



April 2013

# EMTA**brief**

European Metropolitan Transport Authorities

## EMTA VISION

### Foreword

*As more and more people live in urban areas, the need for viable, cost effective and efficient public transport systems grows.*

*Transport Authorities are the local strategic bodies that plan, promote, coordinate and procure and finance the public transport networks in most of the European conurbations.*

*Since thirty years now urban Transport Authorities have emerged as key players that have a role as client body and essentially coordinating transport services and facilities, especially in metropolitan areas. Their aims are a sound administration and sustainable and reliable transport solutions. They are accountable to the community for delivering a quality transport services network, with the best use of public spending as a prerequisite.*

*EMTA is the network of such Transport Authorities in the major European metropolitan areas. It constitutes a forum for exchange of knowledge and information and sharing of best practices in government, tendering, managing and monitoring public transport.*

*Best practices have developed through the years bringing responses to emerging needs of mobility that have evolved significantly in the past decades under the influence of a growing concentration in urban areas.*

*This paper aims to reflect on the impact of the growing “metropolisation” of large urban areas and what this phenomenon carries along with regard to the responsibilities of public Transport Authorities.*



**Ruud van der Ploeg**  
(Secretary General, elected 1<sup>st</sup> February 2013)



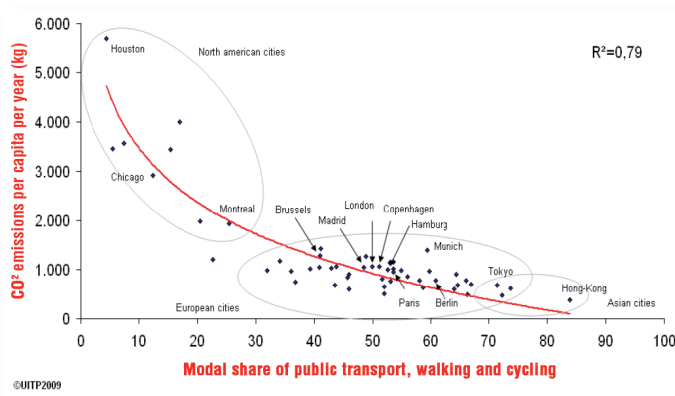
**Sabine AVRIL**  
(Former Secretary General)



## WHAT HAS BEEN DONE ?

### European policies for better urban transport so far

In 2010, 74% of Europeans lived in urban areas, a figure expected to rise to more than 80% by 2050. Cities need efficient transport systems to support their economies and the welfare of their inhabitants. The main aim of the European Union's policies and initiatives is to reinforce partnerships within and outside European borders. The European Union (EU) supports and addresses cities engaged in making urban mobility more sustainable in terms of their environment (CO<sub>2</sub>, air quality, noise) and competitiveness (congestion). Since the adoption of the Green Paper entitled "Towards a new culture for urban mobility" in 2007<sup>1</sup>, the EU's policies on transport and urban matters have largely revolved around two issues: climate change and ICT (Information and Communication Technologies) applied to transport systems.



Europe 2020- Climate-change Energy Package<sup>2</sup> is the EU's global strategy for tackling climate change. The credibility of and need for such a strategy in the field of transport stand on the following observations and data:

- > the transport sector is responsible for 23% of all worldwide energy-related CO<sub>2</sub> emissions and 13% of all greenhouse gas emissions (International Energy Agency, 2008);
- > the transport sector accounts for about 25.5% of total;
- > urban passenger transport accounts for about 8.5% of total CO<sub>2</sub> emissions;
- > urban passenger transport accounts for about 34% of transport-related CO<sub>2</sub> emissions;
- > public transport accounts for 10% of CO<sub>2</sub> emissions caused by urban passenger transport.

Furthermore, cities with a higher modal share of public transport, walking and cycling produce less CO<sub>2</sub> emission from passenger transport per capita than cities which rely mainly on private motorised mobility (UITP study, 2009).

The Commission's Communication on a sustainable future for transport in 2009<sup>3</sup> identified urbanisation and its impacts on transport as one of the main challenges in making transport more sustainable. Competitiveness, through ICT and innovative technological solutions, is the

issue at the heart of the White Paper on transport policy "Roadmap to a Single European Transport Area – Towards a competitive and resource efficient transport system"<sup>4</sup>. Following the Action Plan on Urban Mobility and the publication of the White Paper in 2011, the European Commission (EC) has emphasised the key role of sustainable urban mobility plans by publishing guidelines for their development and implementation (EMTA anticipated such a debate in 2009 with the publication of an EMTA Brief on "Mobility Plans: the way forward for a sustainable urban mobility").

Finally, the EC has been funding research and demonstration initiatives in the field of urban mobility. CIVITAS, Seventh Research and Technological Development Framework Programme (7FP) and Intelligent Energy Europe (IEE) are the main funding programmes in the field. Information on the most interesting funding and outcomes of such projects is available on ELTIS, the European web portal on urban transport and mobility.

<http://www.eltis.org>

The challenge for cities and Transport Authorities is to identify the causes of the lack of sustainability of urban transport, and to define frameworks for priority action and specific measures to achieve goals set by EU policies: think globally, act locally! Among those causes, Metropolisation is of significant importance.



## WHAT IS BEING DONE ?

### The metropolisation effect

#### *Metropolisation and transport: a multiplicity of challenges*

European policies on transport strongly influence the long-term strategies of local decision-makers. In recent years, the experience of European cities has been that the "urban" dimension is no longer adequate to describe the economic, social and territorial dynamics that constitute the metropolis of today. The disappearance of the concept of the "main city" as a scale in transport management, as a result of the development of more complex and sprawling urban forms, is a reality in European cities.

Metropolisation is a recent phenomenon – the break with the earlier form of urbanisation is situated in the eighties<sup>5</sup>. A response to globalisation, metropolisation is a process whereby the biggest cities may grow and expand spatially at the expense of smaller ones. Moreover, it has disrupted the relationship between society and the city. Today, it has become a major field of study and research, as well as a complex framework for the activities of land-use and transport planners.

