Transport Technology Research Innovation Grants (T-TRIG)

July awards and their potential transport benefits

Open call competition					
Rail					
No.	**Project title**	**Organisation (type)**	**Description**	**Potential transport benefits**	**Funding**
1	Thermally conductive concrete slabs for automated de-icing during winter periods	Sheffield Hallam University	To develop thermally conductive concrete slabs for railway platforms and concourses enabling automated de-icing during winter periods.	Improved safety for passengers on concourses	£20.2k
2	Intelligent real-time seat allocation for better rail services	Liverpool John Moores University	Allocating seats on trains to passengers in real time considering their requirements/needs	Improved passenger experience & improved safety.	£20.5k
3	Multiple Antenna Line-of-sight radio link testbed for Transport Systems	The Open University	Use of novel radio modes and multiple communications channels to allow high-enough data rates to be achieved for broadband connectivity on trains.	Improved passenger experience.	£24.9k
Road					
4	Accelerating Transport Microsimulation: Demonstrating the impact of future many core simulations	University of Sheffield (with industrial support from and TSS Ltd.) (University – SME collaboration)	Applying novel computing techniques to impact on both the time and accuracy of simulations to predict and measure the impact of investment, improving utilisation of the strategic road network.	Improved simulations allowing much needed time savings & better informed decision making leading to better utilisation of the road network.	£22.6k
5	Demonstration of proof of concept of a prototype low cost optical pollution sensor	Transport Research Laboratory (TRL) Ltd	Assessing the feasibility of low cost optical sensors to measure nitrogen dioxide with greater sensitivity.	Better understanding of the impact of low emission zones. Could also be used for rail.	£24.9k

No.	Project title	Organisation (type)	Description	Potential transport benefits	Funding
6	Lighthouse Smart Road Reporting System	WaveReach Limited (Micro)	Using sensors to collect real-time data to improve the UK's rural road network through improved communications technology.	Data to monitor the environment, road temperature, bridge integrity, traffic flow.	£25k
7	A novel lithium-ion energy test technique to accelerate electric vehicle battery pack time-to-market	University of Warwick	Developing a novel test for significantly reducing the time it takes to evaluate battery packs during the development cycle (from 200 hrs to 15 hrs).	Developing battery packs more quickly for Battery Electric Vehicles, thereby reducing costs	£24.9k
8	LBD-SAR	Cranfield University	Developing a novel technique using radar reflecting devices similar to cats-eyes, for highly precise lane and carriageway boundary detection.	Increased road safety as current technology (cameras) have limitations e.g. not effective in snow or icy conditions.	£23.6k
9	Novel applications of structural equation models for car ownership and travel choice forecasting	Martin Centre for Architectural and Urban Studies, Cambridge University	Developing a new methodology that can detect, quantify, and continuously monitor changes in travel demand.	Improved forecasting of travel demand and car ownership.	£25k
10	SilkThread® O Licence Compliance Dashboard	Labyrinth Logistics Consulting Ltd (Micro)	Establishing the technical feasibility of developing a comprehensive, compliance dashboard populated by both interfaces from multiple, specialist, compliance systems and manual user uploads to support the uptake of the DVSA's Earned Recognition Scheme for O licence operators.	Support uptake of the ER scheme and provide improved board level visibility of compliance within transport operators.	£25k
11	Artificial Intelligence Based Traffic Data Collection	WSP Parsons Brinckerhoff partnership & Calipsa Ltd (SME collaboration)	Artificial Intelligence based software to process video footage in order to count traffic.	Improved data collection and quality in a cost effective way.	£5.3k

Cycling					
No.	**Project title**	**Organisation (type)**	**Description**	**Potential transport benefits**	**Funding**
12	Minimising hazardous turns in cycle routing: junction analysis for optimal journeys	CycleStreets Ltd (Micro)	A framework for modelling cyclist's route plans that are both safer and match much more accurately where a knowledgeable cyclist would go. This will model junctions, street type, signal delays, surface type and elevation.	Accurate route plans for cyclists matched to their cycling ability leading to safety benefits.	£24.2k
13	Solar Powered eBike Charging Station	Sustainable Technical Services Ltd (Micro)	To develop and test a stand-alone, renewable energy powered charging solution for e-bikes with the view to providing a solar powered charging network.	Reduction in road traffic and pollution. More sustainable travel choices.	£25k
Maritime					
14	Developing a data system to present the real-time movements of intermodal freight	University College London	Developing a web-based system that summarises and visualises the real-time movements of intermodal freight, in particular the movements of coal, biomass and containers on the UK rail network and around UK ports.	Enabling transport operators to better understand the supply chain and predict the impact of potential disruptions.	£25k
Cross Modal					
15	DemandViz : Transport Demand Visualisation and Modelling	Integrated Transport Planning Ltd (SME)	Visualisation tool to exploit current mobile app technology to collect and collate passenger travel demand data across different transport modes and present it for interpretation.	Can give a richer picture of a city's transport network enabling better planning.	£24.9k
16	Travel Insight Exchange	Modalgo	Mobile gamification app & platform that	Opportunity to inform people's	£24.7k

