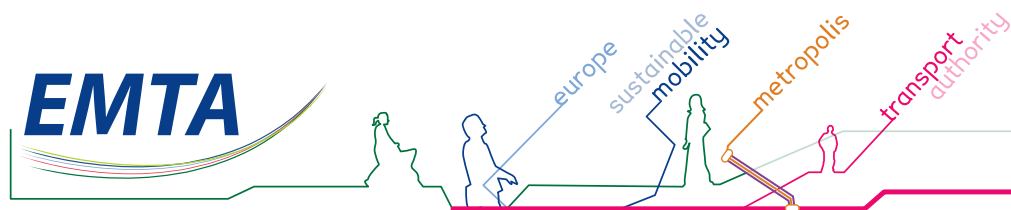




# EMTA



## barometer 2017 DATA · 13 th edition

### Foreword

by Ruud van der Ploeg, EMTA Secretary general

In the preparation of a benchmark tool, especially one that can build on a life time of 15 years like the Barometer no one is particularly keen to absorb countless nuances in definitions or parameters. Those seemed to have been working accurately for years so why bother changing them.

Although in fact quite restricted, the attitude towards the review of some descriptions and parameters launched by the Barometer 2017 proved no exception. Colleagues and experts from EMTA members in charge of data have taken on the challenge to address the re-examined parts of their particular way of data collection to make them compliant with changes presented in the meeting in Amsterdam last November. From then until May 2019 our colleague Mr. Aldecoa from CRTM Madrid, supervising the Barometer data collection with great devotion, has lived through an amazing process of indulgence, double-checking figures produced by the members to make sure data delivered matches revised definitions and descriptions. I would like to use the opportunity to thank him for his relentless efforts on the Barometer: Muchas Gracias Javier!

In the end it is the key question if EMTA manages to assure an outcome that is truthful and verifiable. Societal change and the impact of ICT and IoT create new challenges on what is needed to know about sustainability, renewable energy use digitalization of user data and impacts on fundamental changes in the responsibilities of transport authorities towards private service providers. The uptake of shared mobility services induces a different type of need of user data. Validation of data requires alertness: we need to consistently review the definitions and collection methods and sources from which data originate.

Methods used to collect data continue to vary, it is clear that EMTA needs to reinvent the Barometer product and the process of achieving it. In the second half of 2019 an attempt will be made to revamp the EMTA Barometer working group. Member experts but also colleagues from the academic sphere shall be invited to rally and examine what performance data is actually useful and important to collect.

*“Change is the law of life. And those who look only to the past or present are certain to miss the future”*

*John F. Kennedy*

After that, obviously, the feasibility of those wants and needs and the methods and tools that could be employed to achieve these objectives will be examined. But first, it is about finding out what data our members, our colleagues in research and you, our readers, consider most useful and necessary to grasp figures that should paint a clear and truthful picture of transport system performance in our European metropolitan areas.

My utter gratitude to everyone that has helped to put this Barometer with 2017 data together. Let's learn from this one and make this release even better in the years to come!

## 1. Description of the PTA<sup>(1)</sup> area surveyed

Authority responsible	Main city population	PTA area population	PTA surface (km <sup>2</sup> )	PTA urbanised surface (km <sup>2</sup> )	PTA urban density (inhabitants / km <sup>2</sup> )	Annual PTA GDP per capita (€)	
VRA	<b>Amsterdam</b>	854.047	1.528.535	1.005	806	1.896	35.500 €
ATM	<b>Barcelona</b>	1.620.809	5.671.643	8.810	3.242	1.749	29.678 €
VBB	<b>Berlin</b>	3.613.495	6.117.535	30.545	3.441	1.778	33.632 €
CTB	<b>Bilbao</b>	1.140.662	1.140.662	2.215	235	4.854	30.378 €
TfWM	<b>Birmingham</b>	1.137.123	2.897.303	902	680	4.260	29.900 €
BKK	<b>Budapest</b>	1.749.734	1.749.734	525	358	4.888	23.404 €
MOVIA	<b>Copenhagen</b>	717.698	2.617.968	9.195	1.713	1.528	56.412 €
RMV	<b>Frankfurt</b>	742.175	5.179.242	13.585	2.440	2.122	44.804 €
HSL-HRT	<b>Helsinki</b>	643.272	1.250.001	1.507	411	3.041	58.840 €
TfL	<b>London</b>	8.826.935	8.826.935	1.572	1.042	8.471	52.059 €
SYTRAL	<b>Lyon</b>	655.158	1.354.476	746	360	3.762	57.384 €
CRTM	<b>Madrid</b>	3.182.981	6.507.184	8.028	921	7.068	33.809 €
CTM-TIB	<b>Mallorca</b>	406.492	868.693	3.636	214	4.059	35.036 €
TfGM	<b>Manchester</b>	543.410	2.789.822	1.272	959	2.909	26.921 €
ARTM	<b>Montreal</b>	2.033.189	4.138.254	4.402	1.607	2.575	28.909 €
RUTER	<b>Oslo</b>	673.469	1.287.495	5.005	325	3.962	68.287 €
IDFM	<b>Paris</b>	2.168.500	12.246.200	12.000	2.728	4.489	55.227 €
ROPID	<b>Prague</b>	1.294.000	2.306.000	5.921	755	3.054	23.724 €
MRDH	<b>Rott/Hague</b>	638.181	2.347.331	1.258	440	5.335	43.880 €
SL	<b>Stockholm</b>	949.761	2.308.143	6.524	903	2.556	71.860 €
VRS	<b>Stuttgart</b>	632.743	2.522.246	3.011	731	3.450	53.106 €
AMP	<b>Turin</b>	882.523	4.375.865	25.387	1.771	2.471	21.300 €
ATMV	<b>Valencia</b>	787.808	1.798.608	1.551	306	5.878	21.714 €
VOR	<b>Vienna</b>	1.888.776	3.852.119	23.559	14.421	267	41.700 €
MESP	<b>Vilnius</b>	545.280	545.280	401			17.177 €
ZTM	<b>Warsaw</b>	1.764.615	2.606.523	2.676	603	4.323	25.264 €