In the last fifty years, economic growth has led to changes in spatial distribution (residential and business location), driven urban sprawl and increased demand for mobility. These processes have been accompanied by the concentration of the most powerful enterprises and most highly

qualified professions in the biggest cities, threatening the development of smaller centres and rural areas. Suburbanisation is, in Europe, one of the side-effects of metropolisation. It has been spreading ever further around the peripheries of conurbations, dissolving or altering the boundaries between the urban and the rural.

Transport and mobility play a central role in the metropolisation process. With suburbanisation, commuting distances constantly increase. The development of mobility, in particular motorised mobility, can further drive urban sprawl by widening the distances between residential and employment zones. Mignon<sup>26</sup> shows that average commuting distance are increasing whereas, through use of the private car, travel times have remained stable. According to Marc Wiel<sup>31</sup> the link between urban form and mobility is based on a two-way, reciprocal relationship, rather than one-way cause and effect. This means that the issue is not just about where functions are located, but also about how individuals plan their time: the flexibility of the automobile allows people to maintain the same daily and weekly activities patterns of activity wherever they live<sup>19</sup>. Thus, the improvement of the public transport supply, in peri-urban areas, could be the key towards a sustainable growth of cities. The challenge indeed is not to stop urban development, but to conceive cities that can still expand in a sustainable manner. Transit-oriented development for instance is an example of urban practice harmonising land-use and transport planning adopted in northern Europe.

Metropolisation can increase competition between territories and cause territorial splintering, as defined by Graham and Marvin<sup>17</sup>, arising from changes in the spatial location of economic activities (which are becoming increasingly specialised and separated according to function) and disparities in land values (risk of social and spatial inequalities). Vanco<sup>30</sup> shows that the alteration in the social sub-system affects mobility. Metropolisation admits a multiplicity of social practices and lifestyles, widening the variety of traveller archetypes. Day-to-day mobility has generally tended to increase, and social inequalities, costs and greenhouse gas emissions have increased with it.

Some researches on metropolitan mobility take all kinds of journeys into account; others have highlighted the importance of separating commuter flows from other forms of travel. Although commuting accounts for a consistent proportion of total daily trips (nearly 20%), there is no certainty that spatial configurations that optimise commuting journeys will be more sustainable, given the large proportion of trips undertaken for other purposes, such as shopping or leisure.

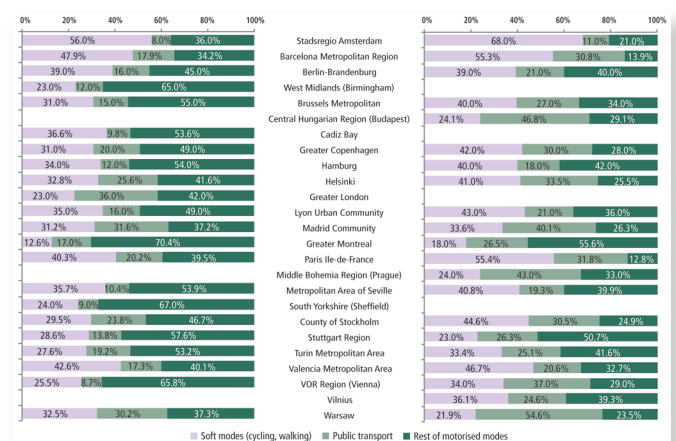
As regards the scope of action of transport authorities, the majority of European cities recognise the notion of the “metropolitan region” or “area”. Transport perimeters do not reflect administrative borders, but are determined on the

basis of a “catchment area” of commuting and exchange with in the metropolitan region. It is de facto networks that construct the functional space<sup>32</sup>. The metropolitan region that manages to represent this functional space in the best way is that whose form evolves out of the patterns of human activity, varying for example between weekdays and weekends. Both spatial and temporal flexibility are needed in dealing with the organisation and governance of transport at metropolitan level.

This aforementioned introduction to metropolisation shows that there is mutual co-production between land use policies and transport strategies. Mobility behaviours depend on traveller archetypes as well as on the balance between urban development and transport provision: once transport facilities are provided adequately in an early stage of spatial development inhabitants of new urbanisation are more likely to be influenced by good transport provisions on their individual behaviour than after the moment of settling. It is helpful for European Transport Authorities to be familiar with metropolisation and its effects, so that they can take them into account in their decisions on operational measures and in their long-term planning.


### From the main city to the metropolitan area: let the data do the talking

The effect of metropolisation on car dependency is evident in data from household travel surveys. The EMTA Barometer 2011 shows that there is a significant shift in modal split between the main city and that city’s wider metropolitan area. These data show that the ratios remain consistent at the same scale.



Modal split in EMTA cities members (SOURCE : EMTA Barometer 2011)

Amsterdam, Paris and Barcelona, for example, are the three cities with the highest ratio of soft mobility in the main city and, at the same time, with the lowest for motorised modes. Conversely, Hamburg and Stuttgart are the cities where the highest proportion of travel is motorised



and relatively low proportion of public transport. The same picture also applies at the metropolitan scale. London and Madrid are the metropolises where the largest numbers of trips are made by public transport and where use of motorised transport is substantially lower than the average. Sheffield and Birmingham lead the list of cities with the highest number of motorised trips in the metropolitan area and a very low use of public transport. The city of Amsterdam shows a high value for soft modes and a low value for public transport at both the urban and metropolitan scale. Similarly, Barcelona, Valencia and Berlin show more or less the same values for soft modes when the scale of observation is changed.

If we consider the figures for public transport and soft modes, the ratios generally decrease between the main city and the metropolitan area, except for Warsaw where the use of soft modes is higher at the metropolitan scale. Some major differences are worth highlighting, such as the cities of Paris and Vienna where there is an increase of respectively 27 and 36.8 percentage points in the use of motorised modes between the main city and the metropolitan area. Warsaw is also one of the cities with a significant negative trend (-24 percentage points) in public transport use when the metropolitan is compared with the main city scale; Vienna leads this list with a 28.3 percentage points fall in public transport use at metropolitan level.

