

Are cities the key to the electric vehicle revolution?

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Writing for *Nature Electronics*, a team of Newcastle researchers discuss the key factors that could cement cities as drivers of the electric vehicle revolution.

Published today, the comment paper argues that cities need to use local policies and incentives to encourage the wider adoption of electric vehicles. Led by Newcastle University's Dr. Oliver Heidrich, the authors outline a number of steps cities can take to support the uptake of electric vehicles, such as leading by example and using fiscal mechanisms. The

team also discuss factors that influence the electric revolution, including situational factors, contextual factors, and barriers and enablers.

Lead author, Dr. Oliver Heidrich, of Newcastle University's School of Engineering, said that "one reason why investors, manufactures, consumers have held off to adopt widely Electric vehicles, is uncertainty—around policy direction but also, and more importantly, around timing. Although it is now pretty clear that EVs will replace petrol and diesel vehicles soon, what is not clear is how this can happen, and who should take the lead in reducing some of these uncertainties."

Taking the lead

The paper highlights the key role local, regional and national governments play in stimulating the use electric vehicles. Cities around the world could leverage the tools they control, such as road access rights, parking charges and land-use policies, to influence consumer behavior. The authors also discuss that cities' own fleets and procurement systems could help speed up the uptake of electric vehicles.

Fiscal powers

In addition to building up on their leadership position, cities could use their fiscal powers to supplement national funding to purchase or lease electric vehicles. The authors argue that widespread adoption by cities could help tackle the perception that electric vehicles are aimed at more affluent consumers. Other areas that could benefit from funding are electric bus fleets and investing in bus electrification, as well as corporate fleets.

Factors influencing the adoption of electric vehicles

In the paper, Dr. Heidrich and colleagues highlight the key situational and contextual factors underpinning the adoption of electric vehicles in cities.

Geography is one of the main situational factors, discussed by the authors. Density, socio-economic setting and quality and availability of alternative transport are some situational factors. Each [city](#) faces a unique set of situational factors and needs to formulate its approach to support the take-up of electric vehicles by for example providing charging stations in more densely populated areas, investing in long-distance public infrastructure, supporting home-charging infrastructures, or a combination of all three options.

The authors discuss how contextual factors play a role by explaining, educating and incentivising the use of [electric vehicles](#) in cities. This could be achieved by relatively simple measures, such as giving access to priority traffic lanes, free parking or tax exemptions. The paper explores the key barriers and enablers to advance EV uptakes. The authors discuss that a balance between the demand pull-ins, such as costs, and technology and government push-ins, such as banning internal combustion engines, are required to overcome these barriers.

Regardless of any of these advancements, what is clear, is that combinations and well thought through local, regional, national, and indeed international strategies are needed to reach the levels of [electric vehicle](#) ownership required to meet emission mitigation target. It is clear cities can and should drive this urgently needed change.

More information: Heidrich, O. et al, How cities can drive the electric vehicle revolution, *Nature Electronics* (2022). [DOI: 10.1038/s41928-021-00709-3](https://doi.org/10.1038/s41928-021-00709-3)

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