## 2. Evolution of population in PTA's areas 2013-2017



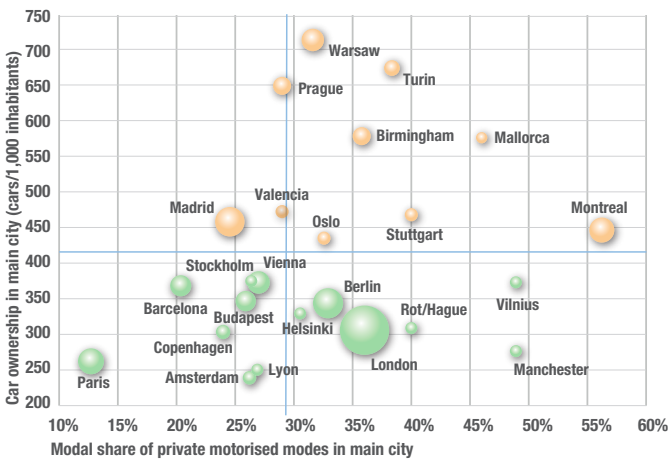
The average authority population of cities is around 1.51 million inhabitants and 3.4 million for the PTA area. Regarding the average area for the main cities is 346 km<sup>2</sup> and 6,740 km<sup>2</sup> for the PTA area, with an urbanized PTA area of 1,653 km<sup>2</sup> that represents a 24% of the total PTA surface. In the case of the main cities, this percentage has risen up to 66% of the total surface. Finally, the average authority GDP in PTA area has increased from 37,715 € in 2016 to 39,227 € in 2017 in the PTA area (+4 %). ATM (Barcelona) has expanded the scope of the metropolitan area considerably (172%) explaining the growth of included population within the PTA area with 13,6%.

### 3. Car ownership rate

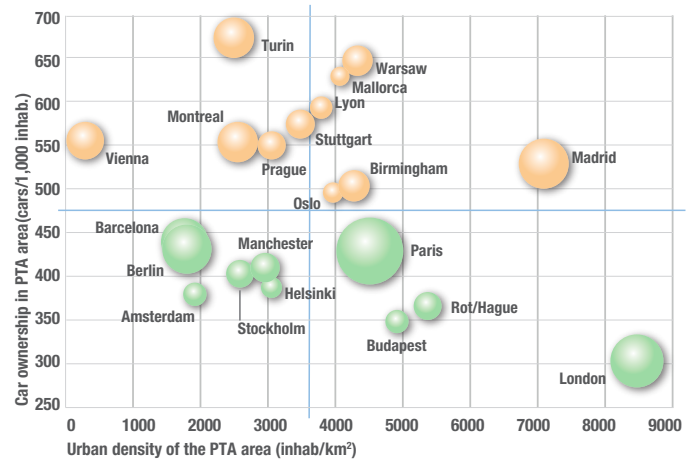
The right image represents the relation between car ownership in main city and modal share of private motorised modes also in the main city. In this graph the size of the balls represents the inhabitants in the main city and the colour represents those cities that are below or over the average. Comparing with previous years, an important tendency can be clearly identified: the rate of ownership of the private car continues to decline slowly in main cities, 414 cars ownership per 1,000 inhabitants.

In the left image is represented the relation between car ownership in the PTA area, expressed as cars per 1,000 inhabitants and urbanized PTA area density. The size of the balls represents the population in the PTA area. The average density of both cities (8,250 inhabitants/km<sup>2</sup>) and their PTA areas (3,760 inhabitants/km<sup>2</sup>) continues to grow. Three PTA areas (Madrid, Mallorca and London) harbour more than 7,000 inhabitants/km<sup>2</sup> (urbanized PTA area/population), having double the density of an average PTA. For most cities the car ownership rate moves within a margin of between 350 and 550 cars / 1,000 inhabitants, least Mallorca, Turin and Warsaw that exceed 600.

