Innovate UK

Results of Competition: Open Round 3 - 0 to 12 Months

Competition Code: 1706_EE_OPEN_R3_12M

Total available funding is £15M across all streams

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
U-FLOOR TECHNOLOGIES LTD	AirEx - Smart Ventilation Control	£99,481	£69,637

Project description - provided by applicants

Buildings account for 44% of the UK's greenhouse gas emissions, with 26% linked to domestic homes (BRE, 2012), while still over 2 million people live in Fuel Poverty in England & Wales alone. While the UK government has subsidised most easy-to-treat energy efficiency measures over the last few years (e.g. ECO funding for loft or cavity wall insulation), reviews of these support schemes (ECO,2016) flagged cost-effectiveness as a key requirement. Furthermore, traditional ventilation methods in existing, older homes still rely on occupants' behaviour, risking their health, well-being and comfort. 'AirEx' is an innovative smart home technology that automatically regulates the air-flow through air-vents in the home, based on atmospheric conditions & air quality, via its cloud-based algorithm. AirEx has the potential to deliver significant savings on householders' energy bills without compromising air-quality and any unintended consequences (condensation, damp). Furthermore, the real-time valuable data collected by AirEx system in a central database allows facility managers, social landlords, multi-property owners to make informed, strategic decisions on their maintenance strategies - enables targeted preventative interventions, rather than reactive repair work. The objective of this project is to i) develop and field test a working prototype, ii) identify optimum business model for commercialisation. Our company will harness experience in building energy efficiency, in-home sensor deveopment to enter this sector.

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Participant organisation names	Project title	Proposed project costs	Proposed project grant
EARTEX LTD	Intelligent ear protection to address occupational hearing loss for use in heavy industry	£316,601	£221,621
London South Bank University		£99,880	£99,880

Project description - provided by applicants
Occupational hearing loss is the most prevalent occupational disease in industrialised countries with up to 24% of hearing impairment attributed to occupational noise. It is a Global challenge with significant economic social and physiological impacts-that results in preventable ill health for millions of people. In the US \> 10 MN workers suffer from the effects of hearing loss due to excessive noise exposures on the job with \>1.1M UK workers exposed to noise above 85dB and therefore at risk of hearing damage. Despite this prevalence, technological advancement in protection equipment in recent decades has been largely incremental, failing to keep pace with user requirements. Passive ear defenders (plugs/muffs) remain the mainstay providing a fixed level of protection but failing to address key user challenges such as interference with on-the job communication with users often required to remove hearing protection to communicate -- inadvertently exposing themselves to damaging noise, product misuse (studies indicating that up to 40% of workers are inadequately protected by earplugs through poor fitting) with limited awareness of the surrounding environment during use (audibility of safety/warning signals). Eartex seeks to address these challenges through the development of the first ear defender headset (EAVE) that uniquely combines the capability of real-time monitoring and reporting of noise exposure, personalised hearing protection and wireless communication into a single product and at a cost to enable mass deployment. Through the collaboration with machine learning expertise from London South Bank University the approach offers: 1\. Real-time audio filtering uniquely personalised to the user's environment. 2\. Advanced real time mapping of noise exposure to enable both site wide and personalised reporting 3\. Automated hearing test built into the device to indicate product misuse. With support through Innovate UK a 12 month programme of Research is required to deliver a prototype validated both in the laboratory and simulated environment. If successful this combined functionality has the potential to truly disrupt the hearables market with global exploitation potential as an Industry 4.0 product with wider potential in Healthcare and Consumer markets

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Participant organisation names	Project title	Proposed project costs	Proposed project grant
PURIDIFY LTD.	Developing a marketable FibroSelect platform for bespoke viral vector purifications	£387,762	£271,433
CENTRE FOR PROCESS INNOVATION LIMITED		£115,844	£115,844
COBRA BIOLOGICS LIMITED		£66,507	£33,254

Project description - provided by applicants

Gene therapy is an exciting new wave of medicine whereby therapeutic DNA is delivered into patients' cells to correct genetic disorders, use the body's own cells to make therapeutic proteins, or empower one's immune system to better fight cancer. Development of these advanced therapies is however still at a relatively early stage and current manufacturing processes remain prohibitively expensive. This expense is due in part to inefficient production and purification of the viral vectors that are primarily used to deliver genetic packages into patients' cells. The transformative promise of these therapies will not be realised if they cannot be mass manufactured to produce a therapy that is affordable to healthcare providers such as the NHS. Puridify has been working with several clinical stage companies over the last 3 years to develop a breakthrough purification technology based on nanofibres. This project will allow Puridify to demonstrate the ability to tailor this purification platform for gene therapy developers; providing the lower cost, more efficient and scalable manufacturing processes required to deliver affordable gene therapies to patients.

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Participant organisation names	Project title	Proposed project costs	Proposed project grant
PERSONALYZE LIMITED	Personalyze AI: Powerful Machine Learning Profiling Technology	£150,664	£105,465

Project description - provided by applicants

Personalyze.Ai (PAI) is a powerful AI driven machine learning profiling technology which operates across social media and mobile, delivering people analytics throughout the entire media eco system. This produces unique personal data for the benefit of brands, media agencies, trading desks, data providers and publishers. Unlike other currently available social analytics tools which use inferred and aggregate data, the innovative Personalyze algorithm has the potential to profile people's interests and behaviours across the social web using deep learning models, as well as understanding their personality and delivering the same accuracy as a 60 minute written psychometric test (~80%). There is currently no process, method or vehicle to facilitate understanding someone's interests, behaviours and personalities across their entire social footprint. Personalyze will build technology that can profile an individual across their entire social footprint so that they can be understood as a holistic individual. Through understanding their interests, behaviours and personalities better, users can be more effectively engaged and be served more relevant content.