These data are not surprising. Some of the reasons that can help in understanding such trends are:

- > Public transport strategies that have been focused for long-time on central areas and areas of maximum density. Accessibility to the CBD (central business district) and competitiveness of the “main” city were the main priorities;
- > Suburb-to-suburb transit whose priority was always second to CBD accessibility. Metropolisation led to the relocation and sprawl of employments and residential areas. Therefore connections of suburbs (or of sub-centres) by public transport became strategic in term of territorial competitiveness;
- > Extensive parking provision in suburban areas incentives households to own cars. Parking policies should be applied in urban as well as suburban dense centres while a good parking provision should be ensured in suburban transit stations;
- > Mobility patterns of suburban households changed due to metropolisation. As travelled distances increased, the flexibility of the automobile gained the favour of suburban households;
- > Intermodality between urban and suburban transport is sometimes underestimated. That is why focus is on improving the quality of urban intermodal hubs (i.e. City HUB-project and NODES).

Of course global analyses tend to penalise and hide virtuous examples. For instance, the cities of Amsterdam,

Copenhagen and Barcelona have been capable of sustainably manage suburbanisation in terms of transport at the metropolitan scale.

However, in a large part of cases, aforementioned policies and practices are both a cause and effect of urban sprawl. Increasing the supply and quality of public transport is crucial if such trends are to be reversed. Extending the structural network is an essential, but not a sufficient step. It needs to be accompanied by additional measures to make the system more efficient and therefore more attractive to users. ICT (Information and Communication Technologies) applications or solutions to the problem of the “last kilometer” (bike-and-ride, park-and-ride, feeder transport...) are two examples of such complementary measures. The bodies with the role of coordinating these processes are the Transport Authorities, which are responsible for ensuring consistency of action and guaranteeing dialogue between local authorities. Transport authorities in Europe work in different ways to make the transit system more attractive, with a focus on identifying the appropriate metropolitan scale in the coordination of land use and transport planning.

#### ***Cities in action: some experiences from EMTA members***

Metropolisation brings tough challenges for transport planning and land use coordination. Transport plays a crucial role in building a sustainable and efficient urban system. The main issues of metropolisation can be summed up in four points:

- > Spatial organisation and criteria for the location of human and economic activities, but also for commercial and leisure areas within metropolitan borders;
- > Reciprocal relationship between urban form and transport system, with a need for greater integration between land and transport planning (e.g. transit oriented development);
- > Governance in terms of the scale of action, the definition of transport perimeters and consultation with decision-makers and local governments;
- > Sustainable development of cities facing threats to their environment (air pollution and greenhouse gas emissions due to car dependency), social structures (segregation and territorial inequalities) and economy (territorial competitiveness and rivalry).

European metropolises are developing solutions to these challenges and concerns. Each territory is different, so common technical and technological solutions need to be implemented through specifically tailored measures and strategies.

From the transport perspective, the response to metropolisation is not just a question of extending networks. Innovation in the sphere of ICT applied to transport systems, for example, is expected to produce very positive results, such as journey optimisation, in achieving a modal



shift towards public transport and soft modes. However, the extent to which it can contribute to such a shift has still to be (quantitatively) assessed.

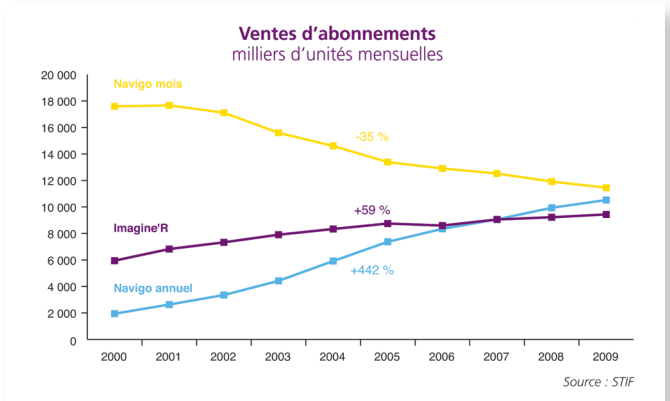
European Metropolitan Transport Authorities are strongly committed to building a more efficient public transport system, with the aim of giving citizens a viable and competitive alternative to the automobile. Holistic strategies, incorporating fare policies, ICT applications, governance hierarchy and division of responsibilities, institutional reforms, infrastructure projects, etc., are being implemented. It is, however, essential to build a framework for coordinating measures: distinguishing cause from effect can sometimes be tricky when several measures are implemented simultaneously.

Hence, responses to metropolisation, as regards public transport, are developed from different standpoints. In the next part some successful cases are shortly illustrated. Actions are developed and implemented in European cities and they deal with: fare policies favouring integration (Madrid and Paris); governance of regional transport projects (Paris); network extension (Prague); governance of public transport (Barcelona); and ICT (Berlin and Amsterdam).

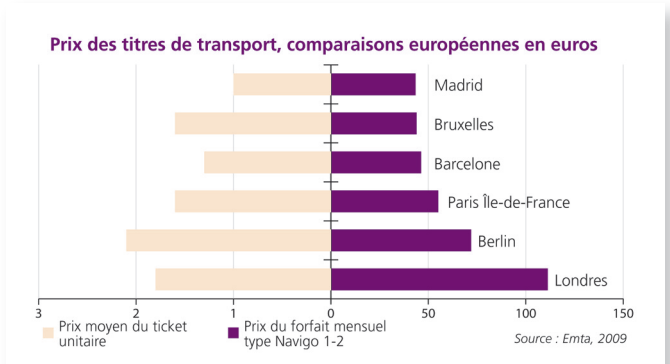
Again, the last EMTA Barometer provides interesting data in this field, showing a correlation between modal split and the cost of a monthly travel pass. Paris, Warsaw, Madrid and Prague are cities with intensive use of public transport (in the main cities) and, at the same time, the places where a monthly travel pass costs less than in other cities. Fare policies play an important role in making public transport more attractive to users. Fare integration across the entire metropolitan area has been a priority of the Madrid region's transport strategy since the creation of Consorcio Regional de Transportes de Madrid (CRTM) in 1986. The proportion of users buying an integrated travel pass has been rising steadily over the last 25 years. The results of such a policy are definitely positive: today 25% of the Madrid region's population has a travel pass (Abono de Transportes) and 67% of trips are made on this kind of ticket, which allows unlimited access to all metropolitan transport modes during its period of validity. Still on the subject of fare policies, the case of Paris is also interesting. Although high car dependency remains a strong characteristic of the Paris metropolitan area, significant changes have been observed with the introduction of the yearly travel pass (Navigo Intégral). Between 2000 and 2009, annual purchases of the Navigo card have increased by 442%, with the result that fares have remained at average levels compared with other European cities.

