

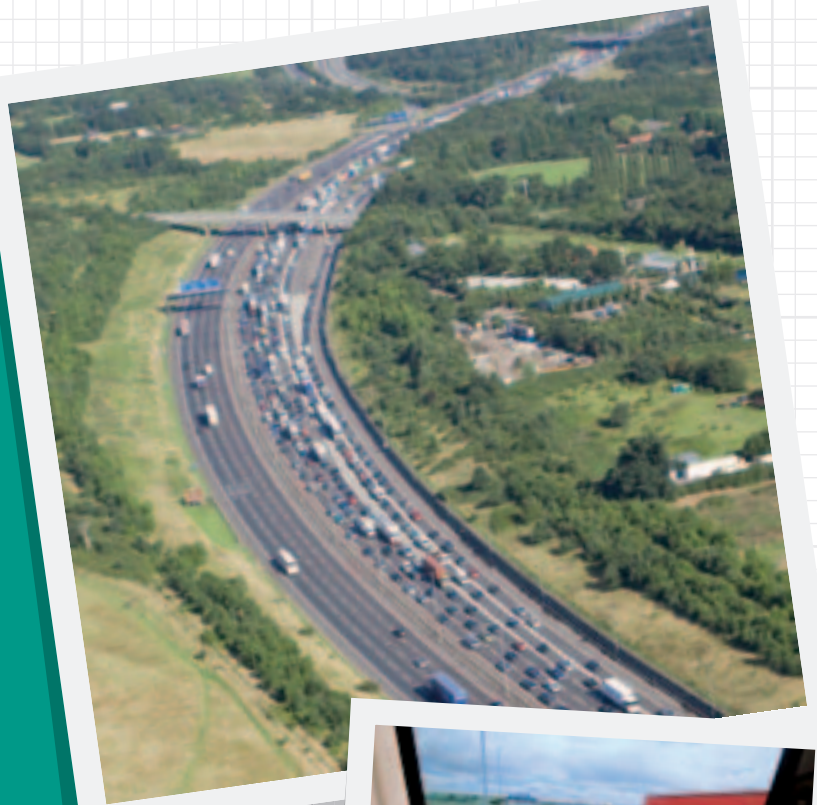
Virtual motorways to manage real-life jams

A system to help reduce traffic congestion and delays on Britain's motorways during peak periods has been developed with the support of the Government's Small Business Research Initiative.

The managed motorway approach on a section of the M42 (where hard shoulders and variable speed limits are used) has already led to better traffic flow and air quality. Research suggests that implementing a managed motorway scheme costs around one-fifth as much as widening a road. Also, existing managed motorway schemes have been shown to increase journey time reliability by 27% in peak congested periods.

Through an SBRI competition, Risk Solutions won a contract from the Highways Agency to investigate the way traffic on Britain's motorways is handled. The project emphasis was on how drivers respond to traffic controls and each other during peak times.

The project team also involved Maelstrom Virtual Productions and Dr Mark Young, a human factors expert from Brunel University. The six-month project produced the VRSiMM (virtual reality simulation in motorway management) system, designed to train traffic controllers. It could also be used to model new managed motorway schemes.



Technology Strategy Board

Driving Innovation

Virtual reality roads

A simulator was created by combining a traffic flow model of the 17km active traffic management section of the M42 with a state-of-the-art virtual reality version of the route. The behaviour of lorries, cars, vans and motorcycles are simulated for a range of scenarios including different weather conditions, lane closures, speed limits, road debris and accidents.

Staff at the Highways Agency's traffic learning centre can use the system to watch vehicles move in exactly the same way they would see them on their normal control centre systems. They need to observe traffic responding to steps they take to manage incidents and congestion. For example, when delays start to build up on a particular stretch of motorway staff will be able to take action. This may include: varying speed limits, opening a hard shoulder, using overhead motorway signs, or sending a traffic officer to the scene.

Because the simulation runs much faster than real time, it can also predict what is likely to happen in the future so controllers can anticipate problems.

VRSiMM has been well received by the Department for Transport and the Highways Agency. Risk Solutions believes the system could be turned from a prototype to a product by the end of 2011.

COMPETITION

Reducing hold-ups through virtual reality

The Department for Transport and the Highways Agency ran an SBRI competition to explore ways in which synthetic environments (i.e. virtual reality) could be applied in the transport industry.

The 17km test-bed section of the M42, between junctions 3a and 7 was used to demonstrate the importance of the managed motorway approach because of its extremely variable traffic flows. Handling more than 120,000 vehicles per day, it operates as part of a cross-country north-east to south-west route, an orbital route for Birmingham and an access road to Birmingham Airport, the NEC and business parks and residential areas.

Nine viable competition entries were received and three companies, including Risk Solutions from London, were awarded £100,000 contracts to develop a prototype model.

'We have been delighted with the SBRI initiative which has given us a unique opportunity to develop an innovative and valuable system. We wouldn't have been able to do the job without the funding and it has been a rewarding experience for everyone involved.'

ALISTAIR KENNEDY, DIRECTOR, RISK SOLUTIONS
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The SBRI scheme is one of the tools that the Technology Strategy Board uses to drive innovation. SBRI competitions use the power of Government procurement to:

- provide innovative solutions to public sector challenges
- and business opportunities for technology companies.

KEY FEATURES

- Competition is demand driven by a defined challenge
- Stimulates the creation of innovative new products or services
- Operates under EU pre-commercial procurement guidelines
- Fully-funded development contract – not a grant
- Fast-track, simplified process
- Particularly suitable for small and medium-sized businesses
- Government department acts as the lead customer
- Intellectual property is retained by the company

The Technology Strategy Board is a business-led executive non-departmental public body, established by the Government. Its role is to promote and support research into, and development and exploitation of, technology and innovation for the benefit of UK business, in order to increase economic growth and improve the quality of life. It is sponsored by the Department for Business, Innovation and Skills (BIS). T: 01793 442700 www.innovateuk.org