Several local companies have consulted the project researchers on their business and developing innovations, for example regarding the tracking of fleets and goods. One of them is ReCharge, with Founder Sam Keam stating: “The smart e-bikes project has supported us in developing our vision for more sustainable urban logistics… Brighton struggles with congestion, air pollution, lost business productivity and a reduced quality of life because there is too much traffic – a fair chunk of which is vans whizzing around delivering goods.”

The Smart e-bikes project, led by Dr Frauke Behrendt, investigates how the public engages with electrically-assisted cycling, and considers how policy, training, design and product development might lead to a higher uptake of e-bikes in the UK, potentially reducing carbon emissions and improving health.

The e-bikes used in the study (also known as pedelecs) are electrically assisted bicycles that enable people to cycle for work or pleasure with optional motorised support. The rider still has to pedal but the rechargeable battery assistance can make it easier to cycle, especially against the wind or uphill.

Smart e-bikes have been loaned to 100 commuters and community groups for trial periods of six to eight weeks. The fleet of bikes have specially developed monitoring systems with sensor integration. Each e-bike looks and works similarly to an ordinary bicycle but includes the rechargeable electric motor.

The amount of assistance from the motor reduces with increasing speed and cuts out altogether once the bike reaches 15mph or if the rider stops pedalling.

E-bikes can encourage more people to cycle – or encourage people to cycle more. They are particularly useful for commuters who want to arrive unflattened, older age groups, people with physical limitations, tourists and ‘last mile’ delivery of goods. The Smart e-bikes project monitors data for the bike’s location and the rider’s activity, and feeds to an online interface for analysis. Riders can also view their own data and share it via social media. This data sharing turns singular e-bikes into a networked fleet.

The future vision is to make the greater Brighton and Hove city region the UK model for demonstrating the game-changing potential of electrically assisted bikes. While the social, economic and environmental benefits of e-cycling have already been demonstrated in several European countries, the UK still has to realise its potential. E-bikes, and especially ‘smart e-bikes’ could be a showcase for the local innovation at the intersection of the high-tech industry and sustainable technology. The aim is to work with local, regional and national institutions, government, and industry towards an evidence-based e-bike strategy that includes leisure cycling, commuter cycling, cycle tourism and ‘last mile’ delivery.

Use of such bikes will therefore be of potential health benefit to all those who need to increase their levels of physical activity and who use them in preference to undertaking less active types of travel or activity.

Nanette Mutrie, Professor of Physical Activity for Health, University of Edinburgh

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Bob Harber, one of our Brighton-based e-cycle trainers stated: “It gives new horizons to people who might otherwise have been in a car. I love to observe the sudden realisation of possibility by those participating in the e-training.”

The project is positioned at the intersection of more traditional cycling research, mobile media studies and user-centred design. It has aimed to understand electric cycling as a unique mode of transport, with distinctive potential and challenges in the UK context.

Dr Behrendt has been consulted by Brighton & Hove City Council during the process of writing local travel strategies with major interest now growing in the potential of e-bikes. The research considers how the uptake of the system can be influenced and, with a view to the multiple public and private benefits including lowering carbon emissions and improving health and wellbeing, it looks at how training schemes can play a key role in facilitating the adoption of electric cycling.

A pilot e-cycling training module was developed in collaboration with Maria Robinson from M-Cycles (a local cycling business). Bikeability is ‘cycling proficiency’ for the 21st century, designed to give the next generation the skills and confidence to ride their bikes on today’s roads. The project will influence the national Bikeability curriculum, offering an emphasis on e-bike skills, especially aimed at adults. This, in turn, feeds the aim of several national institutions to encourage more people to take trips by bike more often and more safely.

We are starting to work in partnership with Frauke Behrendt from the Smart e-bikes research project to put together a CPD (continuing professional development) trainer training module to submit to the Department for Transport for possible inclusion in the Bikeability suite. This will extend our reach to adult audiences and respond to the growing public interest in e-bikes.

David Dansky, Director of The Association of Bikeability Schemes CIC

Augmented with video cameras, mobile phones and other sensors to collect more qualitative and ethnographic data, this investigation into the full potential of smart e-bikes promises to have a positive effect on many issues in the contemporary city, from traffic to individual well-being.