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Participant organisation names	Project title	Proposed project costs	Proposed project grant
GENEFIRST LIMITED	Detection of cancer mutations in blood using an innovative DNA sequencing technology	£653,175	£457,223
Project description - provided by applicants			
Cancer treatment has changed radically with the introduction of targeted drugs guided by mutation testing. Alterations in genes have been validated as powerful predictive biomarkers in the management of various cancers where mutation testing is currently the standard to personalise treatment decisions. It is well documented that a broad spectrum of cancers release DNA into peripheral blood (ctDNA). There is a growing interest in use of ctDNA as a non-invasive biomarker to detect the presence of cancer, follow treatment response, gauge prognosis, and monitor for recurrence. Next Generation Sequencing (NGS) has revolutionised genomic exploration and is driving the implementation of precision diagnostics. However, the sensitivity and accuracy of current NGS methods is compromised by sequencing errors. This is a fundamental limitation, particularly when aiming to identify rare mutants in genetically heterogeneous mixtures, such as ctDNA. To overcome this limitation, GeneFirst has developed an improved NGS technology with increased sensitivity and accuracy for the concurrent detection of multiple mutations. This new technology is suitable for the use of liquid biopsy (i.e. blood), enabling clinically relevant cancer genotyping by non-invasive means.			

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Participant organisation names	Project title	Proposed project costs	Proposed project grant
XOR SOFTWARE LIMITED	Operationalising Research into Motor Current Signature Analysis (MCSA)	£81,735	£57,215
Project description - provided by applicants			
Xor Software is an early stage technology company, formed to develop and market a novel predictive maintenance technology capable of early, accurate and reliable detection of mechanical faults, particularly in industrial equipment inaccessible during normal operation or located in remote sites. The proposed project has the potential to be commercially transformative for Xor, enabling it to penetrate new market areas and territories, driving revenue growth, increasing profitability and facilitating substantial investment in UK R&D.			

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Participant organisation names	Project title	Proposed project costs	Proposed project grant
THORCOM SYSTEMS LIMITED	World's First 4G Emergency Service Network Vehicle Radio Device	£277,217	£194,052
Project description - provided by applicants			
UK Government has a requirement for up to 47,000 4G Vehicle Radios for use by the emergency services on a new 4G network, which will save taxpayers money and give police, fire and ambulance users access to next-generation mobile applications. No one in the current market today makes a suitable product, but Thorcom has the industry experience and know-how to take one of its existing products and rapidly develop this in to the product needed for roll-out scheduled in 2018, using funding provided by Innovate UK. The technical requirements are complex, as Thorcom needs to take a standard 'Smartphone' technology and re-engineer it to be a rugged device suitable for permanent installation in to an emergency service vehicle, whilst maintaining the prioritisation, security and usability demanded by a mission critical application. After the project completes, Thorcom as a UK company, will be in a prime position to compete to supply the device in volume to the UK user base from 2018, resulting in a growth forecast to be between 300 and 400% over 4 years. In 2020, when the rest of the world is scheduled to start their upgrades, Thorcom will be uniquely placed to serve the international market with sales potential an order of magnitude greater again.			

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Participant organisation names	Project title	Proposed project costs	Proposed project grant
VERDERG RENEWABLE ENERGY LIMITED	Innovative Economic Low-Head Hydropower System For Tidal & River Sites With Low Environmental Impact	£43,151	£30,206

Project description - provided by applicants

Hydropower is a crucial energy source in a portfolio as it generates for up to 24 hours / day, providing a renewable energy alternative to base-load fossil & nuclear fuel power stations. Deployment is currently limited due availability of suitable sites, environmental disruption, & head of water (3m+) requirements to run installations efficiently. VerdErg has developed a disruptive new hydro-power turbine technology that overcomes these limitations. Operating at low head (1-3m) with a major reduction in cost & environment impact due to smaller size & civil works, the technology can significantly increase renewable baseload electricity generation at low head river sites in the UK - the Environment Agency has identified 25,935 potential hydropower sites in England & Wales able to provide 1,178 MW of power. In addition, the UN has identified low head hydropower as a crucial element in addressing economic development of poor rural communities in developing countries. VerdErg's unique technology (protected by 6 patent families) enables power extraction using venturi-enhanced secondary flow, not achieved before. It can make a major contribution to the Energy Trilemma.

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Participant organisation names	Project title	Proposed project costs	Proposed project grant
CORTIRIO LIMITED	Portable brain imaging	£210,234	£147,164
Project description - provided by applicants			
Traumatic brain injury (TBI) is the most common cause of death and disability among children and young adults. Brain imaging is a prerequisite for effective and timely treatment of traumatic brain injury; however, current imaging equipment is expensive and non-portable and therefore is only available in hospitals. Furthermore, neurosurgical and neurocritical care services are centralised in specialist centres often far from the local hospital. This leads to delays in diagnosis, causing delays in definitive treatment, and ultimately increasing fatality and disability rates for patients. Cortirio will develop inexpensive, portable brain imaging to be used at the scene of the injury to enable faster treatment and triage, thereby reducing disability burdens and saving lives.			

