Campaign for Better Transport

CAR DEPENDENCY SCORECARD 2011

The top **European cities** for sustainable transport

Contents

"Governments must actively support public transport as a viable alternative to the car."

For many people car use has no longer become a choice, they are simply unable to travel to work, visit friends and family or enjoy social activities without one. Car dependency damages communities, affects our quality of life and has massive environmental consequences.

Our European Car Dependency Scorecard shows that people's ability to get around without a car in Europe's major cities varies dramatically. Whilst some cities actively discourage car use in their city centres and provide good and affordable public transport networks, others offer little incentive for people to opt for a car-free lifestyle. Stockholm took top spot as the least car dependent city in our study thanks to low levels of car ownership, good public transport and high percentage of people walking and cycling.

In the UK public transport is at a cross roads. Buses face an uncertain future with funding cuts already causing fares to increase, routes to disappear and networks to shrink. Rail passengers are facing unprecedented fare rises, far higher than inflation, with the result that some people are quite literally being priced off the railways.

What our study shows is that you can create cities which put people ahead of cars, but in order to do so Governments must recognise the negative consequences of car dependency and actively support public transport as a viable alternative to the car.

With a European commitment to reduce carbon emissions 20 per cent by 2020, each of the cities examined in this report has a part to play. Some are making a genuine effort to provide people with real alternatives to the car, whilst others have a long way to go.

Chief Executive

Introduction

Car dependency isn't inevitable, but getting people out of their cars and on to public transport, cycling or walking is a challenge. If public transport is sparse, poorly planned, expensive and unreliable, and pedestrians and cyclists face high congestion and unsafe conditions, it can be very difficult. How different European cities combat this challenge varies widely, which is why we've compared cities across Europe to find out how car dependent they really are.

This report sets out to illustrate a European comparison on car dependency among 13 cities. The study is based upon 16 indicators which reflect a city's dependency on the car as a main form of transport. The indicators are categorised in the following five sections;

A.   Car use
B.   Public transport service
C.   Public transport costs
D.   Side effects of car use
E.   Cycling/walking

Each indicator is individually ranked then combined to give an overall city ranking.

Four UK capital cities – London, Edinburgh, Cardiff and Belfast – are included in the study to see how well they perform compared to the European capitals. Wider public transport and environmentally friendly options are known to be available in some European capitals. However, even with good public transport provided, it does not guarantee that people will make the switch from their cars to alternative modes of transport. Price, availability, accessibility and reliability are key factors that are required for people to consider using public transport as a better alternative to the car.

Key findings:

• Stockholm ranked the best city for green transport, whilst Rome was the most car dependent city in Europe.

• UK capitals did not score well for car dependency. London, Edinburgh, Cardiff and Belfast were in the bottom third of the table.

• Belfast was most car dependent UK capital. It had the lowest public transport uptake.

• London was the worst city for three indicators reflecting expensive fares, poor air quality and high levels of congestion.

European cities by rank: least to most car dependent

1 STOCKHOLM

2 HELSINKI

12 BELFAST

11 EDINBURGH

8 LONDON

5 BERLIN

3 PRAGUE

10 DUBLIN

9 CARDIFF

6 AMSTERDAM

4 PARIS

13 ROME

7 MADRID

1 Stockholm
2 Helsinki
3 Prague
4 Paris
5 Berlin
6 Amsterdam
7 Madrid
8 London
9 Cardiff
10 Dublin
11 Edinburgh
12 Belfast
13 Rome

City selection

The report focused on capital cities as a good representative for the attitude of the different countries towards car dependency. We are aware that the size of the selected cities in terms of population differs considerably, making a direct comparison potentially questionable. However, we believe that the advantages of larger cities deriving from the size of their transportation system and the volume of transport demand, for example the necessity and capability to build a metro system, is compensated in smaller cities by more flexibility in the implementation of schemes and the ability to react quickly to technological changes. To counteract population size problems we ensured indicators were adjusted per inhabitant and chose indicators that were as little influenced by the city's size as possible. We did not include some capitals due to lack of available data.