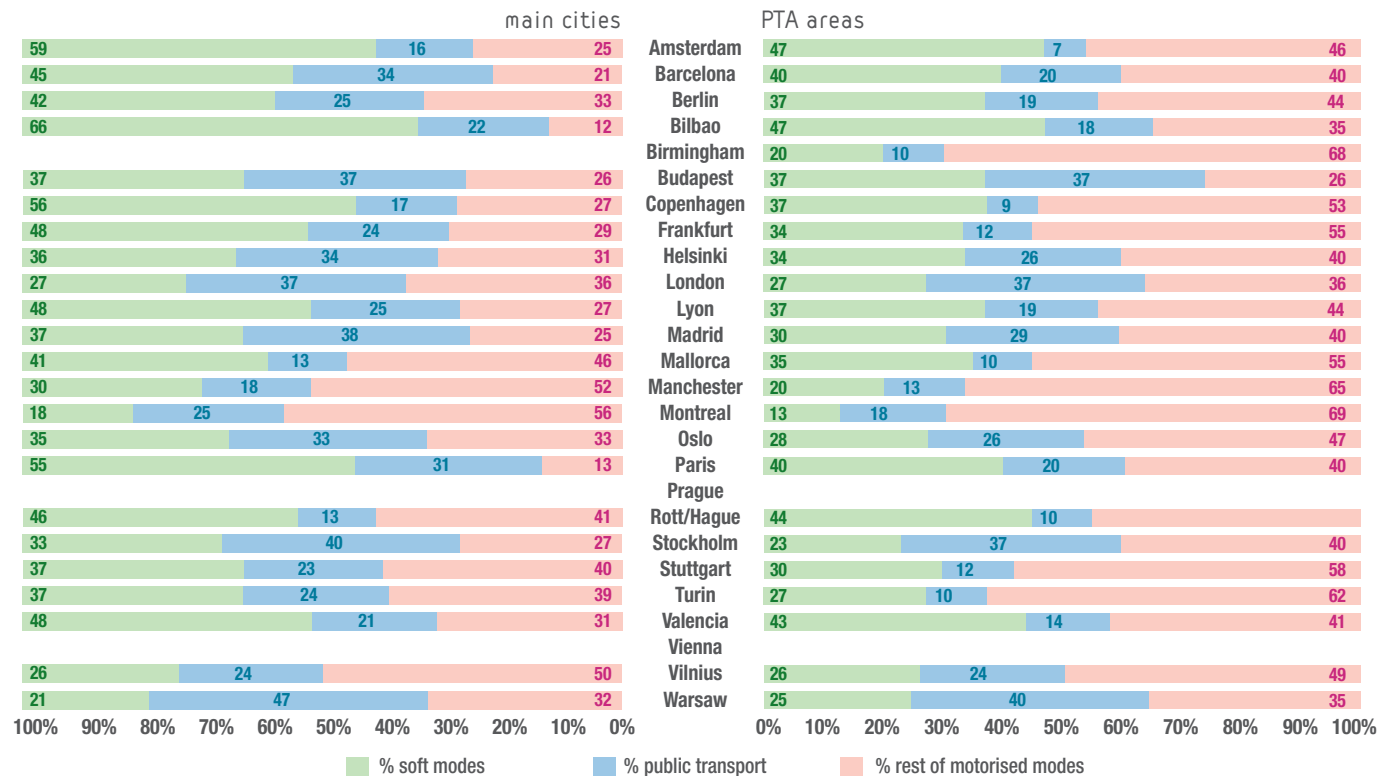
Car ownership versus modal share in private motorised in main city