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Participant organisation names	Project title	Proposed project costs	Proposed project grant
LIQUID BRONZE LIMITED	Malinko Intelligent Clinic Scheduling (MICS)	£511,413	£230,136

Project description - provided by applicants
Healthcare faces unprecedented challenges from rising demand and spending cuts -- more people require services due to an ageing population with increased disease prevalence, but government targets require cost savings to be made. Clinic scheduling is a particular problem due to the lack of an intelligent scheduling system to link capacity (resources) with demand (patients), which causes inefficiencies and poor experiences for patients. Intelligent scheduling goes beyond staff rostering (capacity) and patient details (demand) by using data from both. Existing scheduling systems can be manual (paper/spreadsheets) or semi-automated (software based), but none of these offers a full and reliable solution that has the required intelligence to allocate clinical resources efficiently and effectively to meet patient care requirements. Solutions that are available have a number of issues that limit their uptake, including capability, cost, integration with other systems and reliability. Developing a scheduling platform to process clinical resources, optimise schedules and deliver operational efficiency thus represents a major business opportunity. Liquid Bronze, an SME in North West England, seek to use their software scheduling experience across various sectors (including healthcare) to develop a dynamic new solution -- Malinko Intelligent Clinic Scheduling (MICS) -- the first intelligent scheduling system that effectively and efficiently links capacity and demand. The prototype solution will be trialled for selected clinics using pilots with NHS service providers to verify benefits for providers such as workforce productivity, estates/facilities and administrative savings, as well as benefits to patients such as reduced waiting times and more flexibility to book/rebook appointments. The proposed solution has the potential to be adapted for other clinics so could be applied across the NHS. For LB the project will deliver entry into a new market and result in new revenues, increased R&D spend/activity and growth in skilled employment.

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KOPERNIO LIMITED	Kopernio: One-Click Smart-Links to the PDF	£166,966	£116,876

Project description - provided by applicants

Academics and researchers across the world communicate their discoveries in so-called journal papers", distributed as PDF documents. As such, the corpus of all published journal papers represents a significant fraction of the planet's knowledge across a wide range of disciplines, from history and the arts to sciences, engineering and medicine. Unfortunately, and rather surprisingly, a large portion of this knowledge-base is still difficult, if not impossible, to access. Indeed, even researchers at top institutions routinely face technological inpasses, when trying to access PDF versions of the journal articles. Legacy technology systems and a lack of user focus and good user experience forces researchers to "chase" PDF journal articles through the web, fill out forms, follow redirects, click on pop-ups, log in to different platforms, and sift through databases. Our aim is to develop technology that can be embedded in our Kopernio platform, to give researchers "one-click" access to journal paper PDFs to which they are entitled, even when they are off-campus. This will immediately increase the productivity of academics and researchers, and increase the value of the body of scientific knowledge by making it more easily accessible for individual researchers and institutions as a whole. We hope our technology will provide a step-change in terms of access to knowledge, and a substantial improvement in how research results are disseminated globally."

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Participant organisation names	Project title	Proposed project costs	Proposed project grant
DOMIN FLUID POWER LIMITED	Sub Miniature Valve	£224,500	£157,150
Project description - provided by applicants			
Domin Fluid Power aim to utilise the transformative technology of Additive Manufacturing to go from initial concept of a sub-miniature direct drive servo valve to a representative prototype in order to progress their fundamental work on powder bed laser melting additive manufacturing towards a competitive market leading product.			

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ZEET LTD	Swift Aid	£341,274	£238,892
University of Surrey		£119,344	£119,344
Project description - provided by applicants			
Increase the amount of Gift Aid collected on behalf of charities when donating with contactless payment cards.			

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Participant organisation names	Project title	Proposed project costs	Proposed project grant
WEBSTER TECHNOLOGIES LIMITED	Impactor- Revolutionary catapult mechanism concrete breaker excavator attachment	£167,926	£75,567
Project description - provided by applicants			
Webster Technologies' position as a construction equipment designer, hire company and service provider has led to them identifying unmet needs in excavator breaker attachments. Current technology has changed little in 40 years. Our disruptive design uses a catapult mechanism, powered by conventional hydraulics to deliver three times blow energy of excavators of comparable size. This translates into greater machine utility, tackling more jobs with the same machine. Our prototypes require less power input to do the same work and have been reported to be quieter in trial runs. They will allow users to work faster, reducing infrastructure downtime, completing projects faster or producing primary aggregates faster. In this project we will advance manufacturability of our disruptive breaker attachment. We will test extensively, both at subassembly level to eliminate the final technical challenges and at whole system prototype to validate performance and efficiency savings. Our existing contacts with plant hire, licenced manufacturing and component manufacturing companies provide several enviable routes to market. We expect first sales within 18 months and have a plan to achieve revenues of £11.5m in five years.			

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Participant organisation names	Project title	Proposed project costs	Proposed project grant
GEV WIND POWER LIMITED	Ventura-OS - an innovative new approach to maintenance of off shore wind turbines	£774,402	£542,081

Project description - provided by applicants

Offshore wind in Europe is expected to produce up to 11% of EU's electricity by 2030, BUT due to days lost in maintenance this total is unlikely to be achieved \[Wind Europe Unleashing Europe's offshore wind potential, June 2017\]. In particular, turbine blades are subject to heavy leading edge erosion, reducing efficiency and necessitating rapid repair. Blade repair is expensive, dangerous and limited by a shortage of trained blade technicians ([http://bit.ly/altitec_2016)][0]. Epoxy repairs also require exact environmental conditions (cured at \>12°C and humidity <75%) which are difficult to achieve on-site. There is a pressing need to return inefficient turbine blades to optimum condition and for a safe and environmentally controlled 'habitat' allowing 24/7 repair work even in otherwise prohibitive conditions and by a lower skilled workforce, but technology has so far not met this need. GEV wish to carry out this 11 month project to develop and test a functioning prototype to demonstrate the efficacy of our new concept - the Ventura-OS. The Ventura-OS is a new style of platform and enclosed pod which will allow improved QA repair work offshore, increasing annual energy production (AEP) of between 1.5 and 2% through Leading Edge Erosion efficiencies. Additionally Ventura-OS offers better maintenance scheduling; risk reduction; 'fixed price' servicing agreements; OEM warranties; 24hr operation in wider weather conditions; less down time, lower manpower overheads (insurance, training); boosting OEMs delivering a warranty regimen and Owner/Operators wishing to maximize their RoI. [0]: http://bit.ly/altitec_2016)

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INTELISTYLE LTD	Artificial Intelligence Fashion Stylist	£166,556	£116,589
Project description - provided by applicants			
Intelistyle is an artificial intelligence(AI) personal styling service that helps users discover new outfits by matching their existing or new clothes from participating retailers, based on their personal preferences and fashion trends.Personalised fashion styling is a hard to access, expensive service with most shoppers relying on non-personalised advice from magazines and online blogs/retailers. This is similar to the music industry 10 years ago. Services such as Spotify revolutionized the way people purchase and discover music. Our mission is to build the next Spotify of fashion", an industry worth $3000bn worldwide and £66bn in the UK. This will generate a significant competitive advantage for our company and will disrupt the fashion industry while partner retailers will increase their average order value(AOV) and user conversion rate(CR) ultimately leading to increased revenue/profit while reducing associated marketing and operational costs. Customers benefit from free styling advice."		