The growth in passenger numbers has also been considerable (18% between 2000 and 2010), but nothing nearly as high as for the annual travel pass. STIF is also thinking about further innovations in its fare policy by reducing the number of fare zones from five to only one, in other words a single transport pass to travel on the entire network for the price of the "main city" (zones 1 and 2) pass (65.

10 €/month). Nonetheless, works to set-up the application of the measure are still in progress; costs would be high and the debate on how to make the measure affordable is still on.



Sales of travel cards (1000s units per month)




Average price of monthly travel card in some European cities

SOURCE: Les transports en chiffres (2000-2009), OMNIL – STIF

Integrated fare policy constitutes an attempt by metropolitan Transport Authorities to reduce territorial fragmentation and inequalities. Metropolisation increases the range of influence of the city centre area and at the same time extends the city's catchment area. Negotiation with local authorities affected by metropolisation is one of the crucial challenges that Transport Authorities face in building a participatory and democratic system of governance for metropolitan transport.

Keeping the focus on Paris, STIF and the Île-de-France Region, with central government support, are backing one of France's biggest transport and infrastructure projects, the Grand Paris Express (set for completion in 2025-2030). This is an orbital railway (or super-metro) round Paris, intended to enhance inter-suburban travel and improve connections to the existing network. Besides the financial aspects, we have identified two main challenges with regard to management. First, several local government authorities are affected by the project, which means that participation and negotiation between central and local levels is one of the main issues that the backers will need to manage. Second, the integration of the Grand Paris Express at local level (construction of new stations, refurbishments or improvements to existing stations) is challenging from the transfer standpoint ("last mile" issue).



Although network extensions are not sufficient to meet the transport challenges of metropolisation, they nevertheless remain essential in maintaining connections across the whole territory and limiting inequalities. This is one of the motives that prompted the city of Prague to launch the project for a new design of metropolitan transport network. According to the EMTA Barometer 2009, Prague ranks second (amongst EMTA members) for public transport use in the main city. A transport efficiency study carried out six years ago by Prague's transport organising authority (ROPID) showed that the public transport system was not big enough to meet mobility demand within a growing metropolitan area. The city therefore decided to launch a global participation and optimization plan modelled on the practice of German cities. For Prague, 2012 constituted a bold turning point, since the plan was finally approved in June that year. The fundamental aim was to offer passengers better transport provision and enhance their access to public transport by improving connections from and to the areas around Prague. In terms of simplification, the plan reduces the number of bus lines in favour of a backbone network of buses, called "metrobus", with a guaranteed higher frequency of service and weekend provision. The system is also being simplified to make it easier for occasional passengers to access and understand the network. The next phase is expected to focus on the assessment and monitoring of the project's implementation.

Operations on a metropolitan scale transport system usually involve a multitude of different actors. Negotiations between political, operational, managerial, financial and technical interests can sometimes be the reason why decision-making processes are lengthy. Governance is one of the major challenges of the Transport Authorities that play a key role in building, maintaining and steering the dialogue between different territories. Transport authorities are also expected to foster citizen participation and stakeholder consultation.

One good European example of efficient public transport governance is the city of Barcelona which, based on data from the 2009 EMTA survey, is also one of the cities where car dependency is lowest at both the urban and metropolitan scales. The Metropolitan Transport Authority (AMT) is an inter-ministerial consortium of all departments responsible for public transport services in the metropolitan region of Barcelona. Decentralisation and strong local government involvement helped the city to develop a global transport strategy more finely geared to local circumstances and specific traveller behaviour. Four companies operate in the Metropolitan region of Barcelona (Transports Metropolitans de Barcelona (TMB), Ferrocarrils de la Generalitat de Catalunya (FGC), Rodalies Renfe, operated by the Spanish railway company<sup>5</sup> and Tramvia Metropolità). Once more the role of Transport Authorities in maintaining a dialogue between these different political and technical interests, is crucial. The Barcelona model is particularly successful in the sphere of metropolitan bus

services, where the transport authority encourages a strong public-private partnership. One of the key features of the AMT's regulatory model in Barcelona has been the establishment of short-term operating licences and the removal of entry barriers by keeping bus fleets and bus stations in public ownership. The case of governance reform in Barcelona's urban bus service is an interesting example of how partial privatisation and competitive pressures can be used to provide greater flexibility in service provision and to impose discipline on the public operator. This type of reform is of interest to all metropolitan areas large enough to operate under a constant return to scale system, and suitable for potential operating licences for routes in defined sections of the metropolitan area.

As previously stated, information and communication technologies are at the heart of contemporary transport strategies. The intensive use of ICT, on and for public transport systems, is a relatively recent phenomenon. Smart transport systems started with the development of website platforms where passengers could access real-time information and plan their journey. The introduction of information-to-user systems on the network (real-time message panels in shelters or on buses) was a further step forward. The real revolution has come in recent years with the rapid spread of smartphones and "apps" offering unlimited access to information anywhere and anytime. Intelligent transport, as we call ICT equipped transit systems, makes public transport more flexible. The opportunity for a user to plan a multi-mode journey instantaneously makes the system increasingly adaptable to varied and specific passenger profiles. Since the application of ICT to transport is quite recent, we are not yet in a position to assess its impacts on travel patterns or modal choices. However, intelligent transport is a key issue in strategies, discussions and plans for transport. Its impact and results are expected to be significant. Effects and trends need to be monitored continuously so that turning points can be retrospectively identified.