Car ownership versus urban density in PTA area



### 4. Modal share in main cities & PTA areas

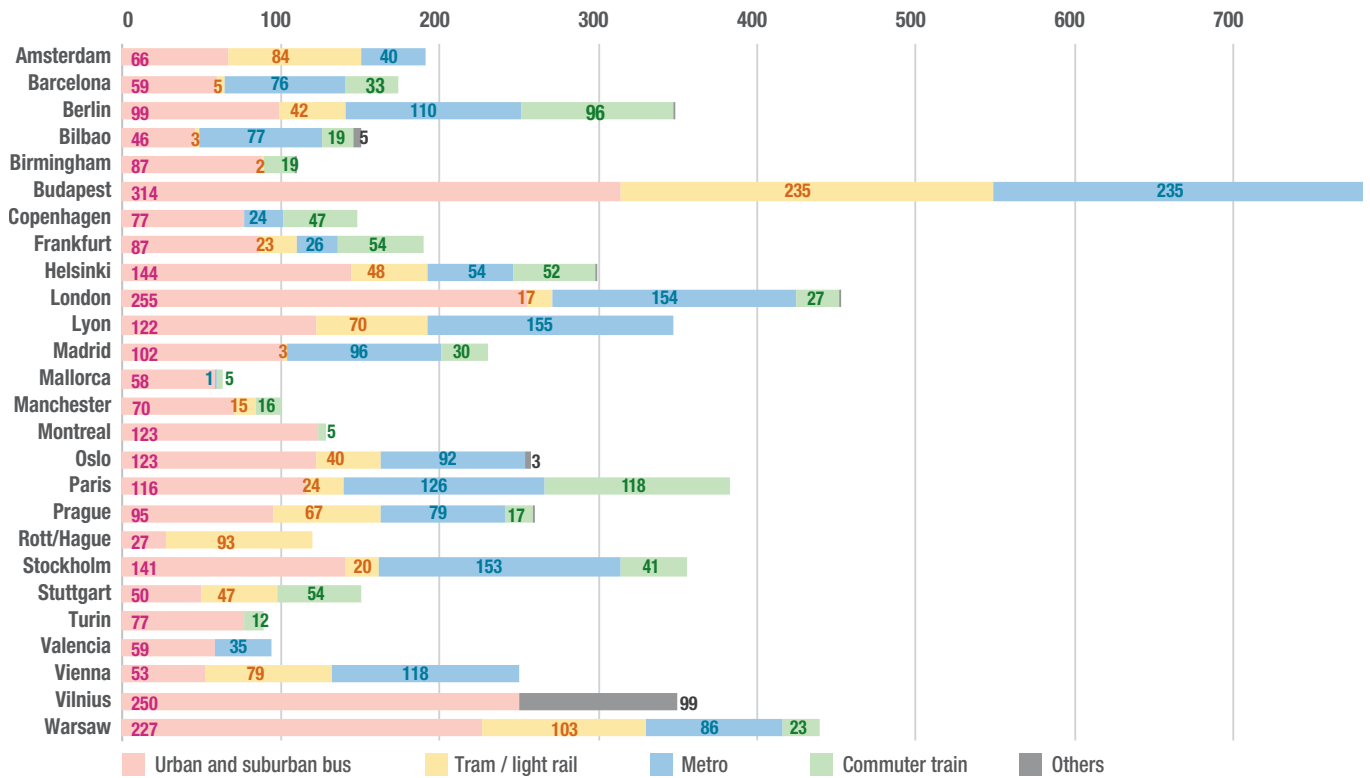




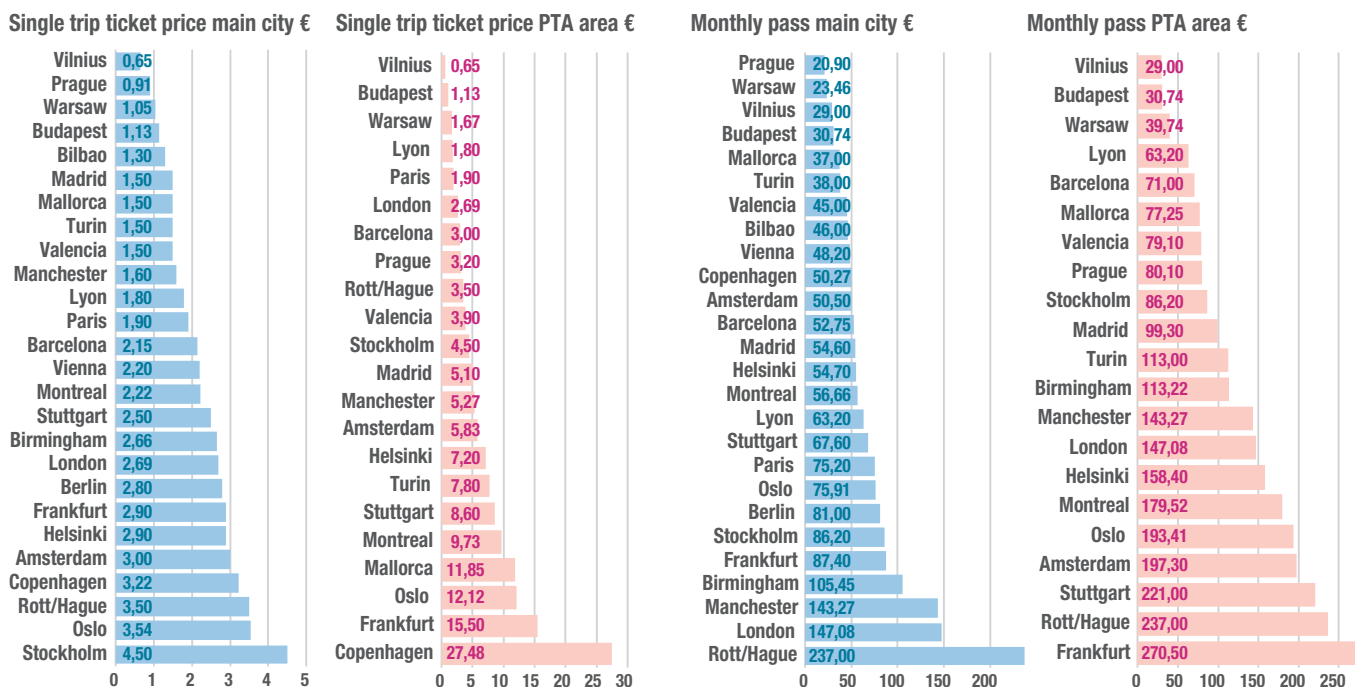
## 5. Public transport demand per inhabitant in PTA areas

Regarding the public transport demand, 2017 had an increase in the use of PT in comparison with the last years with 346 boardings per inhabitant: in 2013 the average authority was 320; 330 in 2014; 304 in 2015 and 246 boardings per inhabitant in 2016 were made. The bus being the most used transport mode (113 boardings per inhabitant, 107 in 2016) followed by the metro (91 boardings per inhabitant, 92 in 2016). In the case of Budapest, the high numbers are due to the fact that BKK is accountable for only PT services within the city borders of Budapest whilst boardings in this figure include both local journeys from citizens on top of commuter trips from outside services into the city. Hence, the city population produces a lower denominator.

Public transport demand (boardings per inhabitant in PT per mode)



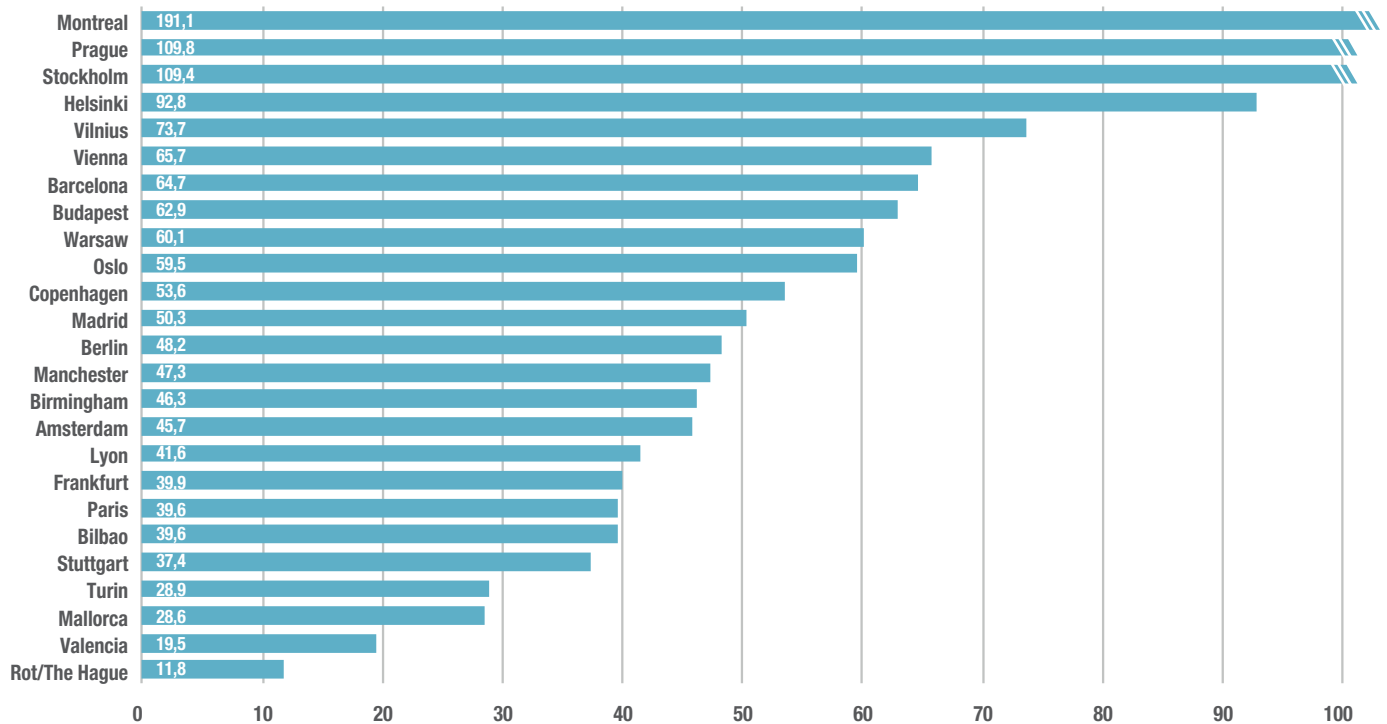
## 6. Ticket price for the main city and PTA area