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Participant organisation names	Project title	Proposed project costs	Proposed project grant
SWANBARTON LIMITED	Power Services from Hot Water (PoSHWat)	£133,530	£93,471
Project description - provided by applicants			
UK company Swanbarton will develop and demonstrate technology that enables householders with electric water heating to profit from new time-of-day electricity tariffs, while also sharing in the proceeds from a new power balancing service for National Grid (and its international equivalents), based on occasionally switching off their water heaters for just a few minutes.			

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CELLULAR THERAPEUTICS LTD	CoStAR (Costimulatory Antigen Receptors)	£95,763	£67,034

Project description - provided by applicants

The need for new treatment options for cancer remains high. Recently there has been huge interest and massive success with treatments which involve modifying the patients immune system, effectively helping the patient fight their own cancer. In one example this has taken the form of drugs which can be injected, such as therapeutic antibodies. We and others are pioneering the use of adoptive cell therapy wherein the patient's immune cells are removed and either allowed to recover and be re-educated in the laboratory, or are engineered to recognise any cancer of choice. Many clinical trials globally have proved the success of this approach. We have identified a means by which natural or engineered T-cells (a type of cancer fighting white blood cell) can be assisted in their cancer fighting capacity by introducing a molecule into the cells which enhances their anti-cancer activity. The approach takes advantage of a natural process which occurs in the immune system every time an infection is encountered, but is often lacking in responses of the immune system to cancer. This approach has broad applicability across many cancer types including colorectal, skin, kidney and ovarian cancer. We have conducted some initial experiments to prove the concept; however, to ensure success we need to validate this approach in the lab before any patient trials can be conducted.

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Participant organisation names	Project title	Proposed project costs	Proposed project grant
SERELAY LIMITED	Trusted Media Capture on Mobile Devices	£299,653	£209,757
Project description - provided by applicants			
In the 'post-fake-news' world the scope for anonymity/impersonation/dissemination of unverified information is a problem proliferating across businesses, government organisations and news-outlets. In fact, we already see early signs of user-generated-content verification increasingly integrated into basic web-based transactions. Serelay, a pioneer in the field of user-generated-content verification, has developed the concept of Trusted Media Capture (TMC) - a unique technology utilising security protocols and data analysis to embed 'integrity credentials' into media (photos/video/audio) captured on a mobile device. Innovate UK is supporting deep-tech industrial research undertaken by Serelay to embed two additional technology sub-domains into its technology stack, further solidifying its position as a world leader in its field.			

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Participant organisation names	Project title	Proposed project costs	Proposed project grant
EXPODO LTD	Prototyping, user testing and industry evaluation of an advanced user interface for imaging devices	£151,751	£106,226
Project description - provided by applicants			
The innovation has application to imaging devices. It radically changes the user interface in a way that helps users to learn exposure control more easily both in the professional photography field as well as industrial, scientific, and medical uses such as microscopes. The project approach is to remove key risks that currently block the IP from being licensable by: 1\. Demonstrating that the technology works -- Build a working prototype with four applications 2\. Verifying user benefits through user testing of the prototype and improve the prototype based on this feedback. 3\. Identifying manufacturers perspectives through evaluation of the prototype and make a final version of the prototype based on this feedback.			

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ASTRAGUARD SYSTEMS LIMITED	Memory Aid	£98,755	£69,129
Project description - provided by applicants			
Among the problems that older people face is the inevitable loss of memory that affects everyone to a greater or lesser extent. The Memory Aid project seeks to provide some help for this, through a body worn device that could help to compensate a failing memory. It could tell the wearers where they left those mislaid glasses or keys, or whether they have forgotten to take their pills. It could also summon assistance in time of need, and keep track of general health and well-being. The technology behind this device involves highly complex imaging algorithms linked to a neural net engine. Developing this to the level of proof-of-concept is the substance of the Memory Aid project.			

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Innovate UK

Results of Competition: Open Round 3 - 0 to 12 Months

Competition Code: 1706_EE_OPEN_R3_12M

Total available funding is £15M across all streams

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
CREDIT DATA RESEARCH LIMITED	Credit Passport RT for PSD2	£182,307	£82,038

Project description - provided by applicants

The lifeblood of a successful economy is its ability to allow credit to flow to where it is needed at the right risk level.For SMEs this is not happening efficiency.Since the 2007/2008 crisis, SMEs access to credit has weakened and lenders SME portfolios have suffered losses. Existing risk assessment systems have reinforced the problem. Scoring systems typically use data reflecting businesses financial performance 15--18m ago. Cash flow crises, one of the major causes of SME defaults, can originate in just 2--3 months, causing financially stable considered businesses to close. That is, balance sheet information, by definition, cannot capture the credit event. This lack of updated information hinders credit stability driver identification. Payment Services Directive is a positive step in this respect allowing: a)real-time credit information access and b)third-party access to granular banking data.Credit Data Research (CDR), leveraging on PSD2 and Open APIs, will build real-time credit risk assessment applications, for its users and subscribers; for the French, Italian, Spanish and German markets. CDR's solution, making use of the Open Banking technology, is market disruptive and will enable creating a level playing field for SME credit scoring across Europe before expanding for the rest of Europe. Details have been provided below alongside references contained in the Appendix for Question 7\.