Stockholm: least car dependent

Rome: most car dependent

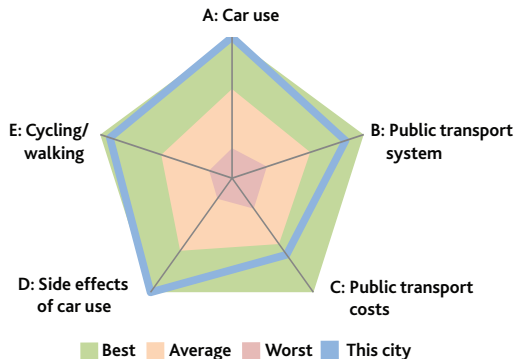# BEST EUROPEAN CAPITALS FOR GREEN TRANSPORT

1. STOCKHOLM

Why did Stockholm rank top?

Stockholm is a fast-growing, mid-sized city with a significant economic role for northern Europe. It is widely acknowledged as one of the most sustainable cities in the world. Stockholm scored well in all indicators we examined, with the only exception being the cost of public transport. However, the quality of the service provided is very high.

The commitment of the city to environmental excellence and sustainability in general is an important aspect of the council's strategy. The introduction of advanced vehicle technologies and the reduction of car use by improved public transport provision, as well as the continuous encouragement of alternative modes of transport, have all contributed to the city's low car dependency. In particular, the walk/cycling modal share is very high despite the adverse winter climate.

A: Car use
B: Public transport system
C: Public transport costs
D: Side effects of car use
E: Cycling/walking

Best   Average   Worst   This city

2. HELSINKI

Why did Helsinki do so well?

Helsinki is the smallest of the European cities we analysed. The city performs remarkably well in all the categories, showing a very good balance among all the indicators. It is worth noting that the relatively small growth of the city did not prevent it from creating two new metro lines, showing the city's commitment to public transport. Trams are also a vital and well-used part of the transport system.

Only the walk/cycling modal share is relatively low, which is no surprise considering the harsh winters. However, there is a well-developed cycling network, underlining the clear commitment of the city towards low car dependency.
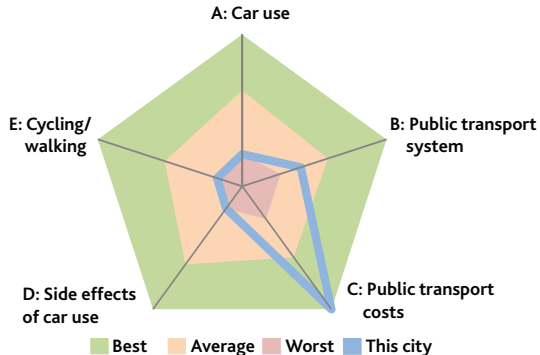
WORST EUROPEAN CAPITALS FOR GREEN TRANSPORT

1. ROME

Why was Rome the worst city?

Rome is by far the most car dependent city we examined. The overall picture is gloomy; high level of car ownership; poor road safety; and very low walking and cycling modal share. The only point in which Rome excels is the cost of public transport. Fares are fairly priced in Rome compared to other capitals. However, this is counterbalanced by a poor quality of public transport service in terms of coverage, frequency, reliability and passenger experience.

One of the most evident aspects of poor public service is the presence of only two metro lines (a third is currently under construction). Cultural heritage is only partly the problem. A relatively small bike scheme has been introduced but its uptake is jeopardised by the lack of a cycling network.

Rome seems to be stuck in a vicious circle of high car dependency, which needs a strong political will to break.

A: Car use
B: Public transport system
C: Public transport costs
D: Side effects of car use
E: Cycling/ walking

Best   Average   Worst   This city

2. BELFAST

Why did Belfast do so badly?

Belfast is the second most car dependent city in our study. The city performed poorly across all the indicators and was particularly bad for high car use to commute, low uptake of public transport and expensive fares.

