Traffic will be free to run on the information highway

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Sweden's ruling Social Democrat party may have been defeated on Sunday but one of its cherished public proposals succeeded against the odds. Stockholm voters narrowly approved an improved version of London's congestion tax. The win comes as a welcome boost for urban planners, economists and Greens who argue that such fees are essential for reducing 21st century traffic worldwide. But global gloating by congestion charge champions may be premature.

That Stockholm conducted a successful real-world trial earlier this year makes the victory that much sweeter. The idea won on its merits, not unproven promises. Traffic in the city centre dropped 20 per cent during the seven-month test; morning rush hour wait times fell nearly one-third while evening rush hour exit times were cut in half. Reality proved persuasive.

Yet viewing the vote as a rational populist embrace of a new traffic tax is too simplistic. The congestion charge trial created dramatic new public awareness of Stockholm's traffic, congestion and car pollution. Rather than an imperial exercise in top-down technocracy, this was a successful experiment in participatory democracy and planning. It should be a model for how urban and suburban areas around the world explore how cost-effectively to influence their traffic. But there is far more to congestion management than congestion pricing. That is why more experimentation is essential.

Traffic is an extraordinarily complex system that is tricky to model and even more difficult to manage. Tiny changes can have extraordinary impacts. A single car can snarl a freeway for miles; reducing inflow from a ramp may melt a traffic jam in minutes. Seemingly obvious solutions are not: Braess's Paradox, a counter-intuitive insight from operations research, indicates that building additional highway capacity often increases congestion.

In fact, there is a wealth of useful insights and usable technologies that can speed traffic flow, enhance safety and lop a few toes off the carbon footprint of daily commutes. While congestion charges may play a key role in tomorrow's traffic management, it is flawed policy and bad science to declare they must play the only role.

On motorways in the Netherlands and German autobahns, for example, "dynamic signs" that can display "variable speed limits" have consistently yielded 5 to 15 per cent reductions in travel time. Better yet, these systems have often cut accident rates in half. When used in concert with lane control signals, they can respond even more effectively to accidents and unexpected delays. Along with sensors to make roads "smarter", these technologies have become cheaper and more robust.

The consumer explosion in GPS (global positioning system) and wireless mobile devices has not even begun to be meaningfully integrated into traffic management. "That is the element that has not been utilised in a sufficiently creative way," says Hani Mahmassani, professor of civil and environmental engineering at the University of Maryland and editor of Transportation Science. Prof Mahmassani envisions public/private partnerships that transmit not only real-time traffic information to drivers but alternate route selections, based on their GPS locations. If only 10 to 15 per cent of commuters connected to such a system followed its advice, he asserts, traffic-congealing congestion could be dramatically reduced.

Concrete highways may have reached their physical capacities; information highways have not. None of these scenarios is fantastical; many of these technologies have existed for years. While traffic engineers know them, the public does not: its attention is disproportionately focused on congestion charges and taxes.

Both the public and technical communities would be better served if there were far more Stockholm-like public experiments. Instead of changes imperially imposed, an environment where communities across the globe could share best practices and vote for - or against - traffic innovations would be more democratic and more productive. Facilitating bottom-up innovation in traffic management is good public policy. This is as important for India and China as for America and Europe.

To be sure, there will likely be no purely technical solutions for problems as human as traffic congestion and its associated environmental ills. By the same token, it is dishonest for bureaucrats to declare unilaterally that the best way to manage congestion is to tax it. Taxes should

complement, not drive, the future of traffic innovation.

The writer is a Massachusetts Institute of Technology innovation researcher who has been stuck in traffic on five continents