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Innovate UK

Results of Competition: **Open Round 3 - 0 to 12 Months**

Competition Code: **1706_EE_OPEN_R3_12M**

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Participant organisation names	Project title	Proposed project costs	Proposed project grant
PROCARTA BIOSYSTEMS LIMITED	Novel Antimicrobial agents designed to selectively kill even the most resistant organisms	£456,248	£319,374
Project description - provided by applicants			
Procarta is an antibiotic drug discovery and development organisation with a unique platform that can identify new targets for antibiotics as well as discovering new drugs to kill even the most resistant bacteria. Procarta has discovered a new type of antimicrobial that kills bacteria by blocking their gene expression through a novel mechanism. These are short fragments of DNA that invade the bacterial cells to treat serious infections such as sepsis, complicated urinary tract infection and complicated intra-abdominal infection with the lead molecule, PRO-202, in preclinical development. These infections are extremely hard to treat, particularly with the rise of resistance. This project will identify a candidate molecule as a second generation to this technology, to further validate Procarta's proprietary platform and to add further assets to the pipeline. The company is developing this as a narrow-spectrum antimicrobial to treat infections caused by Gram-negative bacteria. Intended uses are to both treat acute infections, such as sepsis, and to improve health by modifying the gut microbiome, to remove bacteria associated with disease. Successful completion of the project will lead to an candidate for preclinical development, which is the next step in creating a drug. By changing the sequence of the DNA fragment used different bacteria can be targeted, meaning that the first demonstration of the technology may lead to multiple new antibiotics.			

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Participant organisation names	Project title	Proposed project costs	Proposed project grant
VISCGO LIMITED	Digital multi use rapid viscosity measurement for dysphagia patients	£251,431	£176,002

Project description - provided by applicants
Dysphagia (swallowing disorder, disability or difficulty) is usually caused by nerve or structural damage and is a secondary condition of many other ailments, especially acquired neurological conditions and degenerative diseases. People with dysphagia might experience problems with sucking, chewing and swallowing food and drink, controlling saliva and ingesting medicine. It can have a major impact on quality of life as dysphagia can cause pain, heartburn, hoarseness, coughing, regurgitation, a sensation of food stuck in the throat or chest and drooling. But it can also have more serious health implications such as loss of appetite, food refusal, weight-loss, choking, malnutrition, dehydration, aspiration, pneumonia and death. Dysphagia is estimated to affect 8% of the general population which is 5.2 million people in the UK and 560 million people worldwide. Dysphagia can affect people at any age but is prevalent among the elderly, particularly following stroke and in the end stage of dementia. One of the most common ways to manage dysphagia is to thicken drinks which can make them easier to swallow without aspirating. Powdered starch or gum is mixed in to drinks to make them thicker. But drinks that are too thick can increase the risk of post-swallow residue remaining in the throat which may then be aspirated. Also, drinks that are too thick tend to be unpalatable and can be left undrunk, or make someone feel satiated before they really are, leading to dehydration. The thickener can also impede the digestion of medicines. So it is important to provide drinks of the correct consistency as prescribed for each individual -- not too thin and not too thick. Currently there is no practical, reliable, cost-effective way to accurately test that a drink is at the prescribed consistency once the thickener has been mixed in. Viscgo Limited are developing an innovative, low-cost, quick, easy and simple in-situ drink thickness testing device to make sure that each and every drink is at the prescribed consistency. We aim for anyone to be able to use it, whether they're a clinician, a carer or even the person with dysphagia. Checking that each drink has the prescribed consistency may reduce the risk of choking, malnutrition, dehydration, aspiration, pneumonia and death, improve the quality of life of people with dysphagia and significantly reduce health care costs by reducing hospitalization and aiding recovery and hence reducing length of hospital stay.

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Innovate UK

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Participant organisation names	Project title	Proposed project costs	Proposed project grant
SENSEYE LIMITED	SENTINEL – ScalablE predictive maiNTenance system for INtELligent prognosis and condition monitoring	£332,915	£233,041
Project description - provided by applicants			
Predictive maintenance (PdM) is a key part of the Industrial Internet of things (IIoT) and is reliant upon data quality and quantity. Currently there are no systems on the market that can provide sufficient reliability, quality and quantity of data that is cost effective enough to handle multiple streams of data with comprehensive data analytics. This is a key barrier for many manufacturers who are demanding effective predictive maintenance solutions without the high investment requirements/unknown payback timeframes. SENTINEL will develop a novel automated prognostics approach for predictive maintenance and condition monitoring which overcomes the high investment cost. This will help UK manufacturers become more productive through reducing unplanned downtime to increase overall equipment efficiency and helping to reduce maintenance costs.			

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Innovate UK

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Participant organisation names	Project title	Proposed project costs	Proposed project grant
PROJECT PROVENANCE LIMITED	Carbon Chain	£311,846	£140,331
CARBON ANALYTICS LIMITED		£77,224	£34,751
Project description - provided by applicants			
Software company Provenance to collaborate with UK environmental data firm Carbon Analytics to design and build a beta for a future-facing system that defines, tracks and stores carbon emissions data at a material and product level, throughout businesses' supply chains. This system will enable the simple, low-cost quantification of environmental impacts for an individual product, serving the need of retailers and producers of consumer products to prove their environmental impact in line with regulations and standards while effectively communicating impact internally and to consumers and governments.			

