Car or computer? How transport is becoming more connected

While few would blink any more at the sight of a Mini Cooper alongside their own vehicle, some may have noticed a few of their models out and about at the moment that are strangely quiet.

And their silence masks some heavy-duty engineering under the bonnet.

They are among the 612 Mini E cars being trialled in the US, UK and Germany since 2009.

These plug-in electric models are leased to customers, and BMW - the owner of the Mini - is monitoring every aspect of the cars’ use, in almost every scenario, as they are put through their paces.

The amount of data that can now be collected about how drivers use their cars is unprecedented. And the impact of so much information is potentially huge.

Imagine having your car post MoT reminders to your social networks, or share your location with friends, or prove that you were not responsible for an accident.
Behaviour changing

A British company, Riversimple, has designed a range of tiny hydrogen-powered cars, which it will roll out in Leicester in 2012.

They will collect every minute detail about how the cars are used. If the pilot goes well, they are already discussing ways of connecting the cars to social media, and sharing data about how the cars are used.

"Drivers could play games to see who is driving the most efficiently," says Rosie Reeves, Riversimple's sustainability officer.

Italian carmaker Fiat has been compiling data from the Blue&Me navigation systems installed on many of its cars over a six-month period.

It may be the largest such data harvest done by a major carmaker.

"We can extract a number of data - on how the pedals are used, petrol consumption, braking," says Candido Peterlini, vice-president for product development at Fiat.

It developed eco:Drive from the data collected from 420,000 car journeys of 5,700 drivers in five countries.

Cars with this function allow the driver to download data about their journeys to a USB stick, which they can plug into their home computer.

It will tell them how to improve their driving - for example, by changing gears less.

Mr Peterlini says the plan is to make this response instant soon, via the on-board computer - so that a driver gets told how to improve their driving while they are cruising through town - and then integrate it into live traffic maps.

"The plan is to tell you the most eco way to drive, by changing your behaviour, taking in traffic conditions and the structure of the road" such as how steep it is, Mr Peterlini says.

It is not hard to see a future where the on-board computers get ever more sophisticated - such as personal profiles for a car, so the car's settings are individualised for each family member.
The computer would adjust the seats, music, the suspension between sports and comfort mode, depending on which family member was using the car.

All while telling each one how to be a better - and more fuel-efficient - driver.

Fiat's data found that the British, for example, use the least fuel when driving and the Spanish use the most in Europe, whilst Spaniards also have the least efficient traffic system.

**Electric models**

Increased data collection also tells us a lot about different drivers and how they use the cars.

With the introduction of the Chevy Volt and the Nissan Leaf to car lots, the electric car is poised to go mainstream very soon.

BMW's tests of the Mini E have found most people think they use their cars far more than they do.

According to the people behind the Mini E tests, the average daily car journey in the UK is 22.8 miles. Drivers of the Mini E used theirs for 26.7 miles, fractionally less than conventional petrol Mini Cooper drivers.

People also think they will have to charge the car every day, when in reality they charge them every two or three days.

"It's a misnomer that we're going to have to adapt our driving to electric vehicles," says Suzanne Gray, Mini E's UK project manager.

Soon, many of the Mini Es will be reallocated to new trials in France, China and Japan.

Carmakers are preparing for a world where not only are cars collecting data about you, but they are sharing it with each other.

"We are aware of this constantly increasing computing power in cars," Ms Gray says. "The degree of connectivity and the degree that we will be able to share information - it will jump to a whole new level."
Other uses

And this is not just for cars. All forms of transport are become increasingly interconnected.

For example, a group of students at MIT recently caught the attention of British inventor James Dyson with the Copenhagen Wheel.

It is a sleek red disc that attaches to the back wheel of a bike, which captures energy lost during braking and turns into an electric motor for steep climbs.

It also includes location-based software to log information about the bike ride, plan routes and even connect with other cyclists.

An Italian firm, Octo Telematics, installs boxes on-board cars that allow insurers to price the costs of journeys, as well as perform diagnostics on the cars.

It now has a million total subscribers, and illustrates the potential for real-time insurance on car journeys to be integrated into the build of cars.

Tube planner

Public transport is also being revolutionised. One of Boris Johnson’s priorities when he was elected London mayor was to open up the city’s data to developers.

The result, the London Datastore, contains information on all sorts of factors of city life - fires, crime rates, school truancy, recycling rates and so on.

As a result, there have been many new smartphone apps, especially around the popular "Boris bike" cycle hire scheme. Most show available bikes near to you on a map.

"There are apps which feed to the traffic camera data so you can see if the road is clear before you set out on your journey and check along the way, there are interactive maps showing carbon emissions in London," says Anthony Browne, the mayor's adviser for economic development.

Other apps show live boards for the London Underground, live road cams and other features that make public transport more convenient.

Like Riversimple, Mr Browne anticipates greater social use of the data as developers use it
in ever more sophisticated ways.

"We anticipate a growth in the integration of data into gaming, particularly looking at transport," he says.

"In particular for use in commuting games, or games that encourage people to use public transport more, or indeed walk or cycle more."

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