The city of Berlin is strongly committed to the development of intelligent transport. In particular, the city and the transport authority are working on the implementation of an Application Programming Interface developed through third-party cooperation, allowing travellers to access information about multimodal journeys combining private and public transport. Using the new Apps, passengers in the Berlin/Brandenburg metropolitan area can:

- > locate the nearest station from their current position;
- > compare different means of transport (including public/private intermodality) to travel from a point A to a point B;
- > synchronise their diaries with the transport timetable;
- > share personalised travel information through e-mail or directly on their Facebook wall.

Furthermore, the Federal Stadt of Berlin has decided to follow and promote an Open Data policy in favour of new

<sup>5</sup> Since January 2010 the local railway has been run by the Government of Catalunya. For further information see EMTA News N. 41, 2010.



technology developments and developers. This also includes information on public transport. In order to comply with this, the SenWTF together with Berlin Online Stadtportal GmbH has launched a Data Platform ([www.daten.berlin.de](http://www.daten.berlin.de)), on which a range of official data will be freely available for integration into useful services. This form of data retrieval will open up a wide range of possibilities.

Finally, last November 2012 Amsterdam was awarded the World Smart Cities Award 2012 for the open data program to promote a better accessible city. Started in March 2012 the city strives to make all transport and traffic data available to interested parties, including information on parking, areas and times, taxi ranks, bus stops and bike paths and shelters. Also real time traffic information about traffic congestion on main urban routes is disclosed to anyone. The transport user has the most use for one application with multimodal transport information, tailor made for his journey, serving real time information for cycling, public transport and car. It enables users to make the smartest and most effective choice from a range of different travel options from different transport modes based on a weighting of time of travel and costs.

The idea of open data and open sourcing in transport is that base on reliable data entrepreneurs in IT and developers can produce multimodal apps. Intelligent transport and ICT represent a new dimension of transport planning and management and a great opportunity for Transport Authorities to further enhance sustainable mobility.



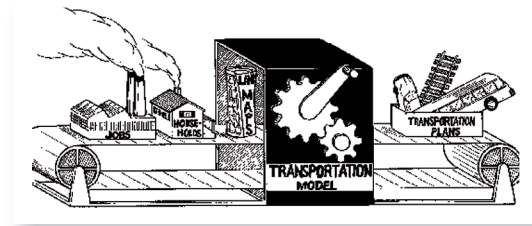
## WHAT NEXT ?

### Work in prospect: ideas, practices and tools

As the previous paragraph shows, a plethora of initiatives and measures are being implemented by Transport Authorities in Europe to tackle the problems and changes set off by metropolisation. The challenges do not relate exclusively to transport, but to transport and urban development as elements of a co-production relationship. Transport is not just about moving people and goods around. Transport means access to jobs, but also to services and leisure. Transport means social equalities and equilibrium in the development opportunities of a territory. So transport means opportunity and public transport means a chance of finally building a viable alternative to the private car.

Experience shows that the metropolisation of transport also, but not only, means extending networks. Many measures other than infrastructural projects can contribute substantially to the quality (real or perceived by the user) of the public transport system. Some relevant case studies have been chosen from EMTA members, but many other exist that are equally worth publicising. The ELTIS platform is a good database of good urban mobility practices in European cities (<http://www.eltis.org/>).

Long-term planning (are we still moving towards metropolisation and sprawl cities or could these trends ultimately be reversed?) is the foundation of the concept of sustainable development. Perspective is needed to plan sustainable



short - and medium - term measures, with an eye to the global framework and ultimate objectives. Decision-makers increasingly have sophisticated instruments on which to draw. Urban and transport development models<sup>4</sup> make it possible to test and assess different possible configurations (scenarios), taking account of global (energy costs, climate change) and local (demography, local economic conditions, household mobility practices and life-styles ...) trends by adjusting the parameters and variables of the model.

The spread of the concept of sustainable development made local and transport authorities more conscious of the importance of long-term vision. This awareness is reflected by Transport Authorities in the development of new generation transport plans. Decision-makers appreciate the "perspective" approach and the use of models that include land-use and transport issues. Simulation models are decisional support systems (DSS). It is essential to know their limitations, what they can and can't do. They do not pretend to represent reality neither to predict the future. However, they are useful tools for testing policies, such as fare or parking policies, and assessing the sensitivity of the urban system and commuter practices to different kinds of measures. Traffic models are already a standard tool in transport planning and play an important part in helping organising authorities to assess transport plans. New models, incorporating both urban and transport development, could further enhance the role of transport authorities as promoters of a holistic vision and territorial cohesion.

### The role of Transport Authorities as planners and promoters of sustainable mobility

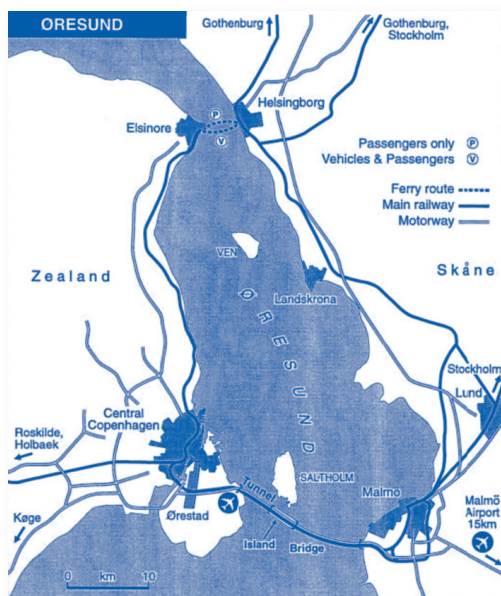
is moreover in line with the EU's policy in favour of **Sustainable Urban Mobility Plans** (<http://www.mobilityplans.eu/>).