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Participant organisation names	Project title	Proposed project costs	Proposed project grant
TOGGLE DATA SERVICES LIMITED	Truly Disruptive Driving and Car Insurance App (Toggle)	£215,867	£151,107

Project description - provided by applicants

Toggle is an innovative and truly game-changing driving and car insurance focused App. It allows individuals to prove they are good drivers, and as a result receive financial reward for being conscientious and safety minded. Toggle captures driving behaviours with state of the art incident detection and driver scoring capability. This allows motorists to share with insurers a fact-based driving score, crash/accident information, and, in some cases, DashCam video footage. The Toggle driving score is determined by how the recorded driving matches up to six key driving behaviours: * Distracted driving -- in particular the use of a mobile phone whilst driving * High speed -- exceeding the stated speed limits * Harsh braking -- not allowing enough time to slow down * Aggressive acceleration -- as opposed to gradually building speed * Mileage -- higher mileage increases the risk of an accident * Time of day -- the time of driving can impact the risk of an accident Toggle automatically switches on when we think you're driving, so there's no need to remember to open the app yourself. Toggle will become your new driving friend: Disputed insurance claims and the associated hassle will be a thing of the past. Togglers will be protected against the result of others' poor driving. Toggle removes subjectivity and provides clear-cut evidence relating to motor insurance claims liability. It is capable of eliminating many injustices, including unnecessary resultant policy restrictions. Moreover, by analysing and interpreting an individual's data, Toggle can reduce the cost of insurance for good drivers and significantly reduce claims costs for insurers.

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Participant organisation names	Project title	Proposed project costs	Proposed project grant
NEOS VENTURES LIMITED	Combining Telematics and the Connected Home to Launch a Disruptive Home Insurance Platform	£574,105	£258,347

Project description - provided by applicants

Home insurers are struggling to engage with customers. Customer concerns over renewal price inflation & complex non-transparent policies with difficult & outdated forms of communication, are leading to poor customer experience, low customer retention rates & profitability issues. Customers want insurance to be relevant, tailored to their requirements & to be only paying for what they need. Telematics & the Internet of Things (IoT) have revolutionised numerous industries in recent years (motor); however the home insurance industry has been slow to adopt new innovations. 'ConnectedHome systems' offer the opportunity to gain an enhanced knowledge of customers & use this info to deliver personalised insurance solutions. Research indicates a CH insurance proposition could result in a reduction in claims by 40-60% by more effectively controlling risks; & would offer consumers price reductions, better efficiency & security. Despite this, there are currently no ConnectedHome insurance products in the marketplace . Neos Ventures Ltd will complete a 12 month Experimental Development project to develop a disruptive novel ConnectedHome insurance solution that will bring the benefits of telematics to the home insurance market

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Participant organisation names	Project title	Proposed project costs	Proposed project grant
VUELYTICS LTD	Vuelytics™ Machine Learning Connected-Vehicle Device & Cloud Platform	£203,046	£142,132
Project description - provided by applicants			
Every day 1.2 billion vehicle-driver combinations worldwide use 7 billion tyres (Wards, 2016) to maintain safe contact with roads. To capture essential safety data from all vehicles, this project seeks to develop Vuelytics(tm) - a disruptive IoT cloud-connected on-Vehicle device (iGuard) and Tyre Attribute Management & Brokerage (TAMB) Platform. Vuelytics(tm) iGuard will monitor tyre integrity, the way they wear, grip, perform on different surfaces and vehicles, in different environments, and merge that data with driver behaviour, presenting a gold mine of data to sector OEMs (tyre, wheel, automotive), aftermarket firms (insurance, fast fits, service centres, telematics), and enforcement agencies. Supported by 5 patents, 3 already at PCT National stage, we'll engage sector players in the utilisation of captured, codified, mined and meaningfully analysed data to yield opportunities for new digital business models.			

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Participant organisation names	Project title	Proposed project costs	Proposed project grant
FAIRFIELD LABELS LIMITED	3D-Spector: A feasibility study investigating development of a real-time 3D vision sensor for product quality verification	£133,403	£93,382
Project description - provided by applicants			
Fairfield are looking to investigate the feasibility of developing the first 'plug-and-play' 3D vision sensor, delivering real-time 3D quality inspection for simple installation and use in production lines to help reduce food surplus and waste early-on in the UK's grocery supply chain.			

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Participant organisation names	Project title	Proposed project costs	Proposed project grant
ABS TECHNOLOGY LIMITED University of Surrey	AUTTO - Intelligent Micro-Automation	£326,452 £58,941	£228,516 £58,941
Project description - provided by applicants			
ABS Technology Ltd are a London based technology company proposing to deliver an innovative and accessible workflow automation solution for legal departments, law firms and professional services. In collaboration with the University of Surrey, ABS aim to deliver increased workflow efficiency freeing professionals to concentrate on advising clients, having a positive impact on both the professional service organisation and their clients improving efficiency, reducing errors and enabling the launch of innovative services.			

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Participant organisation names	Project title	Proposed project costs	Proposed project grant
SIGMA TECHNICAL LIMITED	KinD - 3-Dimensional Exercise Through 5 Axes Of Movement	£244,826	£171,378
Project description - provided by applicants			
Sigma is an innovation led mechanical engineering company, delivering innovative solutions to a number of global clients. The proposed project will rapidly develop the company through developing a revolutionary new product, centred around delivering a fitness and rehabilitation solution that redefines current capabilities. The impact being dramatic improvements in rehabilitation approaches through bespoke exercise routines and optimisation of data gathering for fitness users.			

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Participant organisation names	Project title	Proposed project costs	Proposed project grant
SIGNLYNC LTD	Signlync, an intuitive and engaging app providing a secure and safe service connecting the deaf community to interpreters	£36,294	£25,406
Project description - provided by applicants			
Signlync is an app that safely connects the deaf and hard of hearing community to British Sign Language (BSL) interpreters. We aim to disrupt the current administration led services that are costly and dysfunctional. Through our game-changing innovation we aspire to be the leading business for the deaf and hard of hearing community. Our vision is to expand to other special needs segments including helping anyone with a disability or long-term health condition connect to community support workers and the Access to Work scheme. The next stage will be to take either or all of these special needs to the global level. There is also the potential to roll out the service to cover the entire language services support system.			