		(Micro)	tracks people's travel by mode, feeds it back to them in interesting, useful and entertaining ways and also gives them all their personal journey data in secure personal data stores.	travel choices and create a rich data source to better understand travel patterns	

Targeted Call: Future Aviation Security Solutions					
No.	**Project title**	**Organisation (type)**	**Description**	**Potential transport benefits**	**Funding**
1	Visual Disruption for Aviation Security	LumOptica Ltd (Micro)	Tests a completely novel visual dazzle system for protection of passengers and crew on board aircraft from lone-attackers.	More effective aviation security and better passenger experience.	£28.6k
2	Anomaly Detection for Aviation Security	University College London	Algorithms for automated anomaly detection (spotting the unusual) in aviation security.	More effective aviation security and better passenger experience.	£29.6k
3	Virtual Inspection Environment for Aviation Security	University College London	Intuitive and natural inspection of 3D CT scans in virtual reality.	More effective aviation security and better passenger experience.	£29.6k
4	Extending Current Automatic Threat Object Detection within X-ray Security Screening	Durham University	Investigate the wider applicability of initial findings that using deep Convolutional Neural Networks (CNN) for automatic threat detection within X-ray security imagery offer a stronger detection capability.	More effective aviation security and better passenger experience.	£29.2k
5	FASS Checkpoint Big Data Analysis	University of Southampton and Egremont Group (University-SME collaboration)	Developing and applying big data analyses to checkpoint performance.	More effective aviation security and better passenger experience.	£36k
6	Microwave Camera for Detecting Hidden Objects	Plextek Services Ltd (SME)	A camera that uses radio frequency signals to image objects that may be concealed.	More effective aviation security and better passenger experience.	£27.6k

No.	Project title	Organisation (type)	Description	Potential transport benefits	Funding
7	Full-body walk-through personnel security screening portal	Manchester Metropolitan University	Developing a full-body walk-through aperture synthesis security portal.	More effective aviation security and better passenger experience.	£26.2k
8	Targetless Search Training: Improved Detection of Atypical Threats in Baggage	Department of Psychology, University of Cambridge	Laboratory groundwork for development of improved training for Baggage Screening.	More effective aviation security and better passenger experience.	£10.5k
9	Rapid Screening of Footwear for Airport Security	Security Screening Technologies Ltd (Micro)	Microwave screening of passenger footwear without necessitating removal of shoes enables 100% of passengers to be screened.	More effective aviation security and better passenger experience.	£21.5

Targeted Call: Intelligent Transport Systems					
No.	**Project title**	**Organisation (type)**	**Description**	**Potential transport benefits**	**Funding**
1	Curo360	Nicander Limited (SME)	A new mobile 'App' and 'web service' that fully integrates the management of travel incidents, assets, technology faults, data analysis and predictions for travel delays.	Improved traveller experience and safety.	£24.9k
2	Operator toolkit for urban mobility and congestion / disruption management	Zipabout Ltd (Micro)	A new Application Program Interface software toolkit that can be made available to any rail/bus operator enabling them to provide automatic and personalised advice for avoiding disruption.	Improved passenger experience and informed travel choices.	£38.8k
3	CROCS - Controller to RSU Open C-ITS SCHEMA	Integrated Design Techniques Limited (Micro)	Developing an 'open' data specification to enable comms between the traffic lights signal controller & the ITS radio unit, thus allowing Highway Authorities to upgrade existing equipment rather than replacing it.	Improved transport investment and value for money.	£24.2k

No.	Project title	Organisation (type)	Description	Potential transport benefits	Funding
4	Next-generation ITS sensing using neural networks	Vivacity Labs	Developing cutting-edge machine learning techniques for video analytics to gather much more reliable & accurate road data to feed in to traffic signal control, smart motorways, and connected/ autonomous vehicles	Reduced road congestion and improved safety.	£25.9k
5	PUADO Dynamics	Transfaction (Micro)	Developing new 'Discreet Event Simulator' programme that will work in an HGV driver's cab, to increase their productivity (by increasing the low levels of vehicle utilisation).	Lower transport costs and decongestion benefits.	£24.9k
6	Using In-Vehicle Data to Enhance Real Time Journey Time Prediction	Ove Arup & Partners Limited	Investigating ways to combine real-time in-vehicle data sources with existing traffic related data feeds in order to improve journey time algorithms and highways management.	Reduced congestion, improved passenger safety and experience.	£49.9k
7	Road Public Transport Congestion Air Quality Impacts Tools	Transport for London	Analysis of the air quality for London over a given geographic area, then overlay the public transport network route and load data to explore if it is possible to correlate the air quality patterns to congestion levels.	Better understanding of the impact of public transport. Improved transport planning with relation to air quality.	£25k
8	Better signals using co-operative vehicle data	City of York Council	Research on a main road corridor into York examining opportunities new technologies offer to enhance traffic management and using positional data from vehicles to improve how traffic signals are controlled.	Reduced road congestion and improved air quality	£16.6k