikkservice As, Oslo (NO)

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- The Netherlands (2 pictures) : Openbaar Vervoer Reisinformatie, Utrecht (NL)
- Gothenburg (2 small pictures) : Trafikkontoret Göteborgs Stad, Göteborg (SE)
- Umea : Umeå Lokaltrafik AB, Umeå, (SE)

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- Helsinki : Helsinki Metropolitan Area Council (YTV), Helsinki (FI)
- Metro : West Yorkshire Passenger Transport Executive (WYPTE), Leeds (UK)

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- Münster : Stadtplanungsamt, Stadt Münster (DE)
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- Solothurn (logo) : Regionalverkehr Bern-Solothurn (RBS), Worblaufen (CH)
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