SUMPs are one of the main planks of the Action Plan on Urban Mobility (2010) and of the White Paper on Transport (2011); the latter even proposes the possibility of mandatory urban mobility plans in Europe. The importance of SUMP, as an innovative planning practice, was further emphasised by the European Commission (EC) during the 2012 European Mobility Week and by the launch of the first EU Sustainable Urban Mobility Plan Award for local authorities ([www.dotherightmix.eu](http://www.dotherightmix.eu)) for 2013. Reflecting the positive impact of sustainable mobility planning by European Transport Authorities, the role of SUMPs is to coordinate measures to reinforce equalities,



accessibility and sustainable development in metropolitan areas. SUMP is not just a tool but a development strategy. Moreover, the current generation of transport plans must be able to include a new dimension of planning, i.e. intelligent transport and innovation and communication technologies. The question now, therefore, is about **the resilience of planning tools** and their capacity to take into account the potential benefits of ICT in terms of spatial organisation, transport system efficiency, environmental impact reduction and the modification of users' mobility behaviour. Such a study would be worth pursuing through cooperation between research institutes, local actors and transport authorities.

The **holistic vision** is the only possible way to go. New planning practices, like TOD (**Transit Oriented Development**<sup>6</sup>), are rapidly taking their place in the debate on urban and transport integration. Transit oriented development refers to the process of **concentrating urban development around existing or new transit stations** served by frequent, high quality and efficient intra-urban rail services<sup>10,11</sup>. In other words, TOD is designed to generate relatively high-density, compact and mixed urban development<sup>24</sup> at the local level without necessarily adopting a monocentric urban model. Favouring urbanisation along public transport axes and around main stations, TOD is well-suited to the polycentric urban form typical of big metropolises. TOD is interesting as an approach to urban design and transport in which compactness is more about function (transport and location logic) than form. In other words, the compact city is not the only possible sustainable urban form. Polycentric and even sprawled forms can function sustainably if TOD principles are applied. Transport Authorities should be the key promoters of such a strategy through mobility plans and in their dealings with local authorities responsible for land-use plans.



Copenhagen and Ørestad rail and motorways links

Some authors claim that transit oriented development is exclusively about mass transit systems like railways and Bus Rapid Transit (BRT), as in Curitiba (Brasil) But the real potential interest of the practice lies precisely in the opportunity for its **implementation at multiple scales**: in both main cities and metropolitan areas, along heavy axes (regional railways) as well as lighter infrastructures (bus, tram and metro). Improving regional trains as a metropolitan transport mode is a key point. The rail service markets were deregulated in 2007<sup>7</sup>. TOD encourages the adoption of an accessibility criterion (reducing distances and travel time) in the location of urban functions and in land-use planning. This is where increased cooperation between Transport Authorities and local government is so important. The essential thesis of TOD is the need to develop urbanisation within easy walking distance (e.g. 10 minutes) of a public transport stop or railway station. TOD is viewed as offering the potential to boost public transport usage, increase walking, mitigate urban sprawl, accommodate economic growth and create interesting and attractive places to live. One of the most famous and successful examples of TOD in Europe is the city of **Copenhagen** with its finger plan (1947) and the more recent Ørestad New Town development (since 1995).

Several cities throughout Europe are also improving their regional light rail services, based on the deployment of so called tram-trains. Tram-trains are rail vehicles which are capable of running both on heavy rail and on light rail infrastructure. Within the tram-train philosophy, three main concepts can be distinguished:

1. The use of tram-train vehicles on heavy rail lines. The driving characteristics of tram-trains enables the introduction of additional stops on such railway lines. In some cases, this is a first step towards full integration with light rail (see below). Examples of this concept can be found on railway lines in and around Nantes and Lyon.
2. The use of tram-train vehicles on former heavy rail lines. By downgrading abandoned or non-used stretches of infrastructure, formerly in use for conventional rail, a tram-like service can be offered without losing the advantages of the heavy rail infrastructure (i.e. high speed because of the alignment). In some cases, these routes have been linked to an existing light rail network. Examples of this system are The Hague Randstadrail, Aulnay – Bondy (Paris T4) and the Rhônexpress between Lyon and the airport.
3. Integration of light rail and heavy rail, a concept best known as the “Karlsruher Model”. The insertion of specially equipped vehicles enables through running of tram-trains on both main-line railway lines and conventional tram infrastructure (street track). This results in mixed running on heavy railway lines of tram-trains and conventional trains (although in some cases these rail way lines are only used by occasional freight trains). In cities and villages that are also served by a conventional tramway, this results in mixed running on the tramway network of both tram-trains and conventional tram

<sup>6</sup> The expression was used for the first time by Peter Calthorpe in 1980. Robert Cervero is one the most important contemporary references.

<sup>7</sup> EMTA Brief on “Suburban rail services”, November 2010.

<sup>10, 11</sup> References on page 10.

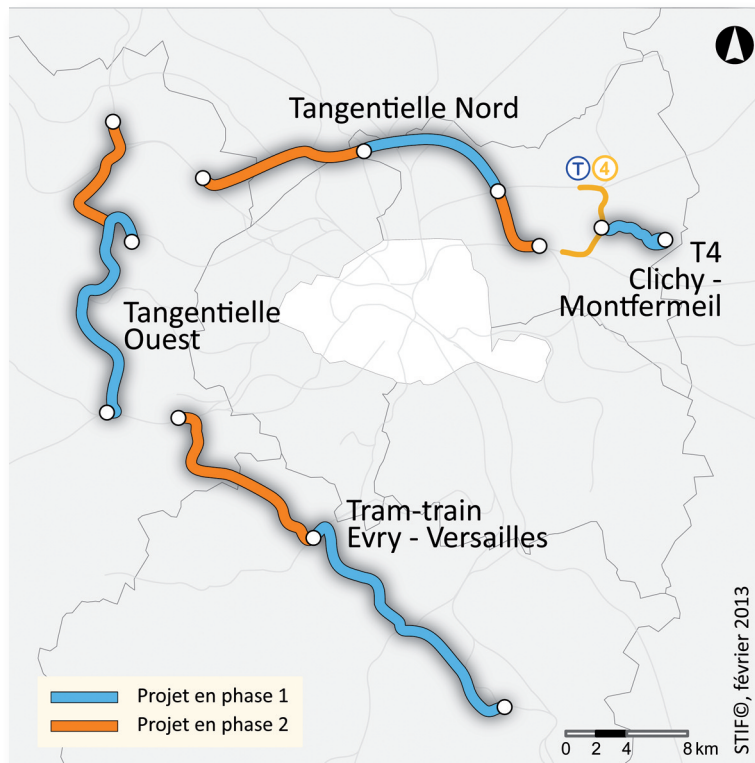




vehicles. Examples of this system are in operation in Karlsruhe, Kassel, Saarbrücken and also in Mulhouse.