Public transport in Belfast has suffered from decades of under investment whilst the road network has been well financed. This disparity has no doubt contributed to the high car dependency. More needs to be done to improve and fund public transport. Recent moves include plans to improve services, particularly in regard to buses with a network of quality bus corridors and a Bus Rapid Transit system. Increased levels of cycling and walking could be encouraged with the city's plans for traffic calming and cycle network improvements.
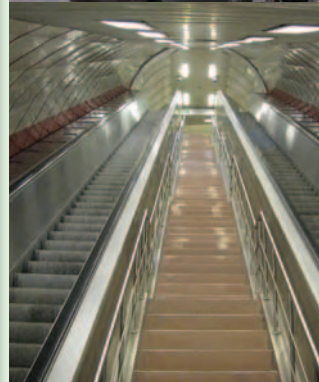
Car Dependency Scorecard Conclusion

Breaking the cycle of car dependency

Getting the right balance between people and cars remains one of the main challenges for the sustainable development of our cities. The ability to access work, shops and services locally, our quality of life, as well as the attractiveness of modern cities, are all being seriously endangered if people are completely dependent on the car and aren't given real transport choices.

This year we wanted to see how UK cities compared to European ones. Despite some common approaches, there are significant differences between European capitals. Some of this can be put down to differences in history, culture and geography, but ultimately the differences are down to the choices made by the cities themselves.

These choices matter. Poor transport impacts on a city's economic performance, both directly and indirectly through factors such as poor air quality. Addressing these needs long term vision and planning and a strong commitment to sustainability. It is also clear, contrary to some views, that cities with low car use can be economically prosperous.

Best and worst cities

The results have shown that the two Nordic cities we included, Stockholm and Helsinki, are both by far the least car dependent. This is consistent with their long tradition of moves towards sustainability and confirmed by the top standings they reach in comparable studies (for example, the recent "European Green Capital" award for Stockholm).

At the opposite end of the scale we find Rome, confirming its reputation as a traffic-stricken, chaotically developing city, only to a very small extent justified by the constraints of its cultural heritage.

UK cities

All the UK cities are to be found towards the bottom of the scorecard. London suffers from the most expensive public transport along with poor air quality and high congestion. These are likely to be key issues in next year's mayoral elections.

Specific factors, for example the size of London and the concentration of commercial activities in the city, are no explanation, since Paris and Berlin, comparable to London in urban area and volume of journeys, perform significantly better.

The other UK cities we included, Edinburgh, Cardiff and Belfast, performed badly for many of the indicators.

A mixed bag

From our analysis we can also draw other important conclusions. Above all, many cities achieved mixed results across the individual indicators, which in turn produced very different results with respect to different aspects of car dependency. This can be positive. For instance Rome, despite being the poorest performing city we examined, performs well on the cost of public transport. In other cases, the mixed performance proves to be detrimental. Amsterdam, well-known and much admired for its high levels of cycling , performs less well on some aspects of its public transport service provision and convenience.

Planning

Behind these transport statistics lie different planning regimes. This is very difficult to measure, but car dependency is also a function of the location and layout of key services, housing and employment. Spread-out cities with loose planning regimes will tend to produce greater car dependence than cities with high densities of development around public transport corridors and with good access by walking and cycling.

Looking to the future

To sum up, our analysis shows a wide range of performance across the cities, ranging from the exemplary commitment of the Nordic capital cities to the serious deficits of Rome and UK cities. The top performance of Stockholm and Helsinki is clearly the result of a long-term and continuous effort over many decades. Whilst no other city could reasonably expect to achieve such a high level in a short time, these two cities can and should be taken as examples of best-practice which other cities should aim to replicate.

As well as the Nordic cities that took the top positions, a group of European cities are also doing reasonably well at reducing car dependency, namely Paris, Berlin, Madrid and Prague. These cities demonstrate that it is possible for city authorities to provide realistic choices so that car dependency is not inevitable.

What lessons can the UK take from Europe

The UK capitals compare badly with other European capitals, with the exception only of Rome and Dublin, but what can we learn from the results?

With the exception of Belfast, the UK cities have quite close rankings, and all lag behind on public transport provision, costs of travel and air quality. Cycling is seen as a good alternative in the UK, but it is sadly still low in all cities.

Indicators of concern
Air pollution
Despite some of the UK cities being considerably smaller than other Euroean capitals, all four UK capitals were in the bottom of the table for air quality. Research published this summer showed that air pollution could be responsible for the deaths of tens of thousands of Britons each year.

Pricing
The UK cities, excluding Cardiff, have high transport fares compared to other European cities. London has the most expensive transport in Europe. This will not be helped by the Government's policy decision to raise rail fares by 28 per cent by 2015.

