

Transportation: Going Public

Public transport seems to be losing ground to cars, despite rising oil prices and greater climate awareness. Eelco den Boer, a consultant with Dutch environmental research consultancy CE Delft, suggests ways to get people back on the buses.



Eelco den Boer, Senior Consultant, CE Delft (Photo: CE Delft)

"It's really important to put public transport infrastructure in at an early stage, because it's not easy to change people's behavior."

Oil prices are up. Does it help public transport?

Well, the general trend in Europe and America is that public transport's share of overall traffic is reducing. Railway and bus traffic are growing, but car traffic is growing faster. In Africa, Asia and South America, as levels of economic development increase, mobility also increases. But because car ownership levels are low, usage of public transport increases relatively speaking.

What we also see is that people are spending the same amount on transport, but they are traveling further. The advent of high-speed trains in Asia, Europe, and America, as well as the arrival of low-cost flights has improved the quality and attractiveness of public transport.

What are the most climate-friendly transport options? Is public transport always better than taking your car?

Inter-city trains have a relatively low stopping frequency, plus they have high utilization, and so energy used per person is relatively low, resulting in emissions of about 50 grams of CO₂ per passenger kilometer. Commuter trains have higher energy consumption, around 100 grams of CO₂, and are comparable with buses. Both are relatively low compared with the average car that emits about 150 grams of CO₂ per person kilometer and nearly 200 grams during rush hour when there is often only one person in the car.

However, these figures are averages throughout the day. Trains in the morning rush hour are all full, but during the daytime they are empty. They have to expand capacity for rush hour, but their logistical system is not so flexible that they can disconnect trains or carriages during the day. So there are a lot of empty trains making wasted journeys.

It is not always better for the environment to have public transport. For example, it would be better environmentally to stop evening buses and let people use private transport, but it is part of the social system to have those buses running.



Green Cars

Cars symbolize freedom, individuality, and environmental destruction. Click on the image to see how a new breed of cars might offer more climate-friendly mobility.

How could mass transit systems improve their fuel efficiency?

The trains have made improvements, but buses less so. One of the most important developments has been the introduction of double-decked trains, making the weight per seat much lower and therefore the energy consumption per seat about 20 percent less. The 'weight per seat' metric is critical to getting energy consumption down, and construction materials have become 30 to 40 percent more efficient in recent decades.

We are also seeing greater use of renewable electricity and some urban systems are totally green. Increased electrification of railway systems improves local air quality. However, electrification has less effect on carbon emissions because the electricity has to be generated somewhere. Overall, what is most important is that energy consumption is going down.

Do some passengers choose public transport because they are aware of climate change?

It is questionable whether people change their behavior due to climate awareness, or even whether they know that public transport has a lower carbon footprint than private transport. When it comes to choosing between public and private transport, congestion is an issue in big cities around the world. Status sometimes counts, too. A car can be a status symbol. The availability and quality of public transport is also important. If there aren't too many delays, if you don't have to make too many changes, public transport is more attractive. Finally, there is the cost.

The prevailing mentality is very important too. In Zurich, I visited a large multinational company that had no parking spaces in front of its office, and that was considered acceptable. The other side of the coin is that the public transport system is very well developed in Zurich. To deal with congestion, they keep cars outside the city center with traffic lights that stay red longer the more cars are in the city.

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How can you get more people onto public transport?

The London congestion charge is a good example of an incentive to use public transport. You pay extra to drive into central London. That is the route to sustainable mobility: the amount you use your car is related to the amount of fees or taxes you pay.

In the Netherlands, from 2012 we will start experimenting with a system of kilometer-based taxation for cars. Austria, Germany, and Switzerland have this system for trucks, but the Netherlands will be the first to try it for passenger cars, as well as trucks. There is also a

system in the Netherlands being created to charge people depending on the hour of the day they use the road. If you want to use a car in rush hour, you should pay for it.

How can public transport cope with urban sprawl?

In Dresden, Germany, when they started to build a new neighborhood, the first thing they did was to build infrastructure for a tram system. They also concentrated residential and working areas together. The idea was that people wouldn't have to travel far to work. In the end, people's demand for private transport was less, and the share of public transport use was higher. It's really important to put public transport infrastructure in at an early stage, because it's not easy to change people's behavior.

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