Results of Competition: Technology Inspired Innovation Feasibility Studies 2015 - ICT

Competition Code: 1505\_FS\_ICT\_TII

Total available funding for this competition was £2.7M from Innovate UK (over all strands)

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 |
|-------------------------------------|--|------------------------|------------------------|
| Building Research Establishment Ltd | Component whole-life knowledge from interactive components and BIM integration to support condition-based maintenance (ICOMP3) | £148,059               | £90,188                |

### Project description - provided by applicants

Condition based maintenance is the future of mechanical equipment management, providing a step change in efficiency and reliability throughout asset life. Systematic approaches to data capture (e.g. temperature, vibration by retrofitted sensor networks) from M&E assets in public/commercial buildings have been proposed. However, whilst data can be captured, providing a means of immediately identifying component failure, we need a better understanding of relationships between changing sensor data patterns and asset performance to quantify rates of degradation and predict timescales for asset failure. The project will look to exploit this opportunity by bringing innovative data analysis techniques derived from other sectors (e.g. nuclear, medicine) to the built environment. Building on the analysis of data being captured from sensors fitted to M&E assets at Skanska-managed facilities it will assess the feasibility of, and develop a plan for creating, a commercial, cost effective data analysis system for the built environment.

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28 October 2015

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|--------------------------------|---------------------------------------|------------------------|------------------------|
| Rais Opportunities Ltd         | Self-learning and 'insight-surfacing' | £149,774               | £104,842               |
| Pervasive Intelligence Ltd     | data analytics system                 |                        |                        |
| Mistion Ltd                    |                                       |                        |                        |

### Project description - provided by applicants

Rais, supported by its collaborative partners Pervasive Intelligence and Mistion, is seeking to evaluate thefeasibility of developing an innovative data analytics system. The partners intend that this powerful but simple-to-use software tool will use a unique combination ofbespoke machine learning and computational intelligence techniques to help businesses better utilise their customer data. Dependent upon the outputs from this project, this will help non-technical clients interrogate their data bysuggesting appropriate questions & presenting insight and recommendations in an easy to absorb manner sothey can take actions more quickly.

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|--------------------------------|--------------------------------|------------------------|------------------------|
|                                | Driving Data - Exploration and | £149,814               | £95,023                |
| Bloom Media (UK) Ltd           | Insight - Prood of Concept     |                        |                        |
| Omnia Smart Technologies Ltd   |                                |                        |                        |
| Fowler Welch - Coolchain Ltd   |                                |                        |                        |

#### Project description - provided by applicants

The evolution of manufacturing plays a critical role in the enhancement of modern society. In fact, manufacturing accounts for 50% of UK exports and approximately 11% of total UK GDP. In order toremain competitive new technologies and strategies are required. CRYOSIS has been specifically designed to address a number of challenges facing two key industrial sectors namely, aerospace and medical. Typically materials used in these sectors are termed high performance and difficult tomachine. Tool life is short and using conventional oil-based coolants can have adverse effects. CRYOSIS will research and develop cryogenic cooling methods, with the aims of increasing tool life, reduced surface roughens and allow for direct finish machining of near net shapes. The non-technical aims of CRYOSIS are to retain high quality manufacturing jobs in the UK, reduce material and increase the throughput of high performance metal alloy components

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|--------------------------------|---------------------------------|------------------------|------------------------|
|                                | An Augmented Reality System for | £149,908               | £104,936               |
| Cadscan Ltd                    | Operating Theatres              |                        |                        |

### Project description - provided by applicants

Over 4.7 million surgical procedures were performed in the UK in 2014, and there are over 17,000 registered surgeons in the NHS according to the Royal College of Surgeons. Medical imagery is increasingly used during the operation to guide and assist surgery, and often contains rich, detailed content. However, viewing and manipulating complex 3D imagery is fraught with difficulty, from verbally communicating the information required, to manipulating it by mouse or touch-screen, and then interpreting 3D imagery on a 2D screen. Even with trained operators this rich information can be confusing and hard to understand, and potential benefits lost. We propose a new approach that will greatly improve the visualisation of this information, overlaying the medical imagery onto the patient themselves. It will create a fusion of the real and virtual worlds to guide operations and augment them with procedural instructions to improve the workflow. Key innovations include the unique combination of hardware, dynamic optimisation of the user interface, display system and management of DICOM files.

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|--------------------------------|---|------------------------|------------------------|
| Intainos Contware Eta          | Feasibility study to explore the development of a bioscience software associated app store. | £143,898               | £88,625                |

#### Project description - provided by applicants

This proposal outlines a feasibility study to examine development of a novel platform for disseminating and commercialising new study design and analysis methods applied to stratified medicine. This projects involves acollaboration between the SME Exploristics and and a software development company, Kainos. The platformwill support stratified medicine research by enabling the optimisation of both study designs and analysismethods. Designed as an add-on module to the commercially available KERUS software platform, the appsstore will allow the evaluation of new innovations in stratified medicine in silico prior to launch of real worldstudies, improving their chances of success. This platform will provide a low-cost turn key technology forstratified medicine research helping to address the challenges encountered in extracting meaningfulinformation from this data-rich field. Facilitating smarter prospective design and analysis, the platform willhelp to realise the commercial exploitation of complex biological data through the development of novel bio-based products and services, improving patient outcomes

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|--------------------------------|--|------------------------|------------------------|
| IS-Instruments Ltd             | Advanced machine learning for the characterisation of controlled substances using Raman spectroscopy | £149,911               | £104,937               |

### Project description - provided by applicants

The aim of this project is to a develop a new class of instrument for real-time drug identification by combiningRaman technology with the latest machine learning software tools. This will enable new identificationdatabases to be developed, allowing small variations in drug composition to be identified and alerting theauthorities to counterfeit products and/or illegal and harmful drugs. This novel approach could enable thedevelopment of new hand-held instrumentation for use in the homeland security, customs & excise, pharmaceutical andr biological services sectors within 3 years. Within this study, the team will focus on the production of a proof-of-concept system that will be tested against known samples. During the programme, potential customers in the homeland security services sector will be consulted to ensure the development istargeted at the key markets.

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