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Participant organisation names	Project title	Proposed project costs	Proposed project grant
INDUSTRIAL PHYCOLOGY LIMITED	Commercial use of biomass generated by microalgal treatment of wastewater	£163,327	£114,329
Project description - provided by applicants			
UK and European wastewater industries are struggling to identify and install the technology necessary to meet the ever more stringent demands placed on them through legislation. Such regulations are demanding they produce effluents with lower nutrient contents, whilst reducing the energy use of their processes at the same time. Microalgae if used properly can treat these wastewaters in an efficient cost effective manner. Microalgae are capable of accumulating nutrients and also contaminants present in the wastewater such as heavy metals, pharmaceutical compounds and other chemicals. Industrial Phycology (I-PHYC) has developed an innovative microalgal treatment of wastewater which has two revenue streams. One revenue stream is the service of treating wastewater which is well proven. The second revenue stream is the value from microalgal biomass that accumulated during the treatment process. This biomass can be used in variety of applications including chemical energy, specific products, or fertilisers. The objective of this project is to characterize microalgal biomass produced in different wastewater streams and to identify specific markets with commercial interest in such biomass.			

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Participant organisation names	Project title	Proposed project costs	Proposed project grant
IBEX INNOVATIONS LTD METTLER-TOLEDO SAFELINE X-RAY LIMITED	Enhanced food contaminant detection system incorporating a novel multi-spectral X-ray imaging technology	£155,909 £49,549	£109,136 £24,775
Project description - provided by applicants			
The project aims to demonstrate a production-compatible X-ray food inspection system capable of reliably detecting both plastic contaminants during the manufacture of chocolate confectionary products, and bone fragments in the meat processing industry. The project will combine a novel multi-spectral X-ray imaging technology from IBEX Innovations Limited (IBEX), with innovations in detector and production inspection technologies from Mettler-Toledo Safeline Limited (MTSL). Successful adoption of the resulting product is expected to lead to increased detection of impurities in the food processing industry, leading to increased consumer safety and a reduction in expensive product recalls.			

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Participant organisation names	Project title	Proposed project costs	Proposed project grant
VERT ROTORS UK LIMITED	Developing an innovative manufacturing process for the world's smallest low-vibration medical compressor	£148,274	£99,344
Project description - provided by applicants			
Vert Rotors has developed the world's smallest low-vibration air compressor: VERT.04\. It is a tiny conical screw compressor which produces high-pressure air without vibration and without the need for oil lubricant at significantly lower energy usage and can be produced at a micro scale, which is critical for medical device applications. This project will solve a technical problem in the manufacturing process so that we can produce the components using a hard engineering-grade polymer to the required dimensional tolerances so that the compressors will work for the full required duration. Commercialisation of this product will allow existing medical devices to become lightweight and compact, quiet and significantly more energy efficient and effective from a user perspective as well as leading to many new innovative applications particularly in wearable/mobile medical devices.			

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Participant organisation names	Project title	Proposed project costs	Proposed project grant
PACLA MEDICAL LIMITED	Pre-production experimental development of Robo-Physio	£305,059	£137,277

Project description - provided by applicants

Pacla Medical is developing and commercialising Robo-Physio, an automated physiotherapy device for the treatment of back stiffness. Robo-Physio has 36 robotic fingers which gently apply force to move the spine to relieve back stiffness. The Company is currently manufacturing the first batch of Robo-Physios that have been pre-ordered by customers in the UK. This project will enable the company to take the product to the next stage of development, i.e. pre-production. In particular it will enable us to develop and incorporate into Robo-Phyiso sensors and spine mapping software to measure and control the force delivered by each of the robotic fingers to the spine joints. This means that the physiotherapy session provided by Robo-Physio can be personalised to the needs of each user and the progress that is being made in relieving stiffness in the spine recorded. We are confident that this will significantly increase the benefit of the Robo-Physio sessions to the users. We will work closely with all our users and collect their feedback and make sure that their experience of the product is fed back into the design and development process so that the users receive the best possible product. We will collect feedback from users throughout the development phase and use the feedback to optimise the product design. We will introduce the new product in 2019 in the UK and to export markets in 2020\.

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Participant organisation names	Project title	Proposed project costs	Proposed project grant
ENIAN LTD.	REPSCORE - Renewable Energy Performance Score	£154,364	£108,055
University of Edinburgh		£62,550	£62,550

Project description - provided by applicants
To meet future energy supply and Paris Agreement targets, the Renewable Energy share must double by 2030, requiring annual average investment of over $900 billion, considerably more than currently achieved ($286 billion in 2015). Analysis of 2016 IRENA and BNEF reports and extensive market consultation with renewable energy project developers, investors, support networks and leading renewable energy sector experts, has identified that one of the main challenges constraining investment in the RE sector is the ability to accurately calculate the return on investment of projects and thus determine a project's value as an investment proposition using data in a cost effective, time efficient way. The lack of sophisticated, data-driven tools to determine the 'bankability' of projects cost-effectively and time-efficiently, leaves renewable energy market uncertainties unaddressed, resulting in a lack of investment and a loss of opportunity for renewable energy project developers and services providers throughout the value chain. The proposed project seeks to develop a data-driven assessment tool, 'Renewable Energy Performance Score (REPSCORE)' which Enian Limited can use to more accurately, efficiently and cost effectively pre-qualify Renewable Energy projects for users (renewable energy investment and development teams operating globally) of their digital Deal Management and Collaboration Platform (DMCP). REPSCORE uses predictive algorithms to rapidly and accurately determine the economic and technological performance of projects to more efficiently and cost effectively pre-qualify projects on Enian's DMCP, radically enhancing decision-making for investors and accelerating the overall pace of capital deployment into renewable energy projects. Enian in collaboration with mathematicians from the University of Edinburgh (UoE), have developed a basic MVP (TRL3) model. This project will assess the feasibility of transforming the MVP into an automated web-based, data driven application (TRL5) to assess both operational and non-operational projects, and the feasibility of integration with Enian's DMCP. The algorithmic based automated means of renewable energy project qualification will reduce costs of data analysis; accelerate project assessment process, and improve decision making by reducing and quantifying uncertainty as well as reducing human error and bias =\> boosting private investment in renewable energy projects by ~20%. The project will deliver significant export led growth for lead applicant Enian, a substantial ROI, increased employment and further opportunity for R&D investment. Project partner UoE will gain crucial commercial knowledge to be applied to future R&D.