In many occasions these tram-train projects epitomize the local ambition to expand the scope of urban network characteristics, serving the purpose of creating an economic environment that fosters added values. This is mainly reflected in the revival of the spatial quality and the

economic viability of stations and surrounding transit zones. It demonstrates how tram-train can give local impetus to the further layout of the metropolitan public transport networks and the unveiling of a sometimes hidden economic potential of areas. In this perspective many tram-train projects can be seen as a demonstration of the phenomenon of transit-oriented development.



Trams-trains in Paris / Ile de France area.



## CONCLUSION

Metropolitan Transport Authorities are among the most active driving force of sustainability in the field of transport. It is no longer possible to approach sustainable mobility from a sectorial perspective. As previous paragraphs of this overview have shown, metropolisation impacts a multitude of dimensions.

Integration between land-use strategies and transport planning is no longer just an optional extra.

Innovative technologies and research findings can be used as instruments in the quest for sustainability, but the role of Transport Authorities as coordinators of the decision-making process and developers of transport and mobility strategies still remains key to integrated and effective governance of metropolitan transport. Intelligent transport systems, flexible fare policy, new integrated land-use and transport planning practices based on balancing financial and socio-economical aspects as well as innovation of multimodal transport systems, are key for metropolitan areas to keep up with growing demand of their community demand on transport. The need to extend capacity of mass transit networks and to improve public transport provision calls for offering of a wide array of multidiscipline solutions for metropolises that face challenges posed by metropolisation.

Intelligent transport and better public transport provision can provide resolutions to the emergence of a wider range of travel patterns, passenger profiles and metropolitan life-styles. The idea of personalised transport provision no longer seems either totally absurd or unsustainable. Metropolitan Transport Authorities need to tackle this challenge and create the conditions for the building of public transport systems flexible enough to compete with the flexibility of the private car.

Finally, in its vision, EMTA recognises the critical role of Metropolitan Transport Authorities in promoting and facilitating the development and acceptance of innovation as an opportunity for transport to move more rapidly and efficiently towards sustainability. The gauntlet has been laid down and European Metropolitan Transport Authorities are prone to take it up.

## REFERENCES\*

1. Aguilera A, Mignot D, Bloy D, 2004, «Permanences des formes de la métropolisation et de l'étalement urbain», Rapport final du contrat de recherche avec l'ADEME, Mars.
2. Aguilera A, Madre J-P, Mignot D, 2004, «Métropolisation, formes urbaines et mobilité, présentation du dossier», Les Cahiers Scientifiques du Transport N° 45, pp. 5-14.
3. Albalade D, Bel G and Calzada J, 2010, «Urban transport governance reform in Barcelona» Research Institute of Applied Economics of Barcelona University - Working Paper, 32 p.
4. Antoni JP (edited by), 2011, «Modéliser la ville. Formes urbaines et politiques de transport», Collection «Méthodes et approche», Economica.
5. Ascher, F., 1995, «Métapolis ou l'avenir des villes», Odile Jacob, Paris.
6. Beimborn, Edward A, 1995 «A Transportation Modeling Primer» Center for Urban Transportation Studies, University of Wisconsin-Milwaukee.
7. Buisson M-A, Mignot D, 1995, «Evolution des villes et politiques de transports» en Les Cahiers Scientifiques du Transport N° 30, pp. 19-30.
8. Camagni R, Gibelli MC, Rigamonti P, 2002, «Urban mobility and urban form: the social and environmental costs of different patterns of urban expansion» Ecological Economics Vol. 40, Issue 2, February, pp. 199-216.
9. Cervero R, 1996, «Mixed land-uses and commuting: evidence from the american housing survey», Transportation Research A, Vol. 30, n° 5, pp. 361-377.
10. Cervero R, 1998, «The Transit Metropolis: A Global Inquiry», Island Press, Washington, DC, USA.
11. Curtis C, Renne JL, Bertolini L, 2009 «Transit Oriented Development: Making it Happen» Ashgate Publishing, Farnham, UK and Burlington, Vermont, USA.
12. Decoupigny, F, 2006, «Métropolisation des espaces naturels: application à la région Provence Alpes Côte d'Azur», in J.-L. Klein et C. Tardif, Entre réseaux et systèmes: les nouveaux espaces régionaux, CRDTGRIDEQ-CRISES, pp. 155-175.
13. EMTA, 2012, «EMTA Barometer of public transport in European metropolitan areas (2009)» available on [www.emta.com](http://www.emta.com) (publications section, barometers).
14. EMTA website and other publications (News, Brief, Directory), [www.emta.com](http://www.emta.com).
15. ESPON, 2012, «POLYCE – Metropolisation and polycentric development in Central Europe» Targeted Analysis 2013/2/12, Final Report.
16. Fouchier V, 1999, «Maîtriser l'étalement urbain : une première évaluation des politiques menées dans quatre pays (Angleterre, Norvège, Pays-Bas, Hong-Kong)», 2001 Plus, n° 49.
17. Graham, S, Marvin S, 2001, «Splintering Urbanism», Routledge, Padstow.
18. Handy S, 1996, «Methodologies for exploring the link between urban form and travel behaviour» Transportation Research D, Vol. 1, n° 2, pp. 151-165.
19. Hubert JP, 2004, «Mobilité urbaine, périurbaine, rurale en Belgique : où sont les différences?» Les Cahiers Scientifiques du Transport N° 45, pp. 83-100.
20. Krätke S, 2007, «Metropolisation of the European economic territory as a consequence of increasing specialisation of urban agglomerations» in the Knowledge Economy European Planning Studies, pp.1-27.
21. Knowles R, 2012, «Transit Oriented Development in Copenhagen, Denmark: from the Finger Plan to Ørestad», Journal of Transport Geography N. 22, Elsevier, pp. 251-261.
22. Lévy, J, 1999, «Le tournant géographique», Belin, Paris.
23. L'Hostis, A, Decoupigny, C, Menerault, P et Morice, N, 2001, «Cadencement et intermodalité de l'offre en transport collectif en Nord-Pas de Calais. Analyse et propositions d'amélioration», INRETS (Rapport), Villeneuve-d'Ascq.
24. Loo, BPY, Chen C, Chan ETH, 2010. «Rail-based transit-oriented development: lessons from New York City and Hong Kong», Landscape and Urban Planning N. 97, pp. 202-212.

