

STARTING OUT Technology entrepreneurs can scent an opportunity in the latest efforts to clean up the capital's atmosphere, reports Hazel Sheffield

It is time to clear the air with some blue-sky thinking

London's air is "so filthy it is illegal", according to Sadiq Khan, the mayor, whose asthma flares up when he goes out to meet its residents. Illegal, and downright dangerous: 9,400 people died from pollution-related illnesses in the capital in 2010; in 2017 London breached its annual air pollution limit in only five days.

The city is hardly alone among the world's metropolises in having a pollution problem, nor, given its history of pea-soupers and chimney smog, is it an entirely new one, but the mayor is determined to take a conspicuously modern approach to resolving it. Technology and data science, he has said, will be a key part of his plans to tackle urban challenges such as pollution, with Mr Khan calling for clean-air start-ups to apply for a new £1.6million Clean Tech Incubator launched in June.

Yet for some in the air quality industry, the mayor's transport strategy, published last week, was light on details of its ambition for the capital to become a zero-

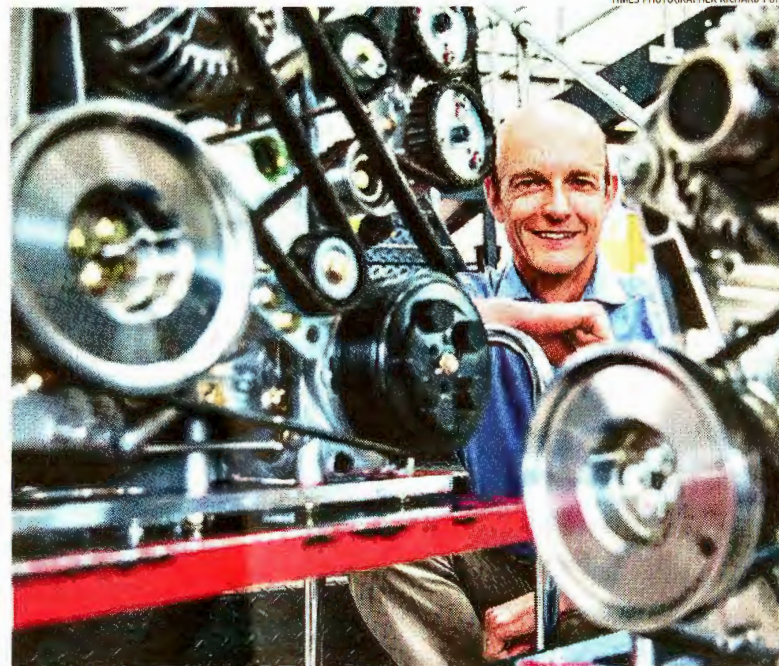
emissions zone by 2025. "Some of the most polluting diesel engines are excluded from the plans, such as those on refrigerated delivery vehicles and cement mixer trucks," David Sanders, 54, commercial director of Dearman, said.

Dearman was established in 2011 to develop a zero-emissions engine invented by Peter Dearman, a farmer's son who left school at 15 and later taught himself engineering. He's still perfecting the first idea he had as an inventor: an engine powered by cooling liquid nitrogen.

The company is testing delivery lorries with Sainsbury's. It hopes to replace the notoriously polluting diesel generators on refrigeration lorries to eliminate this hidden source of nitrogen dioxide in cities. It has raised about £30million in funding, including £6 million in public money from the Innovate UK agency,

even as the government continues to give tax breaks on polluting red diesel used by agricultural or construction vehicles.

Michael Gove, the new environment secretary, is under pressure to adopt a bolder air quality strategy



David Sanders hopes Dearman's liquid nitrogen engines can combat pollution

than his predecessor. "The last environment secretary was dragged kicking and screaming by the courts into publishing better air quality plans," Harry Quilter-Pinner, research fellow at the Institute for Public Policy Research, said. "Even the draft plans fall a long way short of a comprehensive strategy to tackle Britain's filthy air."

While the rules change slowly, some authorities are keen to show that they are tackling the problem, providing an opportunity for entrepreneurs. The Scottish government and Glasgow city council have installed the UK's first two Citytrees in Glasgow, near Buchanan bus station and on Royal Exchange Square. Citytree relies on plants that

are excellent at cleaning air, such as moss and lichen, to create installations that have the same cleansing effect as 275 urban trees, in 99 per cent less space. The living structures, left, include air pollution monitors. Green City Solutions, the start-up behind the Citytree, claims that it can reduce fine dust and nitrous oxides 275 times more efficiently than real trees.

Zhengliang Wu, 32, co-founded Green City Solutions with three friends at Dresden University in 2014. After early support from the German government, Green City Solutions closed a seven-figure venture capital deal in February. Mr Zhengliang said that Citytree had been used as a symbolic feature in cities such as

Making a clean start

- Cleanspace is a small portable tag about the size of a smartphone that measures the carbon monoxide around you. Drayson Technologies, launched by Lord Drayson, a former science minister, is building an air pollution map. Users earn points for cycling or walking, which can be redeemed with partners.

- Strawberry Energy has 100 solar-powered smart benches in London offering phone charging, wi-fi and noise and air quality information.

- Nymbly has developed an app to help office managers to improve air quality by adjusting ventilation systems and humidity controls.

- Buggy Air's air quality sensor with GPS tracking can be fitted to a pushchair so that parents can decide which routes to take or if it's safer to go by car or bus.

Hong Kong, Paris and Brussels, but had the potential to be a vital part of clean-air infrastructure.

Mr Quilter-Pinner wants Mr Gove to ban diesel vehicles in urban areas through a Clean Air Act, to provide grants for electric car owners and to further support digital technology that might precipitate a move towards car clubs rather than car ownership.

Drivenov, a joint venture between BMW and Sixt, the European car rental company, stands to benefit. It has 310 cars available for 30,000 London members to share through an app. The company plans to increase the number of electric cars in the fleet from a modest 50 as more charging stations become available.

