

## Results of competition: Technology Inspired Collaborative R&D - ICT

Total available funding for this competition was £7.4m from the Technology Strategy Board.

**Note: These proposals have succeeded in the assessment stage of this competition. All are subject to grant offer and conditions being met.**

Participant organisation names	Project title	Proposed project costs	Proposed project grant
<b>Romax Technology Limited (lead)</b> Computational Modelling Cambridge Limited University of Sheffield	ProtoDrive - method for the rapid design of efficient hybrid vehicle drivelines	£563,908	£394,396
<b>Project description (provided by applicants)</b>			
<p>The project aim is to develop a process for the rapid concept design of hybrid electric vehicle systems. The process will enable the designer to rapidly perform highly productive investigations at the initial concept design stage of the driveline, i.e. at the time when the greatest influence can be brought to bear on the outcome. The following factors will be considered with speed and ease of understanding:</p> <ol style="list-style-type: none"> <li>1. The effect of varying the balance between electric power (motor power from battery energy) and conventional power (internal combustion engine power and fuel energy).</li> <li>2. The effect of varying the balance of powerflows through the driveline (e.g. series and parallel hybrid powerflows).</li> <li>3. The effect of varying major parameters such as vehicle mass and drive cycles (legislative and various real-world drive cycles). The consortium consists of Romax Technology Limited, Computational Modelling Cambridge Limited, and the University of Sheffield.</li> </ol>			

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<b>British Broadcasting Corporation (lead)</b> Parabola Research Limited Queen Mary University of London Foundation	Towards big data management and visualisation: enabling technologies for high resolution content interchange and delivery	£499,798	£321,205
<b>Project description (provided by applicants)</b>			
<p>High definition content is becoming an integral part of global broadcasting, setting the standard for streaming, satellite, cable and terrestrial transmissions. More importantly, it is generating extremely large amounts of data that need to be delivered to a large number of users. Up to now, the distribution of conventional media has only been made possible by the application of compression systems that reduce the size of content sufficiently to be stored and distributed on a mass scale. Continuing this trend and exploiting recent breakthroughs in compression technology, the emerging High Efficiency Video Coding (HEVC) standard provides a base for handling very high resolution content. Underpinning the capabilities of HEVC are computationally expensive, extremely complex and resource-demanding algorithms. Consequently, in its current state, HEVC is unfeasible for practical applications involving very high definition content.</p> <p>The main objective of this project is to research and develop economically viable, i.e., resource constrained, technology for very high definition content handling. The goal is to facilitate storage and transmission of the huge amounts of data contained in very high resolution content, paving a way for the provision of much greater quality of experience, facilitating quick deployment in a variety of important applications and sectors including broadcasting, digital cinema, medical, biological and defence.</p>			

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<b>Avonwood Developments Limited (lead)</b> Avanti Communications Limited Public Health England (Health Protection Agency)	Electronic SYstem for MOnitoring of pathogens within Laboratories (ESYMO-Lab)	£501,308	£300,478
<b>Project description (provided by applicants)</b>			
The ESYMO-Lab project (Electronic System for Monitoring of Pathogens within Laboratories) proposes an intelligent, cost effective, cloud-enabled software-based system using innovative RFID technology for electronic monitoring of dangerous pathogen specimens within biocontainment facilities and microbiomedical laboratories, to reduce the possibility of deliberate or accidental release, thus improving safety.			

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<b>Unilever UK Central Resources Limited (lead)</b> British Sugar plc Croda Limited Cybula Limited University of Manchester University of Sheffield	N8 BioHub information and knowledge management system	£504,401	£340,362
<b>Project description (provided by applicants)</b>			
<p>Innovative ICT can play a crucial role in many innovation processes, but its potential is not always exploited in many industries. A route to innovation in chemical-using industries is the exploitation of materials in what would otherwise be lost to waste streams from current manufacturing processes. This is interesting both in terms of realising additional value from manufacturing, but also in reduced utilisation of unsustainable material sources and exploitation of novel feedstocks for novel functional materials with new application benefits.</p> <p>This project will develop an information system based on highly innovative information technologies with the capability to rapidly identify the feedstock and functional material opportunities, and demonstrate its value in rapid bio-derived surfactant discovery. The key advances made will be in automation of large-scale information analysis and mining, and in the development of many-criteria optimisation algorithms to pin point innovative candidate materials from the very large numbers of possible options.</p>			

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<b>Jaguar Land Rover Limited (lead)</b> HoloVis International Limited University of Nottingham	Live Augmented Reality Training Environments (LARTE)	£493,998	£242,027
<b>Project description (provided by applicants)</b>			
<p>The latest augmented virtual reality (AVR) and immersive environment technologies are being implemented only in select business areas, despite being commonplace in our personal lives. As these technologies become ubiquitous, user acceptance and even expectation for use in the workplace increases. Service environments do not currently utilise such capabilities, yet are faced with the challenge of maintaining in-service products. This is particularly difficult when unexpected product failures occur that demand new processes to be deployed, and skills to be learnt, rapidly.</p> <p>This project will investigate and challenge the effectiveness of traditional training and learning environments and methodologies, creating new, configurable and dynamic environments that will transform the way we train and develop staff. By monitoring user behaviour and considering individual learning profiles, these environments look to unleash the value of data stored in PLM (product lifecycle management) systems to enrich virtual training environments with existing information about product components and configuration requirements. By focusing on efficacious training for exceptional events, LARTE will prove out the ability to create training environments that support the learning of infrequent tasks which could become commonplace learning environments to accommodate increasing customisation in future wide-scale manufacture. The project brings together the human factor's research skills of the University of Nottingham with the visualisation technology expertise of HoloVis International, and the extensive data and use-case provision within the manufacturing and service environments of Jaguar Land Rover.</p>			

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<b>IGI Ltd (lead)</b> Daden Limited Aston University	Making big data exploration work: traceability and usability	£496,108	£355,363
<b>Project description (provided by applicants)</b>			
<p>'Big Data' is something of a buzzword at present. It has many meanings, but typically is used to mean working with large, often massive, heterogeneous data sets, and in particular analysing and interpreting these data sets to extract information. Existing solutions typically emphasise parallel/distributed data management and analysis solutions, but pay insufficient attention to the user and usability. In this project, which will be driven by user needs, initially targeting the domains of oil and gas exploration and security, but also informed by engineering, geochemistry and bioinformatics, we will research and develop a series of tools to support the whole Big Data lifecycle.</p> <p>The main lifecycle stages we will consider are:</p> <ul style="list-style-type: none"> <li>i) efficient data acquisition, cleansing and semantic annotation</li> <li>ii) visualisation of complex data: scalability and integration with expert knowledge</li> <li>iii) scalable 3D immersive visualisation of complex data</li> <li>iv) capturing user workflows in data processing and visualisation for reproducibility</li> </ul> <p>Throughout the project, focus will be placed on maintaining usability and developing components which are generic but capable of being customised to specific application domains, so that domain experts will find the tools intuitive and accessible, reducing the barriers to Big Data analysis. A user panel will help to steer developments in the project, ensuring usability remains a clear focus.</p>			