## 7. Vehicles-km per inhabitant and PTA area

The average number of bus-km per one million inhabitants is 43.8, nine times more than the number of tram-km per inhabitant, 5.3. Only Helsinki, Montreal, Prague, Stockholm and Vilnius are above 50 bus-km per inhabitant.

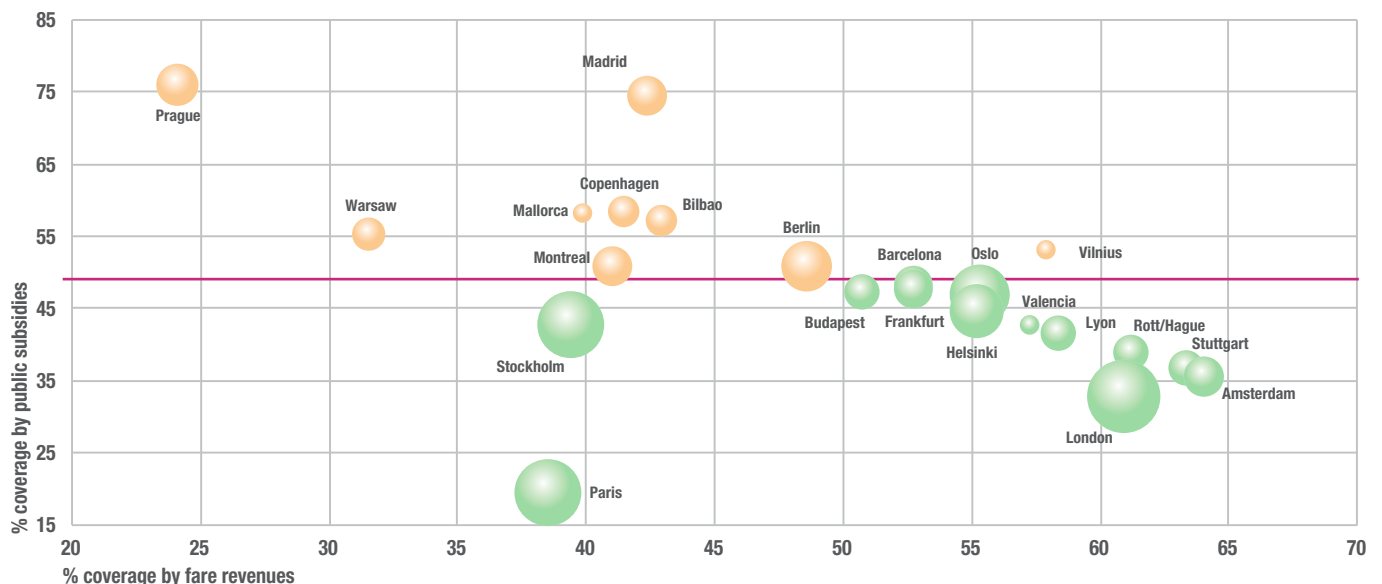
### Vehicle km / inhabitants PTA/1000000