Congestion
Lower uptake of public transport in general in the UK, along with poor planning in some UK cities, mean higher than average congestion.

What the UK needs to do
To catch up with the best in Europe UK city authorities need to ensure public transport, walking and cycling compare well with car use in terms of cost, journey time and quality. Governments can support this by:

✓ Making public transport fares affordable, with smart cards valid on different modes and operators.

✓ Improving public transport journey times, through bus priority measures, investment in trams where appropriate, and giving pedestrians and cyclists real priority over other vehicle traffic, including at junctions.

✓ Supporting a good public transport network at off-peak times, including evenings and weekends.

✓ Governments should also look at wider factors which affect car dependency, such as land-use planning rules. They should recognise the economic benefits of good air quality and road safety.

Edinburgh
- ✗ High congestion
- ✗ Expensive fares
- ✗ Low bike use
- ✓ Journeys by foot

Belfast
- ✗ High commute by car
- ✗ Lowest public transport use
- ✗ Expensive fares
- ✓ Passenger satisfaction

Cardiff
- ✗ Highest commute by car
- ✗ Low public transport use
- ✗ Cheap parking
- ✓ Road safety

London
- ✗ Lowest air quality
- ✗ Highest fares
- ✗ Highest congestion
- ✓ Low car ownership

APPENDIX 1
Data references

The following indicators were used to calculate the European Car Dependency Scorecard 2011 ranking.

SECTION A:
INDIVIDUAL TRANSPORT

A1: Car ownership: number of cars owned (per 1000 inhabitants)
EUROSTAT Urban Audit Database
http://epp.eurostat.ec.europa.eu/portal/page/portal/region_cities/city_urban

A2: Car modal share: using car to travel to work/training (%)
Perception survey on quality of life in European cities (Flash EB Series #277)
http://ec.europa.eu/public_opinion/flash/fl_277_en.pdf

A3: Congestion: TomTom Congestion Data (indicator based on ratio of actual to maximum allowed velocity)
TomTom European congestion report
http://business.tomtom.com/en_gb/press/releases/2011-06-14

A4: Parking: Maximum on-road parking fee
City councils and local reports

SECTION B:
PUBLIC TRANSPORT SERVICE

B1: Public transport provision: length of public transport network (line-km per 1000 inhabitants; weighted according to type of service)
City councils or municipal transport companies /authorities

B2: Public transport uptake: number of public transport journeys (per inhabitant per day)
Municipal transport companies or other public sources

B3: Public Transport modal share: public transport to work/training (%)
Perception survey on quality of life in European cities (Flash EB Series #277)
http://ec.europa.eu/public_opinion/flash/fl_277_en.pdf

B4: Public Transport satisfaction: satisfaction survey (percentage of people "very satisfied")
Perception survey on quality of life in European cities (Flash EB Series #277)
http://ec.europa.eu/public_opinion/flash/fl_277_en.pdf

SECTION C:
PUBLIC TRANSPORT COSTS

C1: Single trip fare: price of multimodal single trip within the city centre (corrected by local price level)
City councils or municipal transport companies

C2: Cost of commuting within the city: price of multimodal monthly travel card within the city centre (corrected by local price level)
City councils or municipal transport companies

C3: Cost of rail commuting: price of a monthly rail travel card for a town 30km from the city centre (corrected by local price level)
National rail companies or municipal transport companies

SECTION D:
SIDE EFFECTS OF CAR USE

D1: Air quality: annual average concentration of NO2 in the city centre
EUROSTAT Urban Audit Database
http://epp.eurostat.ec.europa.eu/portal/page/portal/
region_cities/city_urban

D2: Road safety: road deaths (per year per 10000 inhabitants)
Local and national statistics

SECTION E:
CYCLING AND WALKING

E1: Cycling facilities: length of cycling network (km per 1000 inhabitants)
City councils or municipal transport authorities

E2: Cycling modal share: biking to work/ training (%)
Perception survey on quality of life in European cities (Flash EB Series #277)
http://ec.europa.eu/public_opinion/flash/fl_277_en.pdf

E3: Walk modal share: walking to work/ training (%)
Perception survey on quality of life in European cities (Flash EB Series #277)
http://ec.europa.eu/public_opinion/flash/fl_277_en.pdf

A more detailed list of sources can be downloaded at: www.bettertransport.org.uk/
system/files/car-dependency-scorecard-data-sources.pdf

APPENDIX 2
Methodology

Indicators
We relied exclusively on quantitative indicators to make the comparison as objective and simple as possible. The choice of the indicators was based on our knowledge, their relevance for car dependency (or independency) and the availability of consistent and reliable data at international level.

