

Beyond the stagecoach

Mar 8th 2007
From The Economist print edition

Transport: Fans of “personal rapid transport” claim that nifty individual pods are the future of public transport—again

Advanced Transport Systems



THE fundamentals of public transport, complains Martin Lawson, an academic and entrepreneur, have not changed very much since the era of the stagecoach. Passengers wait at an arranged point for a large vehicle to arrive. It then carries them, along with a crowd of strangers, along a fixed route. The meandering course and frequent stops make the trip far slower than it would be in a private vehicle and the odd-looking person sitting opposite makes it less pleasant. But Dr Lawson's firm, Advanced Transport Systems, thinks it knows how to overcome all this—and give public transport its biggest overhaul in three centuries—using a concept known as personal rapid transit, or PRT.

PRT still involves stations, but they would be smaller and more closely spaced than in traditional transit systems. Instead of big trains or buses, passengers would board small, driverless pods, for one to four people, which would travel along narrow tracks or elevated rails. The stations would not lie on the main line, but on bypasses, allowing pods to proceed directly to their final destination without any stops. It is the stuff of science-fiction films: carefree passengers whizzing effortlessly around in gleaming, automated capsules, without any fear of traffic jams, pickpockets or breakdowns.

In theory, such a system could carry as many people as a more conventional light-rail network or bus service, at lower cost. Since the pods would be much smaller and lighter than trains, they could run on flimsier rails, which would be cheaper to construct. Since they are automated, they could travel much closer together than manually driven vehicles and so get lots of people moving quickly. And since the pods operate only on demand, no money would be wasted on under-used or redundant services.

Since the 1950s, visionaries (or dreamers, depending on your point of view) have been touting PRT as the most efficient way to move people around smallish cities and big public spaces such as airports and fairgrounds. In 1972 Richard Nixon insisted that if American ingenuity could transport three men 200,000 miles to the moon, it could also find a better way to transport 200,000 men three miles to work. The answer, he thought, was PRT. To prove it, he pushed through the construction of a demonstration system at the University of West Virginia. French, German and Japanese firms also built prototypes.

But in the end the model project in West Virginia was the only system to get up and running. The cost of construction, originally estimated at \$14m, ballooned to \$126m. Rising costs and subsiding political support sank all the other projects. In the 1990s, for example, Raytheon, an American military engineering firm, had to scrap a proposed PRT scheme near Chicago when the projected costs topped \$30m per kilometre.

Dr Lawson argues that things are different now, thanks to advances in engineering and computing. Almost all the elements needed for a PRT scheme can be bought off the shelf, he argues, and relatively cheaply too. He estimates costs for Advanced Transport Systems' PRT scheme, called ULTra, at just £3m-5m (\$6m-10m) per kilometre, in part because it runs at ground level where possible. That is comparable, he says, to the cost of building a dedicated bus lane. The operating costs are 40% lower than those of a bus service, since there are no drivers. What is more, ULTra, with its narrow rails and compact pods, takes up much less space than a bus lane or train track does.

BAA, the firm that operates Heathrow and several other British airports, is convinced. It has not only ordered a PRT system to carry passengers between Heathrow's new terminal and the surrounding car parks, but has also bought a 25% stake in Advanced Transport Systems. The project, due to start operating next year, will have five stations and carry 250,000 people a year. If it proves a success, BAA might expand the service throughout the airport, to carry as many as 3m people a year.

Meanwhile, various other schemes are gaining momentum. Vectus, a division of POSCO, a Korean steelmaker, is building a test track for its PRT system in Sweden. A Dutch firm called 2getthere operates automated PRT-like buses in a suburb of Rotterdam and at Schiphol airport near Amsterdam, although PRT purists dislike them since they run on ordinary roads rather than dedicated tracks. Half a dozen other firms are marketing variants on the same theme.

There are still plenty of sceptics, however. Some argue that it would be dangerous to run pods close enough together, at high enough speeds, to eke enough capacity out of each line. The expense of buying rights of way in busy towns could push up costs. Other critics contend that the tracks will be eyesores, especially if they are elevated.

The local politicians who have the final say on most proposals certainly seem to worry that PRT will not live up to its promise. The European Commission has studied four potential schemes, and concluded that hesitant local authorities are the only significant obstacle. As Dr Lawson puts it, "No one ever got fired for proposing a bus system."