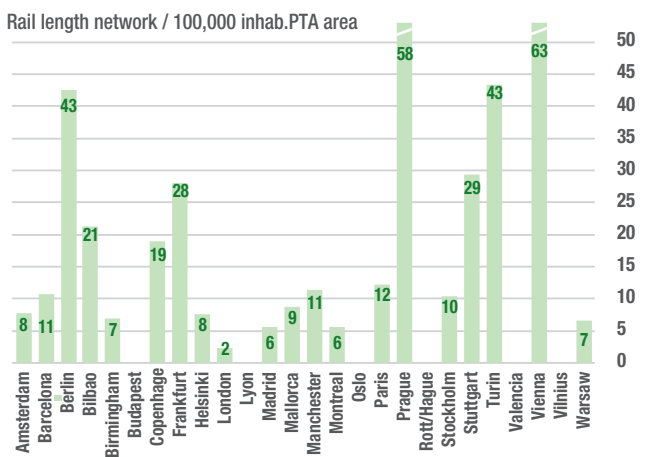
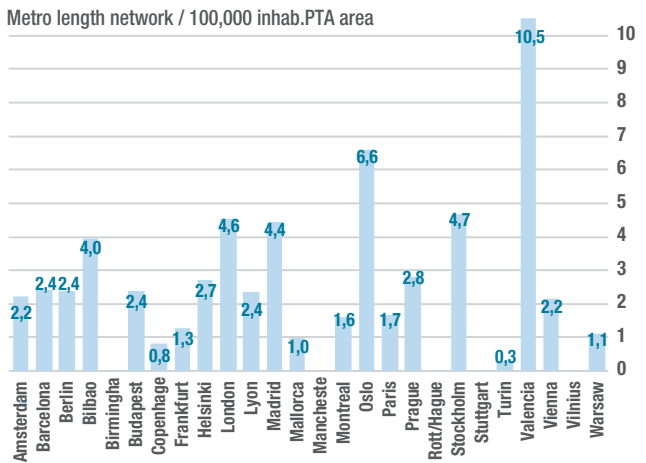
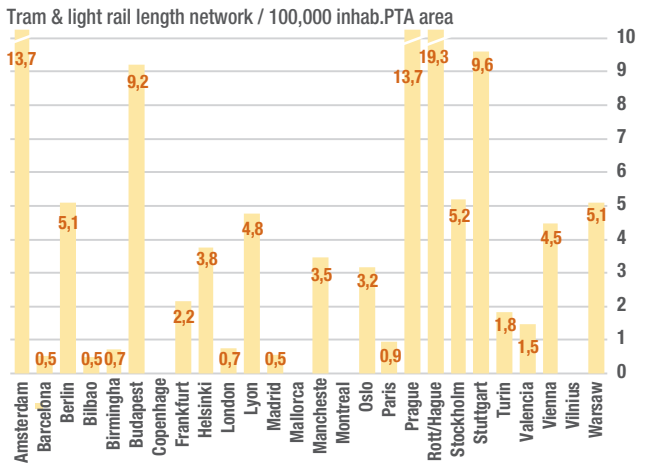
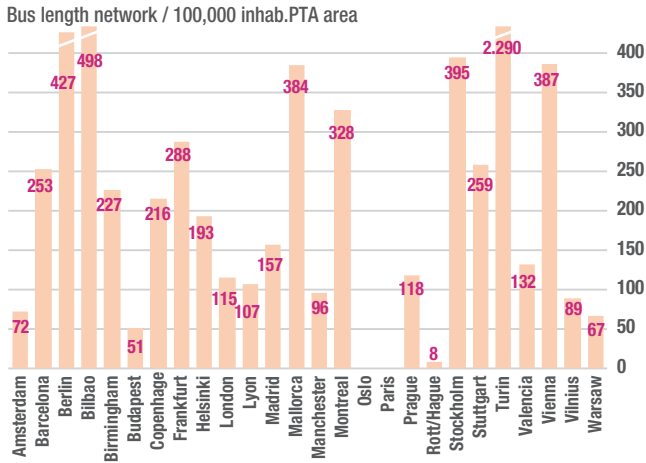
## 8. Coverage of operational costs

The size of each ball in the diagram below represents the relative volume of the annual cost of operations of public transport divided by the population of the PTA area (costs/total inhabitants). The ratio of the annual operational average authority costs per inhabitant for the PTA areas amounts to around 387 €. The PTAs of Paris Île-de-France, Greater London and Stockholm have the highest ratio (more than twice the average authority) and Mallorca the lowest (27 € per inhabitant per year). Most of the cities have a cost-coverage ratio for fare revenues within a margin of 40 - 60% and a public subsidies coverage ratio of 45% as average authority. Mallorca and Paris Ile de France has the lowest coverage by public subsidies (19%) but Paris has a special coverage of operational costs that partly comes from the "versement transport" (a hypothecated local tax levied on the total gross salaries of all employees of companies larger than 11 employees). Prague and Madrid have the highest coverage by public subsidies with a 75%, to be partly explained by the fact that in the case of Prague also has the lowest fares of all PTA's.