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## **EMTA**

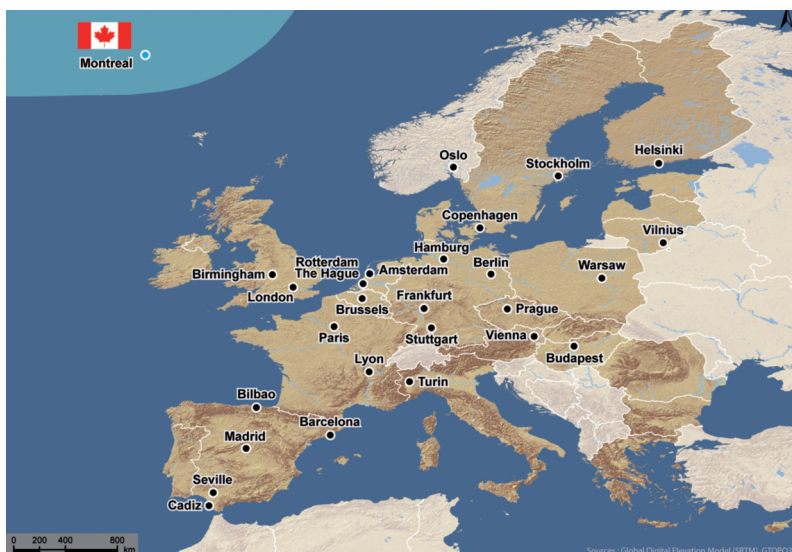
The Association of European Metropolitan Transport Authorities (EMTA) was created in 1998 so as to form a favourable environment for exchange of information and best practices among Transport Authorities responsible for planning, integrating and financing PT in European metropolitan areas. Today EMTA brings together 27 such authorities, responsible for improving the mobility conditions of some 70 million European city dwellers.

### **LAST OR COMING SOON EMTA'S EVENTS & PUBLICATIONS**

- > EMTA Directory 2012 (will be published later 2013)
- > EMTA autumn meeting (10-12 october 2013 - Vienna / Austria)
- > NFC working group (26 september 2013 - Amsterdam / The Netherlands)
- > EMTA Newsletter 48 (august 2013)
- > EMTA position on the Fourth Railway Package (june 2013)
- > EMTA comment on "Guidelines for ITS deployment in Urban Areas" (may 2013)
- > EMTA joint declaration made with CER, UITP and EPTO on the EC proposal of Exemption of notification for State Aid (january 2013)
- > EMTA Barometer 2011 (published december 2012)
- > EMTA remarks on proposal for a Directive on Public Procurement (COM (2011) 896 Final - july 2012)



# EMTA members as of 1<sup>st</sup> June 2013



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STADSREGIO	AMSTERDAM	<a href="http://www.stadsregioamsterdam.nl">www.stadsregioamsterdam.nl</a>
ATM	BARCELONA <i>MoB*</i>	<a href="http://www.atm.cat">www.atm.cat</a>
VBB	BERLIN-BRANDENBURG <i>President</i>	<a href="http://www.VBB.de">www.VBB.de</a>
CTB	BILBAO	<a href="http://www.cotrabi.com">www.cotrabi.com</a>
CENTRO	BIRMINGHAM	<a href="http://www.centro.org.uk">www.centro.org.uk</a>
MRBC	BRUSSELS-CAPITALE REGION	<a href="http://www.bruxelles.irisnet.be">www.bruxelles.irisnet.be</a>
BKK	BUDAPEST <i>MoB*</i>	<a href="http://www.bkk.hu">www.bkk.hu</a>
CMTBC	CADIZ BAY	<a href="http://www.cmtbc.es">www.cmtbc.es</a>
MOVIA	COPENHAGUE	<a href="http://www.movia.dk">www.movia.dk</a>
RMV	FRANKFURT	<a href="http://www.rmv.de">www.rmv.de</a>
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HSL	HELSINKI <i>MoB*</i>	<a href="http://www.hsl.fi">www.hsl.fi</a>
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ROPID	PRAGUE	<a href="http://www.ropid.cz">www.ropid.cz</a>
STADSREGIO	ROTTERDAM/THE HAGUE	<a href="http://www.stadsregio.nl">www.stadsregio.nl</a>
CTAS	SEVILLA	<a href="http://www.consortiotransportes-sevilla.com">www.consortiotransportes-sevilla.com</a>
SL	STOCKHOLM	<a href="http://www.sl.se">www.sl.se</a>
VRS	STUTTART	<a href="http://www.region-stuttgart.org">www.region-stuttgart.org</a>
AMMT	TORINO <i>MoB*</i>	<a href="http://www.mtm.torino.it">www.mtm.torino.it</a>
VOR	VIENNA	<a href="http://www.vor.at">www.vor.at</a>
MESP	VILNIUS	<a href="http://www.vilniustransport.lt">www.vilniustransport.lt</a>
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*MoB\**: Member of the Board



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