To look at the car dependency means that, for example, we judged positively the public transport patronage but did not consider the pollution originating from it (e.g. particulate matters from bus diesel engines). On the contrary, we included the level of a typical car pollutant (NO2) as an indicator of car dependency of a city. This is consistent in the specific scope of our report.

We made use of both existing comparative studies or reports and primary sources from the city councils or other local authorities. The former have the advantage of offering ready-to-use, comparable data, whereas the latter produced very detailed figures which in some cases need to be processed for the sake of (international) comparability.

Some of the indicators we used are complementary (e.g. car use, public transport use etc). Due to their relevance, we included them even if they represent different sides of the same aspect, but balanced their influence by appropriate weighting.

Sources
We decided to rely as far as possible on publicly available sources. This makes our analysis transparent and serves as a basis for the definition of a potential benchmark. Moreover, we focused on official quantitative sources (e.g. governmental statistics, annual reports, financial statements), as they are objective and usually independently checked. It follows that we did not interpret the sources, apart from double-checking outliers or making appropriate conversions for the sake of comparability.

Neither did we assign a negative value to the lack of information provision by some cities, as not providing information is certainly bad practice but does not necessarily reflect the objective performance of the city; this was only a very small number and we neutralized the lack by introducing mean values or decided not to include a city if the lack of data was too extensive.

Weighting
A detailed justification of the weights we assigned to the indicators is reported in the linked data PDF. In general we weighted according to the general importance of each indicator and its relevance for car dependency. Indicators based on more-reliable data indicators for car dependency were given higher weights in order to minimise the effects of unavoidable uncertainties in the data sources or potential bias from subjective indicators (e.g. satisfaction survey results).

The weights of the single indicators were used to ensure the balance among the groups of related indicators. The group "car use" was judged to be the most important, followed by "public transport service" and "public transport costs". The remaining two, "side effects of car use" and "cycling/walking", were assigned minor relevance.

Ranking
We compared the values of the indicators relatively without scoring towards a target or against a reference. This is because we wished to compare the cities more than quantifying their "absolute goodness". For many of the indicators we used it is not possible to define desirable or appropriate levels in an objective way. We think this is the most simple and thus robust approach.

Accordingly, we took care to scale back the very few outliers in a consistent way.

A ranking approach based on marks, which well suits qualitative analysis (e.g. appraisal of transport policies and plans), would not have been a straight choice in our case as we made exclusive use of quantitative indicators. Finally, the indicators we chose were characterised by different polarities, that is, for some of them, high values indicate high car dependency whereas for others the opposite is true. We consistently scored in a way that higher scores correspond to less car dependency.

Details

After capping outliers, the figures of each indicator are rescaled from 0 (worst) to 1 (best) across the cities. Then, for each city, the scores are added according to the weights. The resulting sums are scaled again from 0 to 1 to obtain the final score on which the ranking is computed.

This means that, for each indicator, the scores of the cities are relative to the overall best and worst city for that indicator. This means there is a virtual "best city" consisting of the best values for each indicator and a virtual "worst city" consisting of the worst ones: such virtual cities are the references to which the cities are compared.

The advantages of this approach are:

* It is simple, as there is no need to explicitly define a target or a reference. The setting of targets would also interfere with the weights: a very high target for an indicator would for example lead to bad marks for all cities, which is equivalent to giving a low weight to that indicator.
* For each indicator it is easy to see how each city performs and to quantify the differences between the cities.
* The scores of the single indicators can be simply summed to create the overall score.

The main disadvantage is that the scores depend on the cities included in the pool; the best and the worst city for each indicator and adding to or taking away from the pool a city which is best or worst in one indicator changes the scores for each city.

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