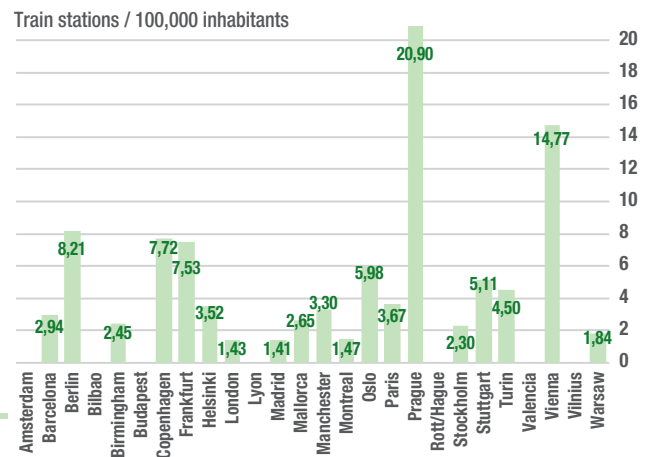
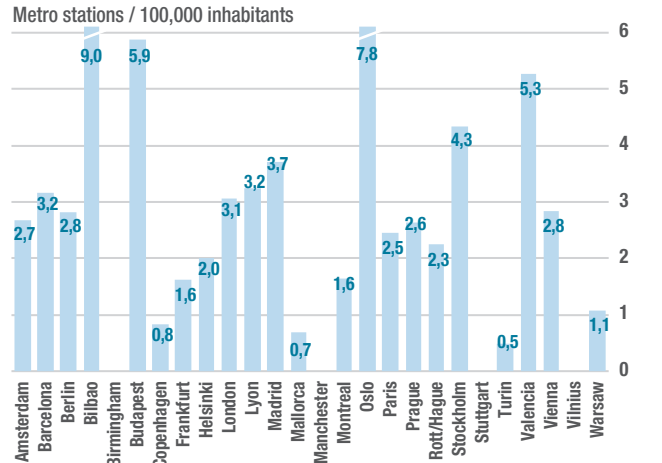
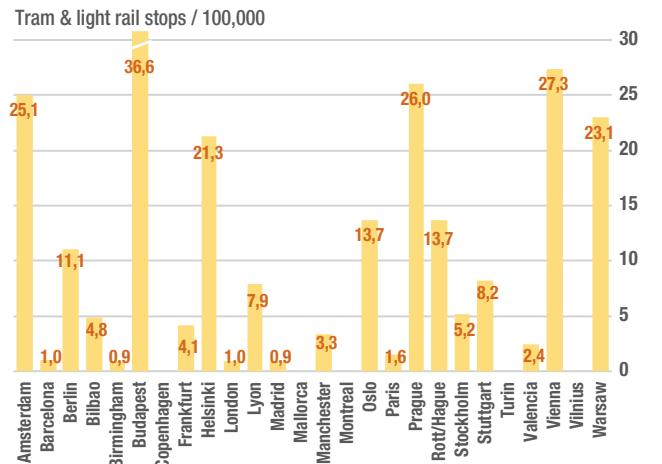
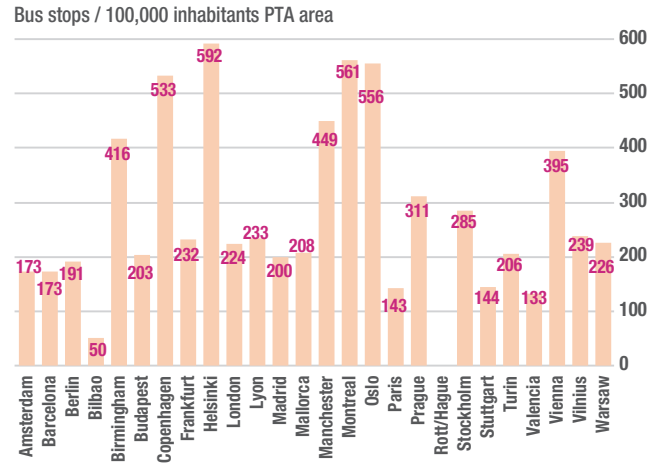
### Coverage by public subsidies vs coverage by fare revenues per PTA area inhabitants