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Participant organisation names	Project title	Proposed project costs	Proposed project grant
MICREGEN LTD	MICREGEN – A novel therapeutic for treating necrotising enterocolitis (NEC)	£533,827	£373,679

Project description - provided by applicants
Awaiting clarity on public summary

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Participant organisation names	Project title	Proposed project costs	Proposed project grant
IOTECH SYSTEMS LIMITED	Edge-RealTime (Real-time Industrial Internet of Things (IIoT) Embedded Systems EdgeX Platform)	£489,012	£342,308

Project description - provided by applicants

The Internet of Things (IoT) is the inter-networking of physical devices, vehicles, buildings, and other items embedded with electronics, software sensors, actuators and network connectivity which enable these objects to collect and exchange data. While there is a clear understanding on the underlying needs and commercial opportunities for such technology, the corresponding clarity on how the business opportunities can be realised are still unproven. Broad adoption of IoT can only be achieved when the appropriate tools for systems development, deployment and management become available and so remove an important technical adoption problem.

The Linux Foundation has recently established the EdgeX Foundry: a vendor-neutral open source project building a common open framework for Industrial IoT (IIoT), edge computing. A key objective of the EdgeX Foundry project is to enable and encourage the rapidly growing community of Industrial IoT solutions providers to work together in an ecosystem of interoperable components to reduce uncertainty, accelerate time to market, and facilitate scale. By enabling the use of existing connectivity standards together with a marketplace of interoperable developer value-add it will simplify development and deployment of IIoT solutions in a wide variety of use cases.

The marketplace for the IIoT is multifaceted. IOTech has identified a market need for a real-time embedded systems equivalent of the EdgeX Foundry Platform. The 'Real-time IIoT Embedded Systems EdgeX Platform' (Edge-RealTime) will provide guaranteed real-time performance and a small system footprint so that it can be deployed in Programmable Logic Controllers, Programmable Automation Controllers and embedded microcontrollers.

The benefits that will accrue from this new platform are:

a) For companies who want to just be users of IIoT technology, it will provide a common, extensible, open, independent solution for real-time edge systems on which IIoT device, application providers and even end users can easily add their own value-add Intellectual Property in order to deliver new IIoT solutions to market more quickly. Therefore, the problem of how to use IIoT technology is removed and the focus becomes one of how to use IIoT for commercial benefit;

b) For companies who want to be developers of IIoT technology, this platform will enable them to create and manage their own devices and applications that support real-time IIoT systems. This will provide access to their target segment of the real-time IIoT marketplace, enabling these markets to use an interoperable solution, and so avoid vendor lock-in to proprietary forms of IIoT.

Innovate UK

Results of Competition: **Open Round 3 - 0 to 12 Months**

Competition Code: **1706_EE_OPEN_R3_12M**

Total available funding is £15M across all streams

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
HAYDALE COMPOSITE SOLUTIONS LIMITED	NanoTool - Nano-enhanced lightweight composite tooling	£159,075	£111,353
FORWARD COMPOSITES LTD		£153,328	£91,997
University of Central Lancashire		£49,757	£49,757
University of Sheffield		£50,623	£50,623

Project description - provided by applicants

Moulds for forming composite components can be made from ceramics, metals, composites or other materials such as fibreglass, high-density foams, machinable epoxy boards or even clay or wood/plaster. Tooling costs and complexity increase as the part performance requirements and the number of parts to be produced increase.

Composite tools are more easily constructed than metal tools and, because they are made from materials like those the composite manufacturer will use for the part, they can be made in-house and their properties are closely matched to that of the components that they are used to manufacture. But they are more vulnerable to wear and typically find service in low-volume production. However, several tools can be made with composite materials for less than the cost of a single hard tool, making larger volumes more cost effective. The thermal conductivity of the composite tools is lower than that of metal tools which means that heat does not transfer as readily through the tools and they take longer to heat up. This adds production time and cost. Composite tools are used widely in the automotive, aerospace and marine sectors.

Haydale Composite Solutions have developed prototype composite materials where the thermal conductivity of the laminated materials has been increased by modifying the resins using nano-fillers such as graphene. A masterbatch of the carrier resin with a concentrated level of nano-filler is prepared by Haydale in South Wales. The nano-fillers (graphene, CNTs or other fillers) are funtionalised for improved dispersion in the resin and improved adhesion to the resins using a low temperature plasma process. The masterbatch containing the concentrated functionalised fillers is then safe to handle in normal composite manufacturing processes.

Graphene is a multi-functional material with the potential to revolutionise the mechanical and physical properties of thermoset resins across transport, aerospace, construction, renewable energy, consumer goods and sports goods. This project aims to achieve significant improvements in manufacturing times through improvements in the mechanical and thermal properites of the composite materials for the auomotive sector leading to a reduction in energy consumption, greenhouse and toxic gas creation (CO2 and NOx) thereby supporting climate change targets and reductions in raw material use.

This project is a collaboration between Haydale Composite Solutions (HCS) based in Loughborough, Forward Composites (Forward) based in Huntingdon, University of Sheffield (UofS/AMRC) and University of Central Lancashire (UCLan) based in Preston.

Note: you can see all Innovate UK-funded projects here
https://www.gov.uk/government/publications/innovate-uk-funded-projects Use the Competition Code given above to search for this competition's results