### 9. Ratio of length network per 100,000 inhabitants in PTA area

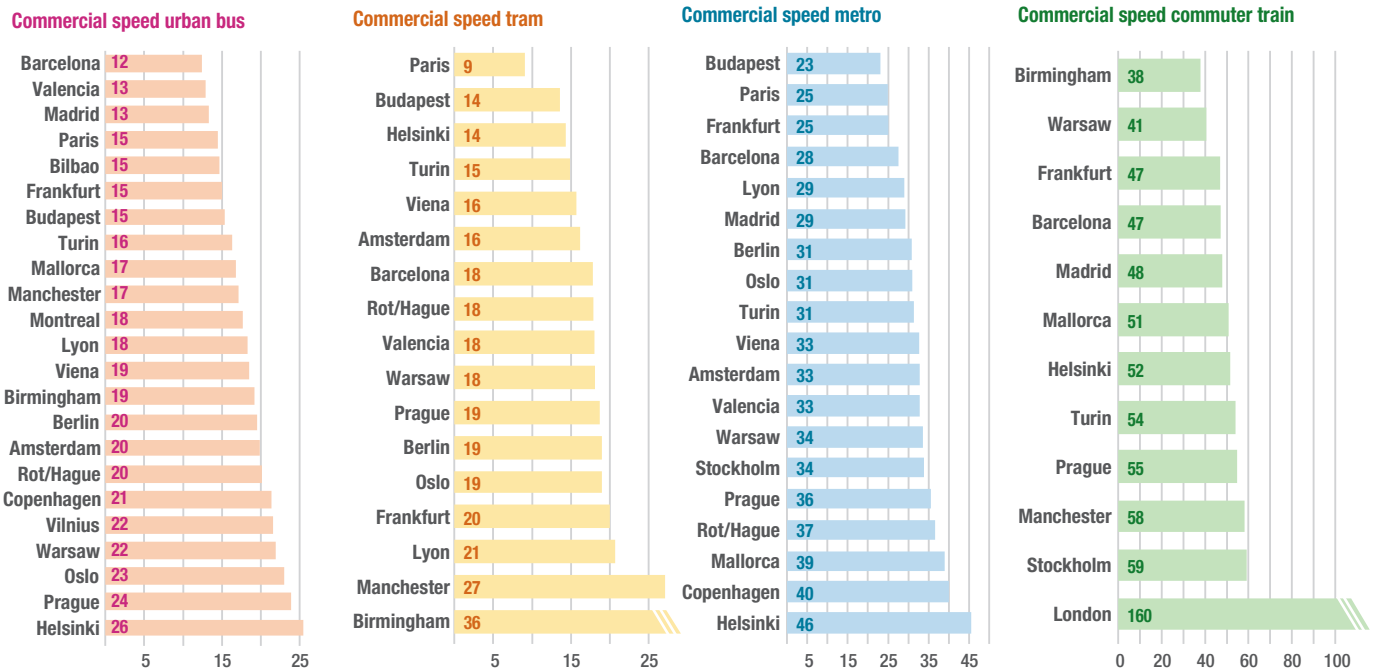


### 10. Ratio of stops or stations per 100,000 inhabitants in PTA area



## 11. Commercial speed

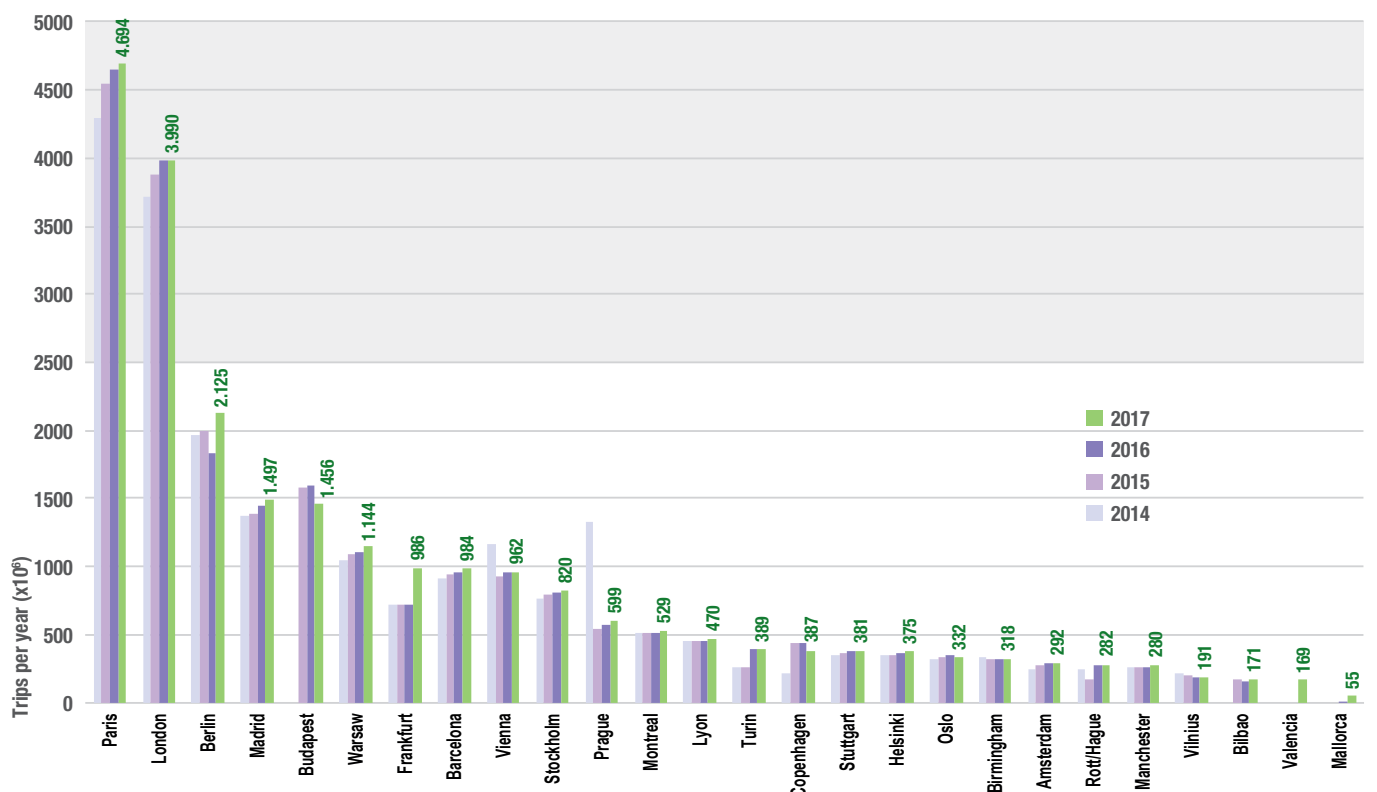
The commercial speed for the public transport is one of the main issues that the planners have to deal with it in the urban areas. The average overall speed for the urban bus and the tram is about 18 km/h and for the suburban buses the average has risen to 28 km/h. The same happened with the metro and the commuter train. The metro runs at 32 km/h in average authority and the commuter train has risen to 59 km/h. With growth of traffic and congestion in cities, many of the authorities by investments in bus lanes, bus ways and priority at traffic lights manage to retain or even improve the average speed of bus and trams.



## 12. Public transport demand trends

Public transport demand trends have evolved differently over the last years. Overall, in 2017 it shows an increase in public transport demand for all PTA areas. In the graphic below we can distinguish three important groups: more than 2,000 millions trips per year for Berlin, Paris and London; more than 1,000 millions trips per year for Madrid, Budapest and Warsaw; and below 1,000 millions for the rest of the PTAs.

Trends PT trips (boardings per year x10<sup>6</sup>)



## Public transport authorities' partners



Vervoerregio  
Amsterdam (VRA)



Autoritat del Transport  
Metropolità (ATM) Barcelona



Verkehrsverbund Berlin-  
Brandenburg (VBB)



Consorcio de Transportes de  
Bizkaia (CTB) Bilbao



Transport for  
West Midlands



Budapesti Közlekedési  
Központ (BKK) Budapest



Trafikselkabet Movia  
Copenhagen



Rhein-Main Verkehrsverbund  
Frankfurt



Helsingin Seudun Liikenne  
Helsinki



Transport for London



Syndicat Mixte des  
Transports pour le Rhône et  
l'Agglomération Lyonnaise



Consorcio Regional de  
Transportes de Madrid (CRTM)



Consorci Transports  
Mallorca



Transport for Greater  
Manchester (TFGM)



Autorité régionale de transport  
métropolitain de Montréal  
(ARTM)



RUTER Oslo



Ile-de-France Mobilités Paris &  
Ile-de-France



Regional Organizer of Prague  
Integrated Transport (ROPID)



Metropoolregio Rotterdam Den  
Haag (MRDH)



Stockholms Lokaltrafik AB  
Stockholm (SL)



Verband Region Stuttgart  
(VRS)



Agenzia della mobilità  
piemontese (AMP) Torino



Autoritat de Transport  
Metropolità de València  
(ATMV)



Verkehrsverbund Ost-Region  
Wien (VOR)



Susisiekimo Paslaugos (MESP)  
Vilnius



Zarząd Transportu Miejskiego  
Warszawie (ZTM) Warsaw